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(54) **ERGONOMIC PILLOW**

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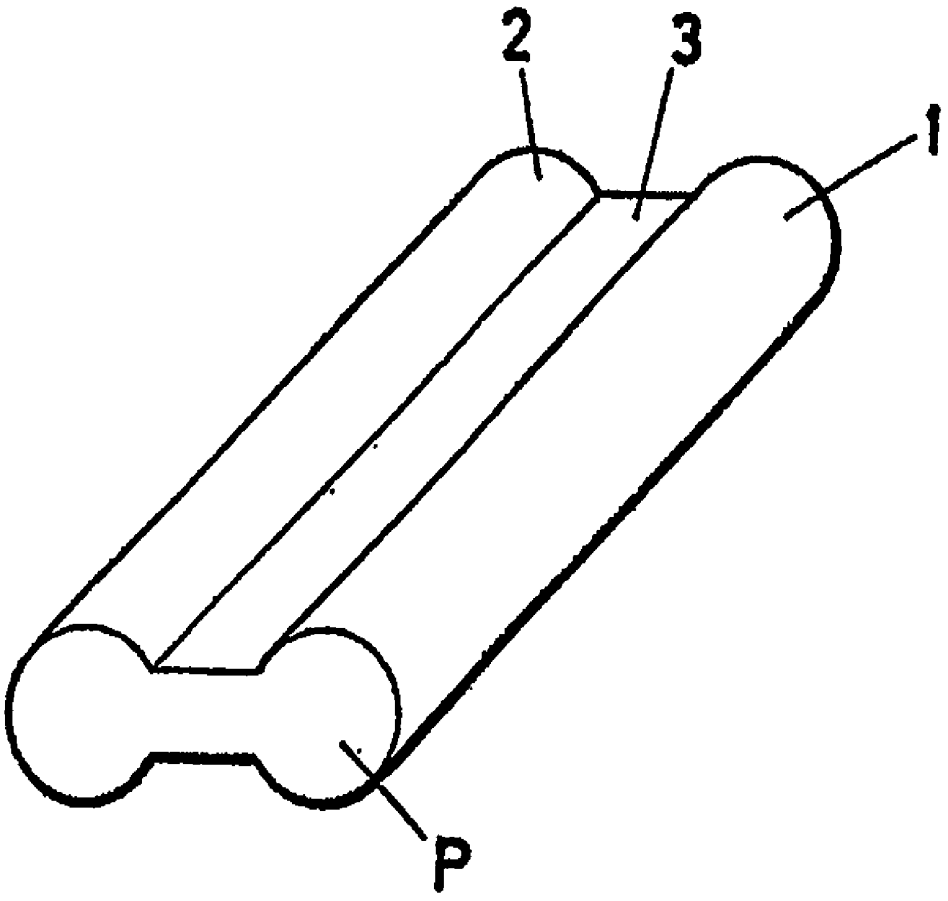
(57) **ABSTRACT**

The invention relates to an ergonomic pillow consisting of a body with a modular profile based on two cylindrical side sections and an intermediate prism-shaped section that is substantially smaller in height. The elasticity characteristics of the pillow are such that, when the user rests his/her head thereon in any position, equal pressure is applied over the entire contact surface. The inventive pillow can have a modular structure based on two basic elements, namely a half-pillow and a laminar section, the number and shape of which can be selected according to the desired elasticity and height.



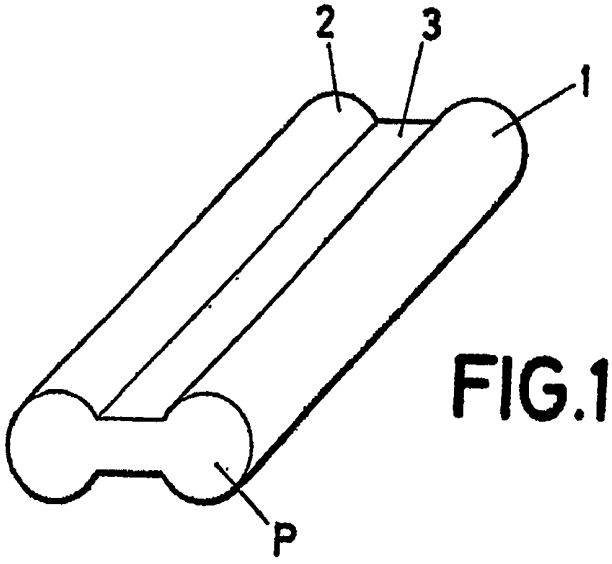


FIG.1

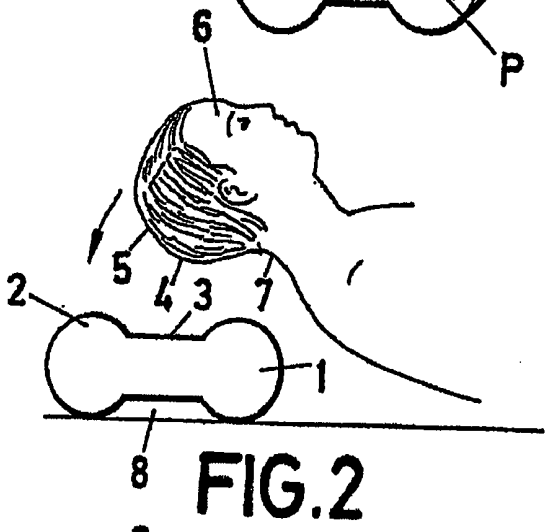


FIG.2

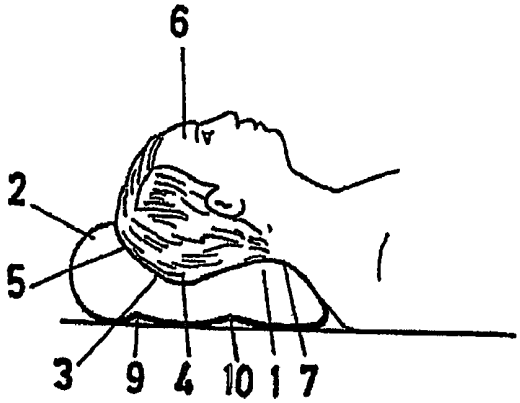


FIG.3

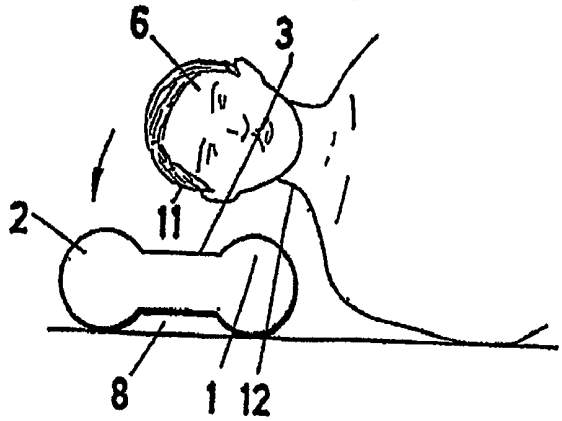


FIG.4

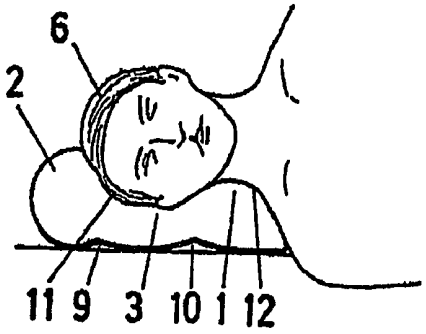


FIG.5

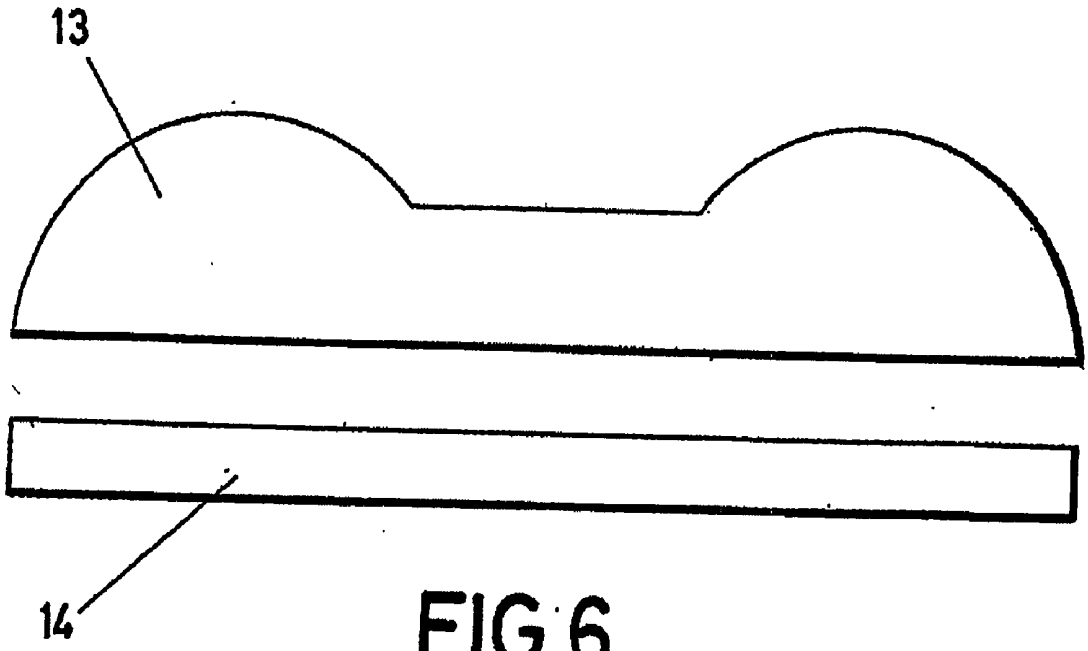


FIG.6

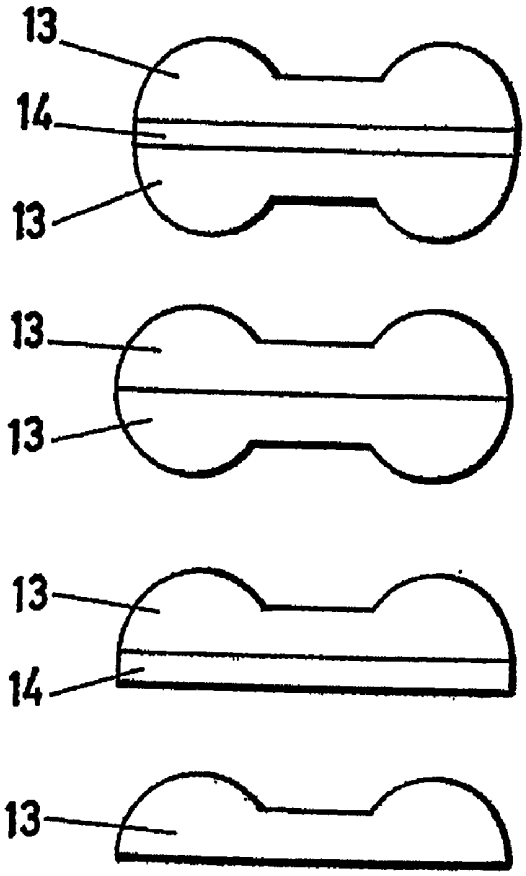


FIG.7

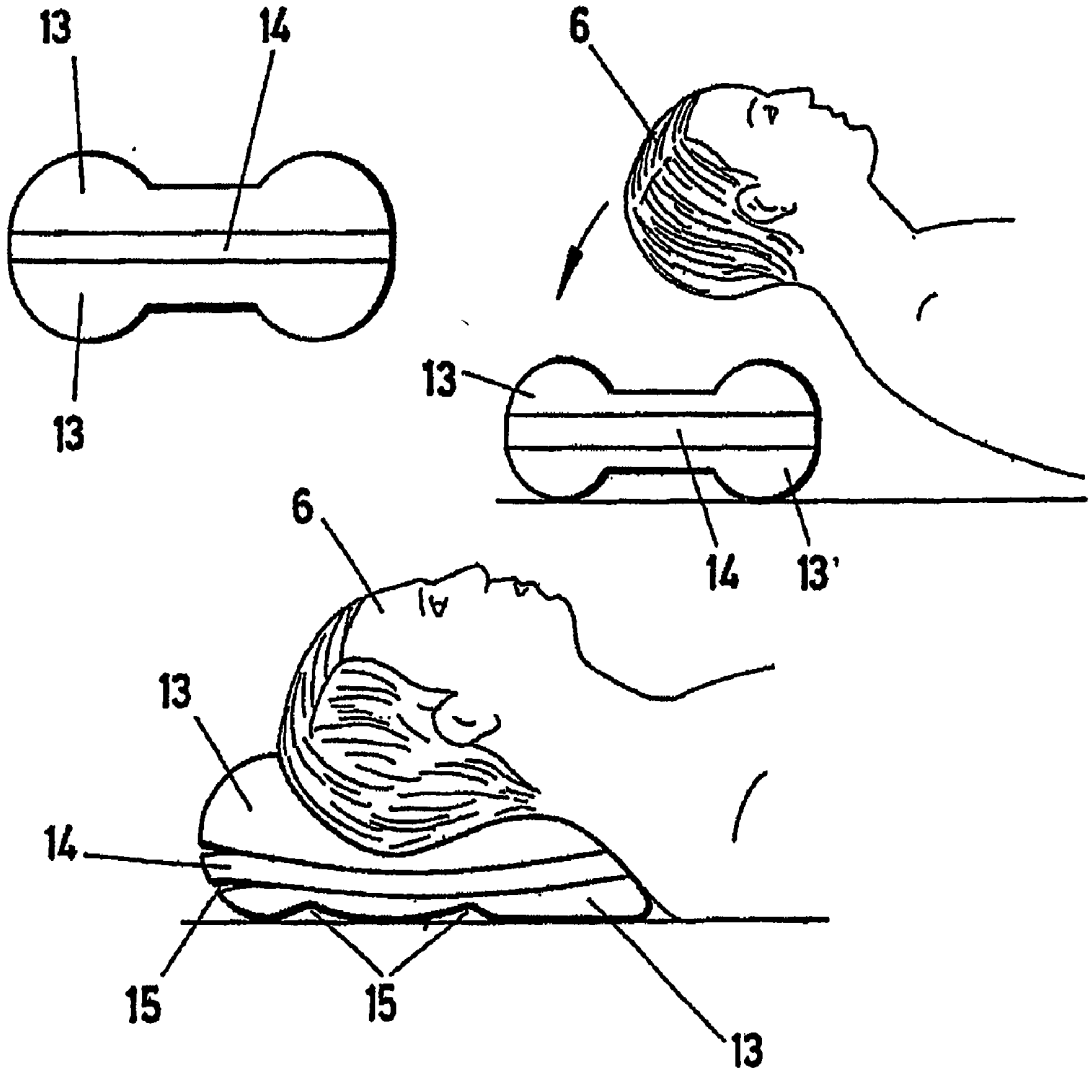


FIG.8

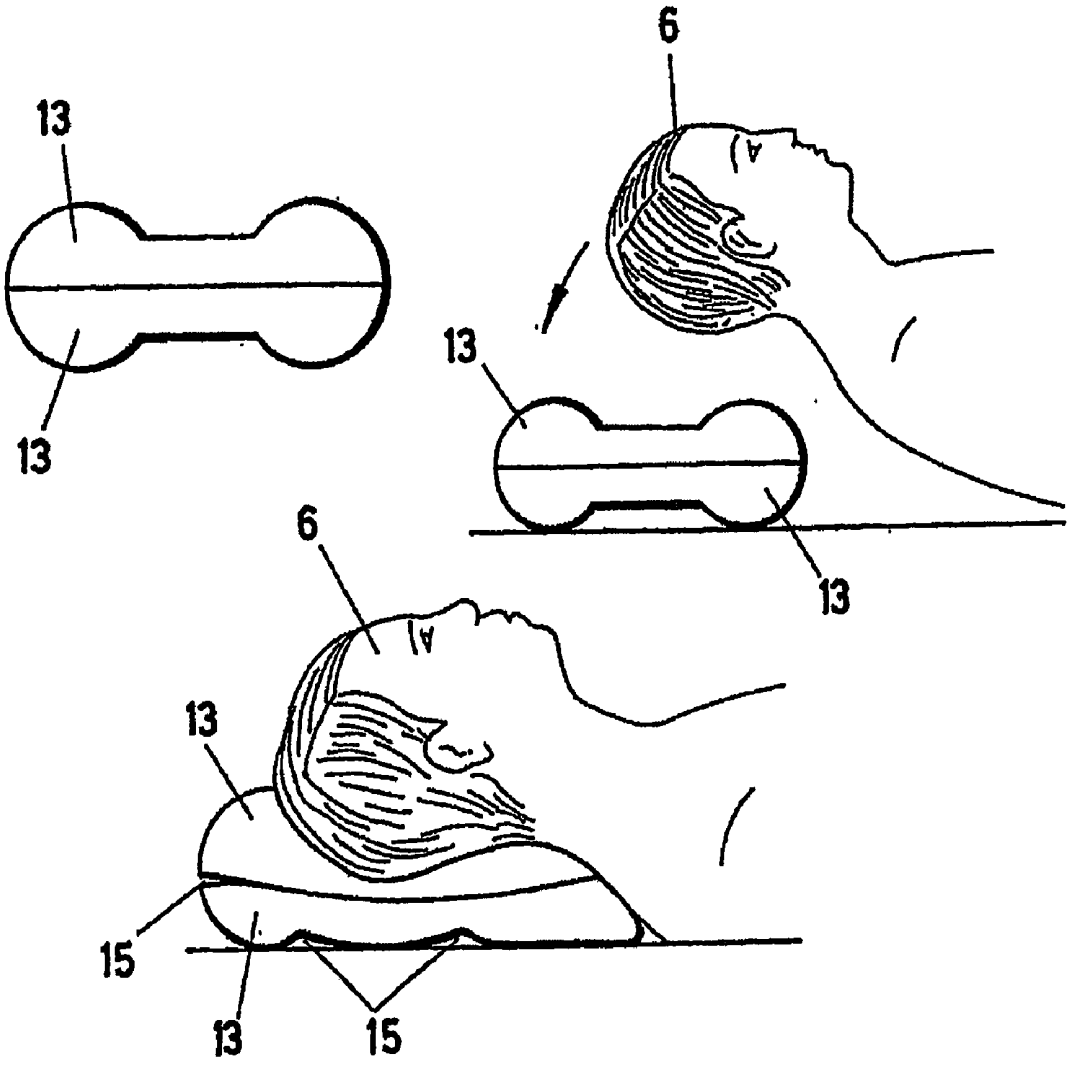


FIG.9

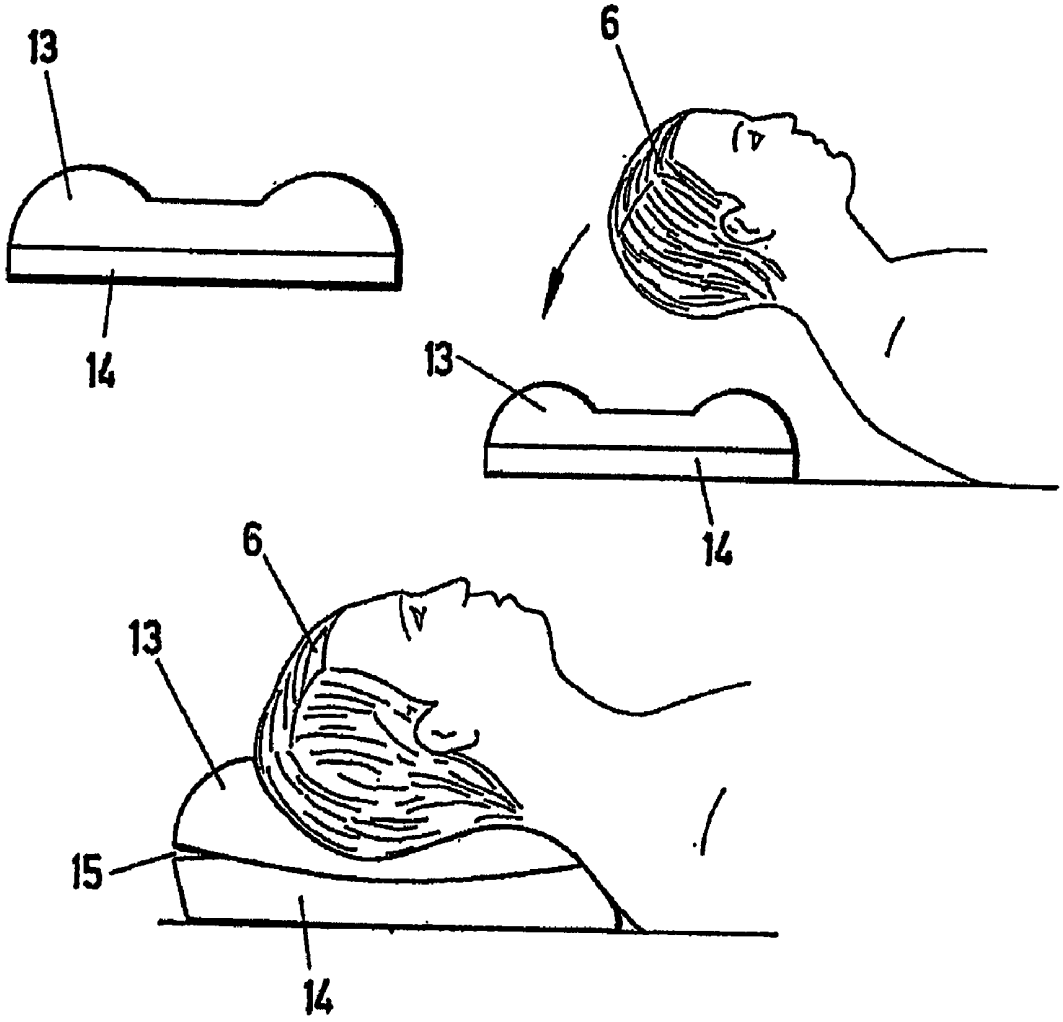


FIG.10

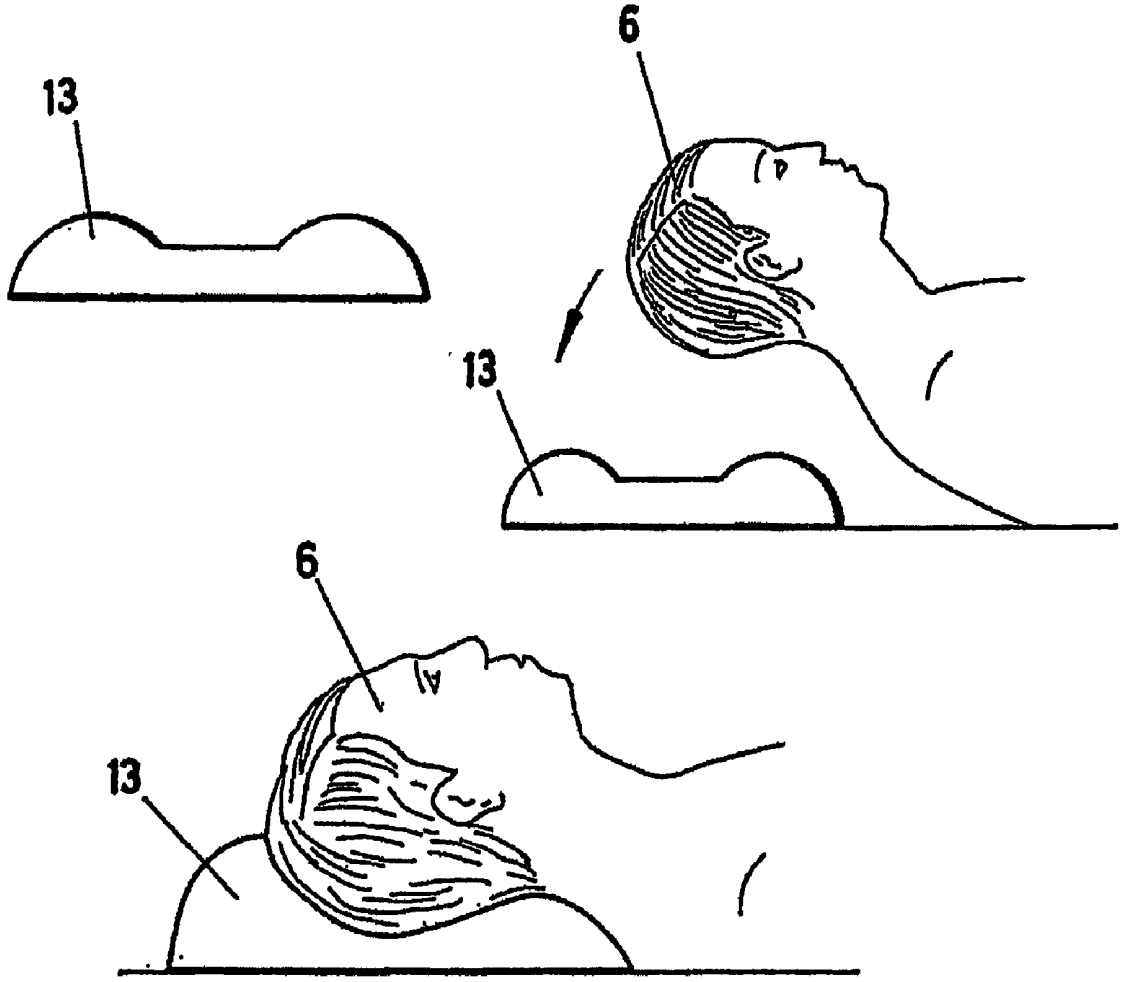


FIG.11

ERGONOMIC PILLOW

OBJECT OF THE INVENTION

[0001] The present invention refers to a pillow, which has been specially designed as a therapeutic element, in order to offer a suitable support base for the user head, neck and shoulders during the sleeping period.

[0002] The object of the invention is to provide a pillow which, besides offering the user an anatomical and ergonomic configuration for the correct body support thereof, it offers some optimum comfortable features which remain practically unchanged over time, which besides are maintained when the user changes the posture, that is, both if the user adopts a posture of dorsal support, as well as if he is laterally supported.

[0003] It is also an object of the invention to provide a pillow which can be configured by the user, derived from the basic defined element, as a function of the height, elasticity and economic possibilities.

BACKGROUND OF THE INVENTION

[0004] As is already known, normal pillows adopt an elliptical section, which is hardly ideal for providing a proper anatomical support and an alignment of the head and the vertebral column, precisely in the cervical area that is around the neck, in such a way that they provide a sufficient support to the user during the sleeping period.

[0005] The head support on this type of pillow is generally irregular and may lead to a varying degree of discomfort, and an exacerbation of the previously existing injuries in the cervical area of the spine.

[0006] Deficient support during sleep may give rise to headache, pain in the neck, back pain and other discomforts of a muscular nature.

[0007] This is due to the fact, as is also well known, that the human cervical spine is not straight, but forms a lordotic curvature due to the trapezoidal profile of the neck vertebrae. The seven vertebrae of the cervical area of the spine, which are linked through six mobile connections, produce a moderate curve. Degenerative changes as a result of ageing tend to compress the vertebrae causing arthritis and other illnesses. The flexions of the neck an/or extension damages cause swelling of the tissue on which the nerves emerging from the intervertebral spaces may act thus causing pain.

[0008] During sleep, an abnormal position determines inadequate support of the neck and the head, which may lead to the above mentioned problems, derived from an excessive flexion, a relatively heavy rotation or extension of the head, etc. During sleep, these postures, including the positions of "chin tucked into chest", may lead to damage, twisting or irritating the cervical area of the spine, thus damaging the neck and causing rigidity thereof or considerable headaches on waking, even in individuals who otherwise enjoy excellent health. It is estimated that up to 70% of headaches originate in the neck and shoulder area for various reasons, and in which inadequate sleeping habits play a basic part.

[0009] Traditional pillows are frequently either too thick and too high, provoking the above mentioned posture of "chin tucked into chest" and excessive flexing of the cervical section of the spine, or either too low and too soft, leaving the head and the neck without lateral and vertical support. Traditional pillows do not offer any structural adaptability in order to compensate these support differences.

[0010] In order to try to obviate this problem, pillows have been designed with a special configuration to this end, as for example the one described in the Spanish utility model 202.125, which the front half of which is raised in a soft curve, in relation to the back half, which is slightly flattened and less high. The object of this pillow is to provide an appropriate support for the head and the cervical section of the spine, guaranteeing an appropriate alignment of these elements and avoiding stressed positions and, therefore, different tensions which are produced by inappropriate positions during sleep.

[0011] The practical use of this pillow is limited by deformation of the comfort profile, tending to flatten out totally, with the attendant discomfort which this presupposes for the user, who when sleeping, unconsciously changes the position on the pillow, losing the arch which supports the cervical area, which defeats the advantages provided by the pillow.

[0012] In addition traditional pillows do not offer any type of adaptability in order to adapt the support to the specific anatomical characteristics of the user or to the changes of the sleeping surface. In spite of being able to select a pillow in a wide range of material and compactness, in general pillows are only offered with a single size configuration. The fact is that an athlete's constitution differs considerably from that of a child or an elderly person. The width of the shoulders, the size of the head and the size of the neck may vary enormously between individuals. A pillow that provides a support and an adequate height for the head of a small girl sleeping on her side, probably, would not provide support or adequate height for a muscular male athlete who sleeps on his side, with a broad shoulder width, and rises his head higher from the sleeping surface. Similarly, some individuals like to sleep on their sides while others like to sleep on their backs or face downwards. Each of these positions places the head in a different position and at a different height from the sleeping surface.

[0013] In fact, since the head position needs to adapt to the conditions of the pillow, it also would have an effect on the on the position of the vertebral column and, more precisely, of the cervical area, according to the volume and compactness qualities of the pillow which we are using.

[0014] Taking into account the considerable number of hours we sleep daily as well as other possible alternative rests or naps we may take, if the position adopted for the head on the pillow does not permit this delicate area of our vertebral column to remain in a suitable position, we are highly likely to suffer the consequent disorders, as a result of remaining in awkward or inadequate postures for long periods.

[0015] Just some of the disorders which can occur, which due to pillows which are too soft or low or excessively hard or high, include a feeling of having slept badly on getting up, as well as neck and shoulder discomfort, headaches, muscular contractions and dizziness, circumstances which may be attributed to some organic dysfunction when, in fact, it is a simple consequence of using an inappropriate pillow.

[0016] In acknowledgment of these inappropriate features, specialised pillows have been designed for the treatment of

cervical disorders and, despite the fact that their use diminishes the problem somewhat, it is no less important to try to obtain a pillow line which avoids cervical disorders, endeavouring to ensure that the normal use of our pillow never leads to trauma of this kind.

[0017] With this purpose patents are known which describe several technical solutions to the stated problems in order to provide an adequate support for the neck and the head during specialised medical treatment, with pillows which have defined structures, which is insufficient characteristic to provide significant support and comfort options required for the anatomical variety of users and the sleeping preferences of the public in general during normal sleep.

DESCRIPTION OF THE INVENTION

[0018] The ergonomic pillow in this invention resolves in a completely satisfactory way the above-mentioned problems, providing better support for the head and neck during the sleeping period, features which are maintained regardless of the body position of the user over the pillow, which permits a constant isobaric contact and therefore, the reducing by 80% unconscious turning in an effort to achieve a better position, producing a considerable increase in the comfort during sleep.

[0019] Therefore and in a more specific way, said ergonomic pillow has a body defining cylindrical and equal sections, related one another by means of an intermediate and prismatic section, which is considerably lower, in such a way that the pillow forms a reversible element, that is, either of its surfaces may be used indiscriminately. The cylindrical section closer to the user's body acts as a resting area for the neck itself, either when this is located in dorsal decubitus position or when it is in a lateral decubitus position, while at the same time in both positions the prismatic and intermediate sections act as support surface for the head, support that not only is bendable by the own elastic contraction of the material which forms the pillow, as it happens at the level of the cylindrical section, but besides it is also bendable by its own flexibility, by means of a bulging effect.

[0020] In addition, this bulging effect in the prismatic and intermediate section of the pillow gives rise, when the pillow is in use to a pair channels in the lower surface of the pillow basically of triangular section, between the prismatic section and the cylindrical section, which permits generation of convection currents which help to dissipate the heat generated by the user's body.

[0021] According to another characteristic of the invention the pillow may be shaped by the user in respect of his/her elastic response and height, which definitively determines its more adequate use according to taste or requirements, thus with the invention in this case, providing the pillow in question with more or less firmness and personalised support for the head and neck during sleep.

[0022] To this end, and in a more precise way said pillow is structured starting from defined sections or basic structures.

[0023] The first of these is the external section or half-pillow, which is formed sectioning said ergonomic pillow through its horizontal symmetric axis.

[0024] The other basic structure is formed by a rectangular laminar section of smaller height than the previous one.

[0025] The selection and apposition of these sections in number and form is based on the taste and desires of the user, which gives rise to four basic configurations or sizes.

[0026] The external upper section acts as a support surface for the head and neck and the corporal weight itself produces its own distortion through elastic contraction of the pillow structural material, this distortion is equally produced in all the juxtaposed sections.

[0027] This elastic distortion effect in the juxtaposed sections results in the generation on the contact surfaces between these sections, channels which allow the generation of convection currents which help to dissipate the body heat generated by the user.

[0028] The sections have a consistency which changes according to the material from which they are made, depending on the basis of cost, two material classifications. The first one of these or high quality material, includes more expensive material which may be feather, cellulose padding, hollowed fibre, related polyurethane or any other traditional material which provides similar characteristics.

[0029] The second group of materials or basic material, comprises cheaper materials such as polyurethane or similar, which will be mainly used in the laminar sections.

[0030] The combination of these materials allows the existence of multiple priced pillows, that is, pillows which have the same modular configuration and with a price range providing a choice for the user, who is able to select a customised pillow with the desired size and the price.

[0031] The incorporation of the laminar sections will enable the pillow to recover its initial volume shaped by the user, once the elastic deformation to which it is subjected continued use decreases or deforms the selected shape, which prolongs its durability.

DESCRIPTION OF THE DRAWINGS

[0032] In order to complete this description and with the object of providing a better understanding of the characteristics of the invention, according to a practical example of the preferred embodiment thereof, this description is accompanied by a set of drawings which form an integral part of said description, and which are illustrative and not restrictive in any way, represented as follows:

[0033] FIG. **1**. Shows, according to a schematic representation in perspective, an ergonomic pillow made according to the object of the present invention.

[0034] FIG. **2**. Shows a profile of the pillow as in the previous figure, close to which the user's body is depicted, in the position of dorsal decubitus, immediately prior to resting the head on the pillow.

[0035] FIG. **3**. Shows a similar representation as in FIG. **2**, with user' head resting on the pillow.

[0036] FIG. **4**. Shows a similar representation to FIG. **2**, but in which the user appears in lateral decubitus position.

[0037] FIG. **5**. Shows a similar representation as in FIG. **3**, in the same position of lateral decubitus as in FIG. **4**.

[0038] FIG. 6. Shows a profile of the basic sections forming the pillow when it is modular.

[0039] FIG. 7. Shows a profile of the different combinations which can be obtained using the basic modules.

[0040] FIG. 8. Shows a profile of a modular pillow of maximum basic load, with a detail of the user in dorsal decubitus position, immediately before resting his head on the pillow and once the user has rested his head on the pillow.

[0041] FIG. 9. Shows a similar representation as in the previous figure, but corresponding to a pillow of medium basic size.

[0042] FIG. 10. Shows a similar representation as in FIGS. 8 and 9, but corresponding to a pillow of lower basic size.

[0043] FIG. 11. Finally shows a similar representation as in FIGS. 8, 9 and 10, but corresponding to a pillow of minimum basic size.

PREFERRED EMBODIMENT OF THE INVENTION

[0044] In view of the aforementioned figures and in particular that of FIG. 1, it is possible to see how the ergonomic pillow proposed in the invention has a profile showing two lateral sections (1-2) of cylindrical configuration, equal to each other, linked one another by an intermediate section (3), with prismatic configuration, of a height perceptibly smaller than the cylindrical sections (1), forming a one piece set of a material with appropriate elasticity characteristics.

[0045] When the user utilises the pillow in a dorsal decubitus position, such as that shown in FIGS. 2 and 3, he/she rests his/her head (6) in such a way that the part corresponding to the neck (4) rests on the prismatic section (3), and the occipital area (5) rests on the proximal half of the cylindrical section (2), and the cervical area (7) rests on the cylindrical section (1), to which it is comfortably adapted.

[0046] The user's body weight makes the lower channel (8) which is initially defined by the smaller height of the prismatic section (3) than the cylindrical section (1) and (2), produce a deformation until it enters into contact in its middle area with the support surface of the pillow, defining with aside surface, following its bulging, a pair of ventilation channels (9) and (10), through which convention currents are produced which assist in dissipating the heat generated by the body.

[0047] The pillow continues to fulfil its ergonomic function when the user is resting in the lateral decubitus position shown in FIGS. 4 and 5, that is, when supporting its parietal area (11) on the prismatic section or plane (3) and on the cylindrical section (2), at the same time that the lateral area (12) of the neck rests on the cylinder (1), also increasing the support surface, which leads to a reduction of head pressure, precisely when resting on the pillow up to the area of the start of the shoulder and avoiding the appearance of hollows which hinder full rest, as is illustrated in particular in FIG. 5.

[0048] As may be deduced from the foregoing, the ergonomic pillow proposed by the invention constitutes a very positive expectation for all those patients affected by cervical disorders, snoring, insomnia, and in general those who are obliged to remain in bed for long periods.

[0049] On the other hand as has been mentioned previously, the pillow may present a modular structure, as shown in FIGS. 6 to 11, in order to be able to obtain, based on a series of basic elements, different multi-size, customised pillows. In a more precise way two different sections have been provided as conformation modules of the pillow, one shown in FIG. 6 and with reference numbers (13) and (14), the first of which is formed on the basis of sectioning the pillow through its horizontal symmetrical axis as in FIG. 1, while section (14) is implemented in one rectangular sheet of smaller thickness than the previous one.

[0050] The combination of the sections described enables the definition through their connections four basic sizes for use as shown in FIG. 7, with the user selecting in each case the modules or sections to be connected and formed on the basis of the height and the desired elasticity.

[0051] The half-pillows (13) or sheets (14) may be formed by a high quality material or basic material, the first including more costly materials which may be feather, cellulose padding, hollow fibre, related polyurethane or any other traditional material which provides similar characteristics, the basic material, is formed by cheaper material such as polyurethane or similar, which will be largely used in laminar sections.

[0052] The combination of these materials permits the existence of multiple price pillows, that is, pillows which have the same modular shape and with different prices once the user selects the desired combination of materials to be used for each of the selected sections.

[0053] The use of different materials provides the user with a wide range of modular combinations according to preference, thus achieving the desired elasticity.

[0054] The ergonomic pillow proposed in the invention presents a definite profile through juxtaposition of half-pillows and laminar section selected by the user, in which for FIGS. 8, 9, 10 and 11 half-pillows sections are established, linked or not by a laminar section, forming a one piece set, of one unique material or various materials selected for each section by the user.

[0055] When the user utilizes the pillow in dorsal decubitus position, the head rests (6) in such a way that the head and neck are resting on the upper half-pillow (13), which is elastically distorted by the body weight, making the pillow as a whole receive a distortion due to the elastic contraction of the structural material, this distortion is similarly produced in all the existing juxtaposed sections, defining after their bulging, ventilation channels (15), through which convection currents are produced which help to dissipate the heat generated by the body.

[0056] For shapes where half-pillows are defined for the two sides of the pillow, this may constitute a reversible element which may be used indiscriminately on either of their surfaces.

[0057] Furthermore the useful life of the comfort profile of the pillow is multiplied, the pillow being reversible both in longitudinal direction as well as in angular direction.

[0058] The incorporation of the laminar sections will facilitate the pillow's recovery of the initial volume desired

by the use once the elastic distortion to which it is subjected by continuous use decreases or distorts the selected shape.

[0059] As may be deduced from the foregoing, the adaptability and modularity characteristics of the present invention provide a customised comfortable support for the head and the neck covering a wide range of body types in order to facilitate an ideal posture so that the cervical spine is in an anatomical neutral position. In an anatomically neutral position, the cervical spine is located and supported in an alignment and adequate curvature avoiding in this way any flexion, rotation or excessive extension of the user's head and neck, and facilitating comfort, security and improved sleep.

[0060] For the proposed purposes, the materials and means offered by the latest technology have been used, providing the market with a product which collaborates in achieving revitalizing rest for its users, slightly increasing their energy, their working capacity and, furthermore, making a positive contribution to their personal wellbeing.

1. Ergonomic pillow, characterized in that it has a body in which three sections are defined, two lateral sections (**1-2**), cylindrical and equal to one another, and an intermediate section (**3**), rectangular-prismatic and lower in height than the lateral sections, in such a way that between the body of the pillow and the support surface thereof a wide channel (**8**) is defined which separates the prismatic section of the support surface, both in a given position of the pillow as well as in its reverse position.

2. Ergonomic pillow, according to claim 1, characterized in that the intermediate and prismatic section (**3**) is distorted by bulging, providing an additional elasticity to the pillow to the one generated by the material employed in the manufacturing thereof.

3. Ergonomic pillow, according to the previous claims, characterised in that in use position thereof and after the distortion by bulging of its prismatic and intermediate section (**3**), between the pillow and the support surface two ventilation channels (**9-10**) are defined allowing convection air current to pass through it.

4. Ergonomic pillow, according to claim 1, characterised in that it adopts a modular structure based on two basic elements, one (**13**) of which consists of a half-pillow, which is formed by sectioning by the symmetrical axis of an ergonomic pillow, according to claim 1 and a second laminar element (**14**), of rectangular profile.

5. Ergonomic pillow, according to claim 4, characterised in that the basic elements (**13-14**) have a consistency which changes according to the material it comprises which may be feather, cellulose padding, polyurethane or any other appropriate traditional material.

6. Ergonomic pillow, according to claims **4** and **5**, characterised in that it is formed by means of the connection of the desired basic elements (**13-14**), selected in number and shape based on the desired height and elasticity, as well as the composition thereof.

7. Ergonomic pillow, according to claims 4 to 6, characterised in that the upper half-pillow (**13**), where the head and neck of the user rests, creates a distortion in the pillow as a whole due to the elastic contraction of the structural material, which is equal in all the juxtaposed sections, producing by means of bulging, ventilation channels (**15**) for convection currents.

8. Ergonomic pillow, according to previous claims, characterized in that it is reversible both in its longitudinal and annular sections, allowing its use by means of support on either of its two larger surfaces.

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