

(19)



(11)

EP 2 575 721 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

11.02.2015 Bulletin 2015/07

(51) Int Cl.:

A61G 5/12 (2006.01)

A47C 7/02 (2006.01)

(86) International application number:

PCT/IB2011/052282

(21) Application number: **11729714.3**

(22) Date of filing: **25.05.2011**

(87) International publication number:

WO 2011/148329 (01.12.2011 Gazette 2011/48)

(54) **POSTURAL SYSTEM**

HALTUNGSKORREKTURSYSTEM

SYSTÈME POSTURAL

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **26.05.2010 IT TO20100442**

(43) Date of publication of application:

10.04.2013 Bulletin 2013/15

(73) Proprietor: **PRO Medicare S.r.l.**

72023 Mesagne (BR) (IT)

(72) Inventor: **CAFORIO, Rosaria, Eugenia**
I-72023 MESAGNE (BR) (IT)

(74) Representative: **Robba, Pierpaolo et al**
Interpatent S.R.L.
Via Caboto 35
10129 Torino (IT)

(56) References cited:

WO-A1-95/33396 GB-A- 2 102 283

US-A- 4 718 727 US-A- 5 333 921

US-A- 5 343 876 US-A1- 2010 058 540

EP 2 575 721 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Technical field of the Invention

[0001] This invention relates to a postural system.

[0002] In particular the postural system according to the invention may be used by non-ambulant or partly-ambulant persons and is designed to be fitted on or be an integral part of medical support devices for mobility, such as manual and/or electronic carriages, medical devices for rehabilitation and social or domestic life, such as bases with or without wheels for institutional and/or school use.

[0003] However, the postural system according to the invention may advantageously also be used by people who are able to walk properly in combination with chairs, seats, benches and similar articles - as a separate and removable article or as an integral part thereof - to ensure correct posture in the sitting position. In particular it may also be advantageously used in transport means.

Prior Art

[0004] The sitting position is influenced by many factors, the first among which is the force of gravity. Other factors are to be found in the kinetic and kinematic system of the human body, and in the sensory and perceptive system which define posture as a dynamic and non-static posture.

[0005] In individuals who are capable of maintaining a sitting position by themselves self-control mechanisms which depend on the interaction of three sensory systems (perceptive system, processing system and actuator system) are involved and make it possible to react to external stimuli, even if the reaction may not always be perfectly correct and timely. The problem of maintaining correct posture arises even more keenly in the case of persons who are affected by diseases deriving from damage to the central nervous system, whether genetic or acquired, in that in these cases the self-control mechanisms are not always able to act.

[0006] Some diseases deriving from damage to the central nervous system also result in changes in body structure, such as for example asymmetry of the pelvis in the frontal, sagittal and transverse planes, which in turn give rise to asymmetries in the lower limbs and/or deformity of the spine, and consequently give rise to limitations in basic body functions such as respiration, swallowing, communication, and so on.

[0007] In persons affected by diseases of this type a correct sitting position can only be achieved through external support systems which contain different segments of the body.

[0008] In particular, from the biomechanical point of view the part of the body which is of primary interest for a balanced and functional sitting position is the pelvis. It is known from scientific studies that the orientation of the sacrum in space and the angle of the pelvis determine

the load on the entire spine, and therefore between the intervertebral discs, causing problems to arise in the spine.

[0009] It is therefore essential that postural systems for persons affected by diseases of this kind ensure correct support and containment for the pelvis.

[0010] It is obvious that in order to obtain the said correct support and containment for the pelvis it is necessary to bear in mind the particular morphology of individual persons, in particular the special morphology of their pelvises.

[0011] For example, from an anatomical point of view, there are structural and dimensional differences in the pelvis between men and women, which although small in infancy become significant after the tenth year of age. More generally it is desirable that a postural system that is suitably shaped and sized on the basis of their specific anatomical conformation can be provided for individuals.

[0012] However, the construction of bespoke postural systems deliberately designed for individuals is impractical in that this would require a complex and costly production process, which would result in virtually inaccessible prices for the final product.

[0013] It must also be borne in mind that a person's morphology is not fixed and unchanging, but can undergo major changes, particularly during the age of growth, but also subsequently thereto.

[0014] Thus even a bespoke postural system would not be able to ensure correct support and containment of an individual's pelvis over the course of time. Modular systems which include accessories together with a basic postural system which can be removably associated with the aforesaid basic postural system so as to partly modify its shape are known from the state of the art.

[0015] Examples of such known postural systems can be found for example in documents US 5,333,921 and WO 95/33396.

[0016] However, in postural systems of the type described in the abovementioned documents the basic postural system has already in itself its own conformation shaped on the basis of a predetermined and unmodifiable model and removable accessories can only superficially change that shaped conformation.

[0017] As a consequence these known devices are unable to remedy the technical problem mentioned above, in that they cannot conform and dimension the postural system on the basis of the specific anatomical conformation of individuals.

[0018] Document GB 2,102,283 describes a support for physical and rehabilitation exercises, in particular for disabled children, this support having a modular structure.

[0019] However the modularity of the support described is designed not so much to adapt to users with different morphological characteristics, but for the performance of different types of physical and rehabilitation exercises. Thus the descriptive support does not resolve the technical problem of ensuring correct support and

containment of the user's pelvis. In addition to this, although it has a modular structure, this support does not adopt a sufficient variety of sizes and conformations to adapt to the anatomical conformation of all individuals.

[0020] US 5 343 876 discloses a postural system comprising a flat base board and a plurality of modular, customizable support blocks attached thereto, thus forming a customized modular supporting structure.

[0021] Such postural system allows to support the anus and relieve the load on the sphincter muscle and it can further allow to relieve the pressure on the ischial tuberosity and on the coccyx.

[0022] However, the postural system disclosed in US 5 343 876 can not provide for correct containment, suspension and anterior, lateral and posterior control of the user's body.

[0023] The object of this invention is therefore to overcome the disadvantages of the prior art, providing a postural system that can provide the user with correct support and can be personalised according to the user's morphological characteristics.

[0024] Another object of this invention is to provide a postural system which can be easily modified to adjust to the morphological variations which can occur in users over the course of time.

[0025] Another object of this invention is that of providing a postural system which can be produced through a simple and economical manufacturing process so that a final product can be supplied at competitive prices. This and other objects of this invention will be accomplished through a postural system as claimed in the appended claims.

Disclosure of the Invention

[0026] Because of the fact that the postural system according to the invention is of a wholly modular nature and provides a supporting structure comprising a flat base plate, preferably made of damping and antivibration material, and a plurality of shaped blocks, it is possible to achieve perfect adaptation to the user's shape and encourage perfect housing of the body and correct weight distribution over the entire surface area of the seat.

[0027] In particular, the base supporting the user's body is already itself of a modular structure, which can be modified according to requirements, in particular according to the user's shape.

[0028] In particular, the said blocks can be shaped through cutting, removal of material, pressing or similar processing. They are also provided with means for being removably and reversibly coupled to the said base plate and to one another.

[0029] Advantageously, according to the invention, the number, shape and arrangement of the said shaped blocks may be selected in such a way as to conform perfectly to the user's structural shape.

[0030] Again according to the invention, the number, shape and arrangement of the said shaped blocks can

be easily modified in relation to changes which may affect the user's shape with the passage of time.

[0031] According to requirements, the supporting structure of the postural system according to the invention may permit the pelvis (at all lateral and posterior support points), the coccyx, the sacrum, the lumbar vertebrae, the thoracic vertebrae and the remainder of the user's spine to be correctly accommodated.

[0032] According to a preferred embodiment of the invention, the modular postural system provides a supporting structure comprising:

- a flat base plate;
- a first plurality of modular blocks to form a modular base;
- a second plurality of modular blocks to accommodate the user's legs;
- a third plurality of modular blocks to accommodate the user's pelvis; and, possibly
- a fourth plurality of modular blocks to accommodate the user's spine.

[0033] The postural system according to the invention also comprises a padding system capable of being placed on top of the abovementioned supporting structure.

[0034] Advantageously, according to the invention, the said padding system is also modular and comprises a plurality of variably combinable padded cushions.

[0035] The postural system according to the invention may also comprise accessory devices such as for example a device for accommodating and supporting the user's shoulders and head, the said accessory devices preferably in turn having a modular structure.

[0036] Advantageously, the postural system according to the invention may be provided in kit form comprising the aforesaid base plate and a large number of modular blocks of different shapes and sizes, in such a way that the blocks having the most appropriate shape and size in relation to the user's conformation and requirements can be selected and the blocks so selected can be assembled onto the said base plate.

Brief description of the drawings

[0037] Further advantages and characteristics of this invention will be apparent from the following detailed description of some preferred embodiments of the invention provided by way of non-limiting examples with reference to the appended drawings in which:

- Figures from 1a to 1d show successive configurations of the modular construction of the supporting structure of the postural system according to a first embodiment of the invention;
- Figure 2 shows a configuration similar to the configuration in Figure 1d in a variant construction of the said first embodiment of the invention;

- Figure 3 shows a further configuration of the modular construction of the supporting structure of the postural system according to a second embodiment of the invention;
- Figure 4 shows the supporting structure in Figures 1a-1d provided with a padding system according to the invention;
- Figure 5 shows the supporting structure in Figure 3 provided with a padding system according to the invention;
- Figure 6 shows a further configuration of the modular construction of the supporting structure of the postural system according to a

third embodiment of the invention.

Detailed description of some preferred embodiments of the invention

[0038] Figures from 1a to 1d show successive configurations of the modular construction of a postural system according to the invention.

[0039] In general the said postural system provides a supporting structure having a modular structure and comprising a base plate and a plurality of shaped blocks through which the body can be perfectly accommodated with a correct weight distribution over the entire surface of the seat.

[0040] Figure 1a illustrates the base plate 10 for the said postural system.

[0041] Said base plate 10 is a flat plate and can be manufactured from plastics, metal or composite material. During the stage of delivery to the final user the said plate may be easily modified, for example by cutting, in order to achieve the desired shape and size.

[0042] Said base plate 10 has a bottom surface provided with coupling means which can be used for coupling to a carriage having a base with or without wheels for institutional and/or school use or with a plate suitably designed to permit the coupling of possible accessories.

[0043] The said base plate also has a top surface provided with coupling means 12 for coupling to the said modular blocks.

[0044] Said coupling means 12 may for example comprise coupling systems with binder blocking systems and/or male and/or female fastener tapes.

[0045] In Figure 1b a first plurality of modular blocks 20a-20f are coupled to base plate 10 to produce a modular base, generally indicated by reference 20.

[0046] Said modular base 20 has the function of preventing slipping of the hips, which also may be asymmetrical, and maintaining equilibrium of the legs/pelvis relationship system.

[0047] Modular blocks 20a-20f are made of plastics or composite material, are pre-shaped and can be adapted through cutting, removal of material or other similar processing.

[0048] Each of said modular blocks 20a-20f are provided on their bottom surfaces with coupling means for coupling to flat base plate 10. Each of these is also provided with coupling means 22 on its top surface for coupling to a further plurality of shaped blocks which are used to position and guide the legs individually, and will be described below.

[0049] Said coupling means 22 may for example comprise coupling systems with binder blocking systems and/or male and/or female fastener tapes.

[0050] In the construction of modular base 20 the said modular blocks are placed in two rows, on the left and right respectively of base plate 10.

[0051] If the postural system is intended for a user having legs of different length, each of the said rows can be dimensioned according to the length of the corresponding leg by removing one or more of said blocks 20a-20f on either side, and then subsequently cutting base plate 10.

[0052] If the postural system is intended for a user having a pelvis which is rotated to the right or left in the frontal plane, each of the said rows may be positioned along the length of base plate 10 at different levels so that each of the two rows of blocks 20a-20f can provide an obstacle against slipping of the hips in a differential way.

[0053] If the postural system is intended for a user having bowed and/or dislocated legs, each of the said rows can be fixed to base plate 10 in an off-centre and/or oblique way with respect to the supporting plane thereof.

[0054] If the postural system is intended for a user with outwardly rotated legs, each of the said rows may be fixed to base plate 10 in a divaricated way with respect to the longitudinal median line of the base plate.

[0055] It is obvious that from what has been described above that modular base 20 may adopt different configurations to match the shape characteristics of the user and that these configurations may be modified in the course of use in relation to changes in the structure of the user's shape or other needs.

[0056] It is also obvious by merely using a modular structure of the type described above for modular base 20 the invention makes it possible to overcome the problems in the prior art and to accomplish the objects specified above.

[0057] In a variant of the embodiment illustrated, each of the two rows of modular blocks 20a-20f may be provided with a lower matchingly-shaped member, also having a modular structure, which will encourage anterior-posterior equilibrium of the pelvis.

[0058] In Figure 1c a second plurality of modular blocks 30a-30d is applied to modular base 20 to provide a modular system for accommodating the user's legs, generically indicated by reference 30.

[0059] Modular blocks 30a-30d are manufactured from plastics or composite material, are pre-shaped and can be adapted through cutting, removal of material or other similar processing.

[0060] Each of said modular blocks 30a-30d is provided with coupling means on its bottom surface for coupling

to module base 20.

[0061] Said coupling means may for example comprise coupling systems using binder blocking systems and/or male and/or female fastener tapes.

[0062] Said blocks 30a-30d may be provided with wedges which are useful for increasing their thickness according to the user's dimensional needs, the said wedges being provided with coupling means on their top and bottom surfaces to permit coupling to modular base 20 and modular blocks 30a-30d for accommodating the legs respectively.

[0063] It is obvious that the modular nature of modular blocks 30a-30d, and of the corresponding wedges if provided, together with use of modular base 20, allows for the entire system for accommodation of the legs to be constructed in an extremely personalised and if necessary asymmetrical way.

[0064] In particular, according to the invention, the central abductor block which is used to keep the user's legs apart may comprise separate modular blocks 30b, 30c. By suitably selecting the shape and size of abductor blocks 30b, 30c it is possible to achieve the conformation which is most appropriate to the user's shape, even if asymmetrical, which is not possible with postural systems of the known type.

[0065] In Figure 1d, a third plurality of modular blocks 40a-40f are fitted to the postural system according to the invention in order to produce a modular system for accommodating the user's pelvis, generically indicated by reference 40.

[0066] The said accommodation system may also be regarded as comprising a combination of containment, suspension and lateral and posterior control subsystems for the pelvis, and for the functional vertebral segments in the position of the same.

[0067] Modular blocks 40a-40f are made of plastics or composite material, are pre-shaped and may be adapted through cutting, removal of material or other similar processing.

[0068] Each of said modular blocks 40a-40f is provided with coupling means on its top and/or bottom surface for coupling to the posterior surface of flat base plate 10.

[0069] The said coupling means may for example comprise coupling systems having binder blocking systems and/or male and/or female fastener tapes.

[0070] As a result of the modular structure of pelvis accommodation system 40, achieved through independently coupling each of modular blocks 40a-40f, it is possible to achieve correct containment, suspension and anterior, lateral and posterior control of the user's pelvis, regardless of its morphological structure, and to adjust that containment to changes in body structure which might occur in the course of use.

[0071] The said pelvis accommodation system 40 also makes it possible to contain, support and control the functional vertebral segments directly influenced by the position of the pelvis, such as the coccyx, sacral vertebrae, lumbar vertebrae and thoracic vertebrae, thus achieving

total support of the pelvic area (so-called "PTS - Pelvic Total Support").

[0072] Each of the aforesaid modular blocks 40a-40f may have different size, shape and arrangements depending upon the user's morphological structure, and may be fitted with useful accessories to alter their thickness, inclination or orientation, the said accessories being provided along the top and bottom surfaces with coupling means for respective coupling to flat base plate 10 and modular blocks 40a-40f.

[0073] In this respect Figure 2 illustrates a variant construction of the postural system according to the invention comprising a modular system for accommodating the pelvis 40' constructed by combining modular blocks 40a'-40g' in different ways and size.

[0074] Figure 3 illustrates the supporting structure of the postural system according to a second embodiment of the invention.

[0075] According to the embodiment in Figure 3, a modular system for accommodating the user's back, generally indicated by reference 50, comprising a base back member 52 and a fourth plurality of modular blocks 50a-50e, is coupled to the supporting structure of the postural system according to the invention.

[0076] Flat base back member 52 may be constructed in the same way as base plate 10.

[0077] Modular blocks 50a-50e are made of plastics or composite material, are pre-shaped and can be adjusted through cutting, removal of material or other similar processing.

[0078] Each of modular blocks 50a-50e is provided with coupling means along the bottom surface to allow coupling along the lining of the supporting structure of the postural system and/or the flat base plate 10 of the said supporting structure.

[0079] The said coupling means may for example comprise coupling systems with binder blocking systems and/or male and/or female fastener tapes. The construction of the modular system 50 for accommodation of the spine using modular blocks 50a-50e makes it possible to achieve correct containment and anterior, lateral and posterior control of the user's trunk through independent coupling of each of the said blocks at different times according to the user's structural shape and correct accommodation of the spine and correlated segments and joints.

[0080] Each of modular blocks 50a-50e may be suitably designed with different sizes, shapes, heights and functions. In addition to this, each of the aforesaid blocks 50a-50e may be provided with accessories in order to alter their thickness, inclination or orientation according to the user's needs, the said accessories being provided with coupling means along their top and bottom surfaces for coupling respectively to the lining of the supporting structure or base plate 10 and modular blocks 50a-50e.

[0081] Said system 40 for accommodation of the spine also makes it possible to contain, support and control the lumbar and thoracic vertebrae and the remaining part of

the spine, together with its correlated segments and joints, thus achieving total support of the trunk area (so-called "TTS - Trunk Total Support").

[0082] Figure 4 illustrates a configuration of the postural system according to the invention in which a padding system, generically indicated by reference 60, is applied to the supporting structure in Figures 1a-1d.

[0083] Said padding system 60 is in turn of a modular structure (a so-called "*Forme Libere*" structure) and comprises a plurality of padded cushions 60a-60d of a type, shape and thickness which may be the same or different, suitably combined according to the load which each body segment has to support and the stresses to which it is subjected during use.

[0084] In particular modular padding system 60 comprises separate sub-systems, of which:

- a first sub-system pads said modular base 20 and said modular system 30 to accommodate the legs associated therewith and for this purpose comprises a pair of suitably shaped pads, each comprising one or more overlapping padded cushions;
- a second system is suitable for padding modular system 40 for accommodating the pelvis and for this purpose comprises one or more suitably shaped pads, each comprising one or more overlapping padded cushions.

[0085] Each padded cushion 60a-60d may be made using different types and combinations of high-performance polymer foam, cross-linked foam to encourage ventilation, visco-elastic foam with a slow memory return and the like, or even using alternative materials to polymer foam that are nevertheless suitable for the present application.

[0086] Padded cushions 60a-60d may be joined together by means of water-based adhesives which do not adversely affect the characteristics and properties of the foam used or may also not be joined together, but simply juxtaposed. In fact the particular design of cut and choice of thicknesses makes it possible to adapt the padding system perfectly to the shape of the underlying supporting structure through the mere effect of body pressure exerted by the user during use.

[0087] The supporting structure of the postural system padded in this way is covered with a lining which permits accommodation to the postural configuration found.

[0088] Similarly Figure 5 illustrates a configuration of the postural system according to the invention in which a padding system, generically indicated by reference 70, is applied to the supporting structure in Figure 3.

[0089] Said padding system 70 in turn has a modular structure and comprises a plurality of sub-systems 70a-70b, each comprising padded cushions of the same or different type, shape and thickness, suitably combined according to the load which each body segment has to support and the stresses imposed upon it during use.

[0090] In particular a first sub-system 70a correspond-

ing to the back of the postural system and a second sub-system 70b corresponding to the supporting structure thereof may be seen in Figure 5.

[0091] Said first sub-system 70a together with the underlying plurality of modular blocks 50a-50e for accommodation of the user's spine and a corresponding form of lining constitutes a kit (a so-called "*Forme Accolte*" kit).

[0092] Here again the supporting structure of the postural system padded in this way is covered with a lining cover which enables it to adjust to the postural configuration found.

[0093] The supporting structure of the postural system according to the invention may be provided with a great variety of accessories used individually or in combination according to the user's specific requirements. By way of example Figure 6 illustrates a third embodiment of the postural system according to the invention which comprises a modular system, generically indicated by reference 80, for accommodating the user's shoulders and head.

[0094] Said modular system 80 comprises modular blocks 80a-80b made of plastics or composite material, pre-shaped and adjustable through cutting, removal of material or other similar processing.

[0095] Each of modular blocks 80a-80b may be provided with coupling means 82 along the top and bottom surface to permit coupling to the supporting structure of the postural system.

[0096] Said coupling means 82 may for example comprise coupling systems using binder blocking systems and/or male and/or female fastener tapes. Said modular system 80 positioned posteriorly to the supporting structure of the postural system makes it possible to provide complete postural support for the user and allow stable supporting positioning along the backs of different sitting and/or transfer devices such as seats, buggies, high chairs for medical or domestic use and so on.

[0097] In general, in accordance with the invention, it will be possible to provide a kit comprising the said base plate 10, one or more pluralities of the said modular blocks 20a-20f, 30a-30d, 40a-40f, 50a-50e, 80a-80b, and one or more pluralities of the said padded cushions 60a-60d, 70a-70b, so that the postural system can be constructed by suitably associating the said modular blocks and the said padded cushions to the said base plate according to the user's requirements, selecting the number, shape, size and orientation of the said blocks and said cushions according to the patient's structural shape.

[0098] It is obvious from what has been described above that the postural system according to the invention makes it possible to accomplish the objects specified above in that it makes it possible to allow for the user's specific shape in order to encourage perfect accommodation of the body and proper weight distribution and also makes it possible to adjust its structure to changes in the said shape which may occur in the course of use.

[0099] It is also obvious that the embodiments de-

scribed above have been provided purely by way of example and that many modifications and variants are possible without departing from the scope of protection of the invention as defined by the appended claims.

Claims

1. Postural system, comprising:

- a flat base plate (10);
 - a plurality of modular blocks (20a - 20f, 30a - 30d, 40a - 40f, 50a - 50e, 80a - 80b), different in shape and size, suitable for being coupled to said base plate in order to obtain a supporting structure shaped so as to fit the morphological structure of said user, said base plate (10) being provided with coupling means for removable and reversible coupling with an external supporting surface and with said modular blocks, and said modular blocks (20a - 20f, 30a - 30d, 40a - 40f, 50a - 50e, 80a - 80b) being provided with means for removable and reversible coupling with said base plate (10) and with one another, said postural system comprising a first plurality of modular blocks (20a - 20f) suitable for obtaining a modular base (20), **characterized in that** said postural system further comprises:

a second plurality of modular blocks (30a - 30d) suitable for obtaining a modular system (30) for accommodating the legs of said user; and
 a third plurality of modular blocks (40a - 40f) suitable for obtaining a modular system (40) for accommodating the pelvis of said user, wherein said third plurality of modular blocks (40a - 40f) are independently coupled to one another and to said base plate and they are shaped and arranged so as to achieve correct containment, suspension and anterior, lateral and posterior control of the user's pelvis as well as correct containment, suspension and control of the coccyx, sacral vertebrae, lumbar vertebrae and thoracic vertebrae.

2. Postural system according to claim 1, wherein said base plate (10) is provided at its top surface with coupling means for removable and reversible coupling with said first plurality of modular blocks (20a - 20f) and wherein said modular blocks (20a - 20f) are respectively provided at their bottom surface with corresponding coupling means for removable and reversible coupling with said base plate (10).

3. Postural system according to claim 1, wherein said

first modular blocks (20a - 20f) are provided at their top surface with coupling means for removable and reversible coupling with said second plurality of modular blocks (30a - 30d) and wherein said second modular blocks (30a - 30d) are respectively provided at their bottom surface with corresponding coupling means for removable and reversible coupling with said modular base (20).

4. Postural system according to claim 1, wherein said second plurality of modular blocks (30a - 30d) comprises two or more separate and independent modular blocks (30b, 30c) for building up the central abductor assembly.

5. Postural system according to claim 1, wherein said base plate (10) is provided at its top surface with coupling means for removable and reversible coupling with said third plurality of modular blocks (40a - 40f) and wherein said third modular blocks (40a - 40f) are respectively provided at their bottom and/or top surface with corresponding coupling means for removable and reversible coupling with said base plate (10).

6. Postural system according to claim 1, comprising a fourth plurality of modular blocks (50a - 50e) and a flat base back (52) coupled thereto, suitable for obtaining a modular system (50) for accommodating the spine of said user.

7. Postural system according to claim 6, wherein said third modular blocks (40a - 40f) are provided at their top surface with coupling means for removable and reversible coupling with said fourth plurality of modular blocks (50a - 50e) and wherein said fourth modular blocks (50a - 50e) are respectively provided at their bottom surface with corresponding coupling means for removable and reversible coupling with said modular system (40) for accommodating the pelvis of said user.

8. Postural system according to any of the preceding claims, wherein a padding system (60; 70) is applied on said supporting structure, said padding system (60; 70) also having a modular structure and comprising a plurality of padded cushions (60a - 60d; 70a - 70b), having different structure, shape and size and suitable for being adequately combined.

9. Postural system according to any of claims 1 to 8, wherein said system is fitted on or is an integral part of medical support devices for mobility and/or medical devices for rehabilitation and social or domestic life, particularly for non-ambulant or partly-ambulant persons.

10. Postural system according to any of claims 1 to 8,

wherein said system is fitted on or is an integral part of chairs, seats, benches and similar articles, particularly for persons who are able to walk properly.

11. Postural system according to any of claims 1 to 8, wherein said system is fitted on or is an integral part of transport means.

Patentansprüche

1. Haltungskorrektursystem, umfassend :

- eine ebene Basisplatte (10);
 - eine Vielzahl von in Form und Größe unterschiedlichen modularen Blöcken (20a - 20f, 30a - 30d, 40a - 40f, 50a - 50e, 80a - 80b), die dazu eingerichtet sind, mit dieser Basisplatte verbunden zu werden, um einen zur Anpassung an die morphologische Struktur des Benutzers gestalteten Halterungsaufbau zu erreichen, wobei die Basisplatte (10) mit Verbindungsmitteln versehen ist, die zur abnehmbaren und reversiblen Verbindung mit einer äußeren Auflagefläche sowie mit den modularen Blöcken vorgesehen sind, und wobei die modularen Blöcke (20a - 20f, 30a - 30d, 40a - 40f, 50a - 50e, 80a - 80b) mit Mitteln versehen sind, die zur abnehmbaren und reversiblen Verbindung mit der Basisplatte (10) und miteinander vorgesehen sind, und wobei das Haltungskorrektursystem eine erste Vielzahl von zum Erhalten einer modularen Basis (20) geeigneten Blöcken (20a - 20f) aufweist, **dadurch gekennzeichnet, dass** das Haltungskorrektursystem weiter umfasst :

eine zweite Vielzahl von modularen Blöcken (30a - 30d), die dazu eingerichtet sind, ein modulares System (30) zur Aufnahme der Beine des Benutzers zu erhalten ; und eine dritte Vielzahl von modularen Blöcken (40a - 40f), die dazu eingerichtet sind, ein modulares System (40) zur Aufnahme des Beckens des Benutzers zu erhalten, wobei die modularen Blöcke der dritten Vielzahl von modularen Blöcken (40a - 40f) in unabhängiger Weise miteinander und mit der Basisplatte verbunden sind und so gestaltet und angeordnet sind, dass eine korrekte Begrenzung, Stützung und vordere, seitliche und hintere Kontrolle des Beckens der Benutzers sowie eine korrekte Begrenzung, Stützung und vordere, seitliche und hintere Kontrolle des Steißbeins, der Kreuzbeinwirbel, der Lendenwirbel und der Brustwirbel erreicht werden.

2. Haltungskorrektursystem nach Anspruch 1, wobei

die Basisplatte (10) auf ihrer oberen Seite mit Verbindungsmitteln zur abnehmbaren und reversiblen Verbindung mit der ersten Vielzahl von modularen Blöcken (20a - 20f) versehen ist und wobei ebenfalls die modularen Blöcke (20a - 20f) auf ihrer unteren Seite mit entsprechenden Verbindungsmitteln zur abnehmbaren und reversiblen Verbindung mit der Basisplatte (10) versehen sind.

3. Haltungskorrektursystem nach Anspruch 1, wobei die ersten modularen Blöcke (20a - 20f) auf ihrer oberen Seite mit Verbindungsmitteln zur abnehmbaren und reversiblen Verbindung mit der zweiten Vielzahl von modularen Blöcken (30a - 30d) versehen sind und wobei ebenfalls die zweiten modularen Blöcke (30a - 30d) auf ihrer unteren Seite mit entsprechenden Verbindungsmitteln zur abnehmbaren und reversiblen Verbindung mit der modularen Basis (20) versehen sind.

4. Haltungskorrektursystem nach Anspruch 1, wobei die zweite Vielzahl von modularen Blöcken (30a - 30d) zwei oder mehrere separate und unabhängige modulare Blöcke (30b, 30c) zur Bildung der mittleren Abduktionseinheit umfasst.

5. Haltungskorrektursystem nach Anspruch 1, wobei die Basisplatte (10) auf ihrer oberen Seite mit Verbindungsmitteln zur abnehmbaren und reversiblen Verbindung mit der dritten Vielzahl von modularen Blöcken (40a - 40f) versehen ist und wobei ebenfalls die dritten modularen Blöcke (40a - 40f) auf ihrer unteren und/oder oberen Seite mit entsprechenden Verbindungsmitteln zur abnehmbaren und reversiblen Verbindung mit der Basisplatte (10) versehen sind.

6. Haltungskorrektursystem nach Anspruch 1, umfassend eine vierte Vielzahl von modularen Blöcken (50a - 50e) und eine damit verbundene ebene Basisrückenlehne (52) die dazu eingerichtet ist, ein modulares System (50) zur Aufnahme der Wirbelsäule des Benutzers zu erhalten.

7. Haltungskorrektursystem nach Anspruch 6, wobei die dritten modularen Blöcke (40a - 40f) auf ihrer oberen Seite mit Verbindungsmitteln zur abnehmbaren und reversiblen Verbindung mit der vierten Vielzahl von modularen Blöcken (50a - 50e) versehen sind und wobei ebenfalls die vierten modularen Blöcke (50a - 50e) auf ihrer unteren Seite mit entsprechenden Verbindungsmitteln zur abnehmbaren und reversiblen Verbindung mit dem zur Aufnahme des Beckens des Benutzers vorgesehenen modularen System (40) versehen sind.

8. Haltungskorrektursystem nach einem der vorhergehenden Ansprüche, wobei ein Polsterungssystem

(60; 70) an dem Halterungsaufbau angebracht ist, wobei dieses Polsterungssystem (60; 70) ebenfalls einen modularen Aufbau hat und eine Vielzahl von in Aufbau, Form und Größe unterschiedlichen gepolsterten Kissen (60a - 60d; 70a - 70b) umfasst, die zur angemessenen Kombination miteinander geeignet sind.

9. Haltungskorrektursystem nach einem der Ansprüche 1 bis 8, wobei dieses System an ärztlichen Vorrichtungen für die Beweglichkeitsunterstützung und/oder an ärztlichen Vorrichtungen für die Rehabilitation und das gesellschaftliche sowie häusliche Leben, insbesondere für nicht gehfähige oder teilweise gehfähige Personen, angebracht ist oder ein Bestandteil davon ist.
10. Haltungskorrektursystem nach einem der Ansprüche 1 bis 8, wobei dieses System an Stühlen, Sitzflächen, Banken und dergleichen Artikeln, insbesondere für richtig gehfähige Personen, angebracht ist oder ein Bestandteil davon ist.
11. Haltungskorrektursystem nach einem der Ansprüche 1 bis 8, wobei dieses System an Transportmitteln angebracht ist oder ein Bestandteil davon ist.

Revendications

1. Système postural, comprenant:

- une plaque de base plate (10);
- une pluralité de blocs modulaires (20a - 20f, 30a - 30d, 40a - 40f, 50a - 50e, 80a - 80b), différents en forme et taille, aptes à être couplés à cette plaque de base afin d'obtenir une structure de support façonnée de façon à s'adapter à la structure morphologique de l'utilisateur, ladite plaque de base (10) étant pourvue de moyens de couplage pour le couplage amovible et réversible avec une surface d'appui extérieure et avec ces blocs modulaires, et ces blocs modulaires (20a - 20f, 30a - 30d, 40a - 40f, 50a - 50e, 80a - 80b) étant pourvus de moyens pour le couplage amovible et réversible avec cette plaque de base (10) et les uns avec les autres, ce système postural comprenant une première pluralité de blocs modulaires (20a - 20f) aptes à obtenir une base modulaire (20), **caractérisé en ce que** ce système postural comprend en outre:

- une deuxième pluralité de blocs modulaires (30a - 30d) aptes à obtenir un système modulaire (30) pour recevoir les jambes de cet utilisateur; et
- une troisième pluralité de blocs modulaires

(40a - 40f) aptes à obtenir un système modulaire (40) pour recevoir le bassin de cet utilisateur,

dans lequel les blocs modulaires de cette troisième pluralité de blocs modulaires (40a - 40f) sont couplés de façon indépendante les uns avec les autres et avec cette plaque de base et ils sont façonnés et agencés de façon à atteindre un confinement, une suspension et un contrôle antérieur, latéral et postérieur corrects du bassin de cet utilisateur ainsi qu'un confinement, une suspension et un contrôle corrects du coccyx, des vertèbres sacrales, des vertèbres lombaires et des vertèbres thoraciques.

2. Système postural selon la revendication 1, dans lequel cette plaque de base (10) est pourvue, à sa surface supérieure, de moyens de couplage pour le couplage amovible et réversible avec cette première pluralité de blocs modulaires (20a - 20f) et dans lequel ces blocs modulaires (20a - 20f) sont respectivement pourvus, à leur surface inférieure, de moyens de couplage correspondants pour le couplage amovible et réversible avec cette plaque de base (10).
3. Système postural selon la revendication 1, dans lequel ces premiers blocs modulaires (20a - 20f) sont pourvus, à leur surface supérieure, de moyens de couplage pour le couplage amovible et réversible avec cette deuxième pluralité de blocs modulaires (30a - 30d) et dans lequel ces deuxièmes blocs modulaires (30a - 30d) sont respectivement pourvus, à leur surface inférieure, de moyens de couplage correspondants pour le couplage amovible et réversible avec cette base modulaire (20).
4. Système postural selon la revendication 1, dans lequel cette deuxième pluralité de blocs modulaires (30a - 30d) comprend deux ou plus blocs modulaires séparés et indépendants (30b, 30c) pour former l'ensemble abducteur central.
5. Système postural selon la revendication 1, dans lequel cette plaque de base (10) est pourvue, à sa surface supérieure, de moyens de couplage pour le couplage amovible et réversible avec cette troisième pluralité de blocs modulaires (40a - 40f) et dans lequel ces troisièmes blocs modulaires (40a - 40f) sont respectivement pourvus, à leur surface inférieure et/ou supérieure, de moyens de couplage correspondants pour le couplage amovible et réversible avec ladite plaque de base (10).
6. Système postural selon la revendication 1, comprenant une quatrième pluralité de blocs modulaires (50a - 50e) et un dossier de base plat (52) couplé à

ceux-ci, aptes à obtenir un système modulaire (50) pour recevoir la colonne vertébrale de cet utilisateur.

7. Système postural selon la revendication 6, dans lequel ces troisièmes blocs modulaires (40a - 40f) sont pourvus, à leur surface supérieure, de moyens de couplage pour le couplage amovible et réversible avec cette quatrième pluralité de blocs modulaires (50a - 50e) et dans lequel ces quatrièmes blocs modulaires (50a - 50e) sont respectivement pourvus, à leur surface inférieure, de moyens de couplage correspondants pour le couplage amovible et réversible avec ce système modulaire (40) destiné à recevoir le bassin du cet utilisateur.

5
10
15
8. Système postural selon l'une quelconque des revendications précédentes, dans lequel un système de rembourrage (60; 70) est appliqué sur cette structure de support, ce système de rembourrage (60; 70) ayant également une structure modulaire et comprenant une pluralité de coussins rembourrés (60a - 60d; 70a - 70b), différents en structure, forme et taille et aptes à être combinés de façon adéquate.

20
9. Système postural selon l'une quelconque des revendications 1 à 8, dans lequel ce système est monté sur ou fait partie intégrante de dispositifs médicaux de soutien pour la mobilité et/ou dispositifs médicaux pour la réhabilitation et la vie sociale ou domestique, en particulier pour personnes non-déambulantes ou partiellement déambulantes.

25
30
10. Système postural selon l'une quelconque des revendications 1 à 8, dans lequel ce système est monté sur ou fait partie intégrante de chaises, sièges, bancs et articles similaires, en particulier pour personnes qui sont capables de marcher correctement.

35
11. Système postural selon l'une quelconque des revendications 1 à 8, dans lequel ce système est monté sur ou fait partie intégrante de moyens de transport.

40

45

50

55

FIG. 1A

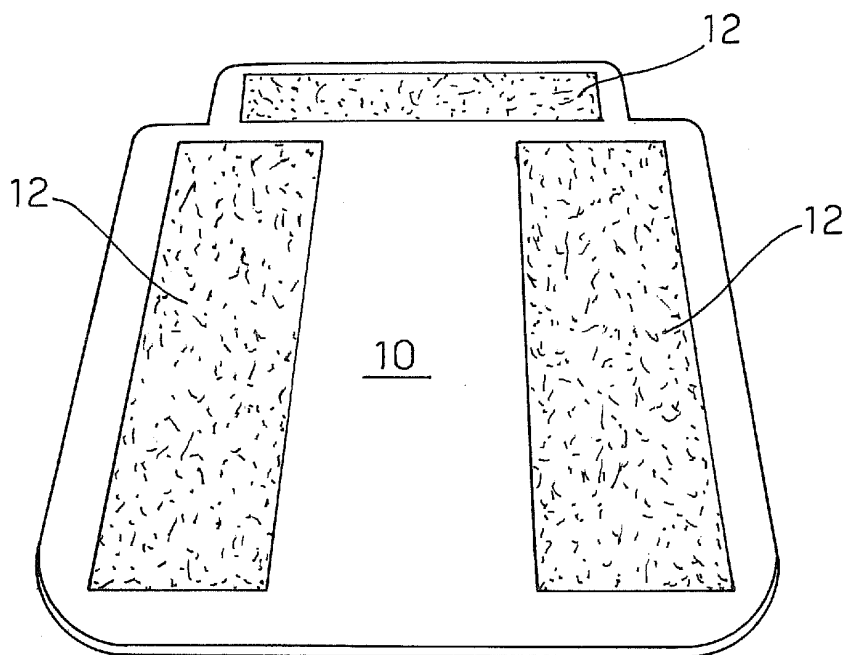
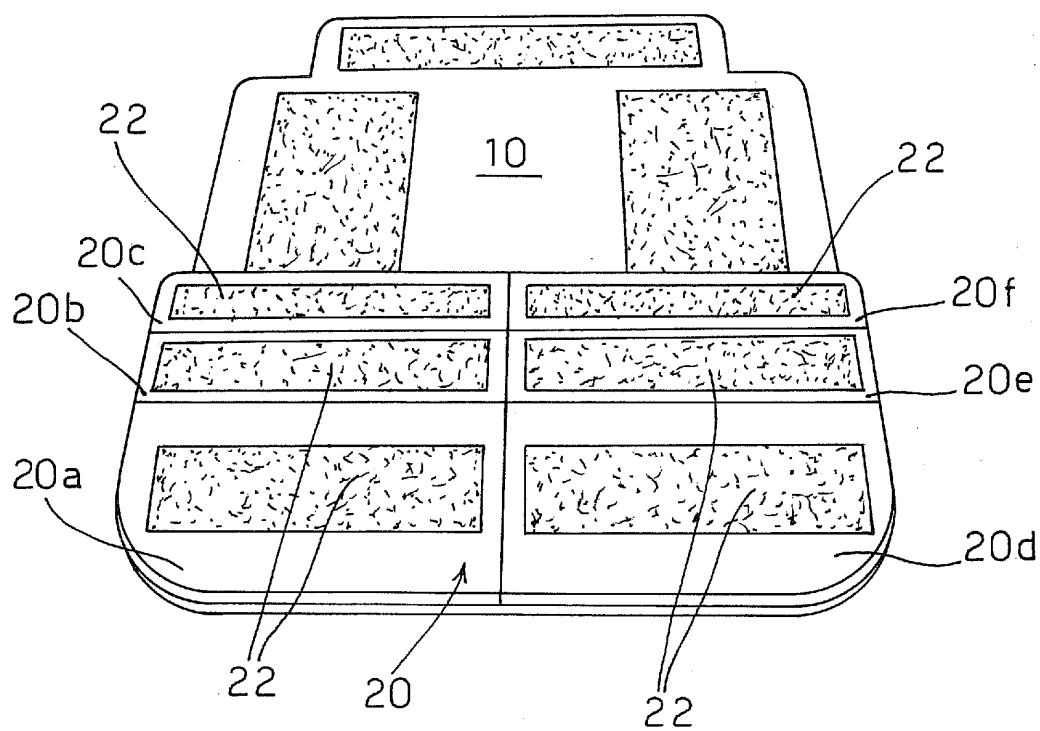
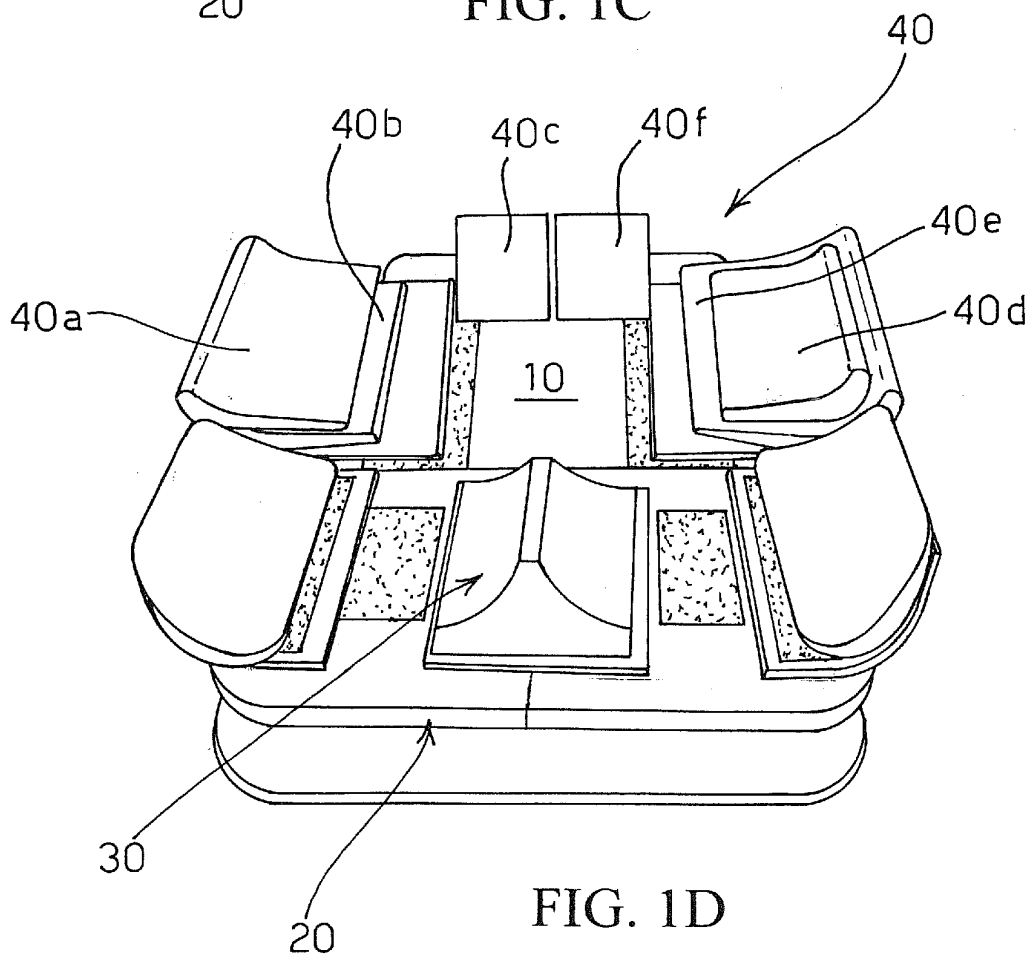
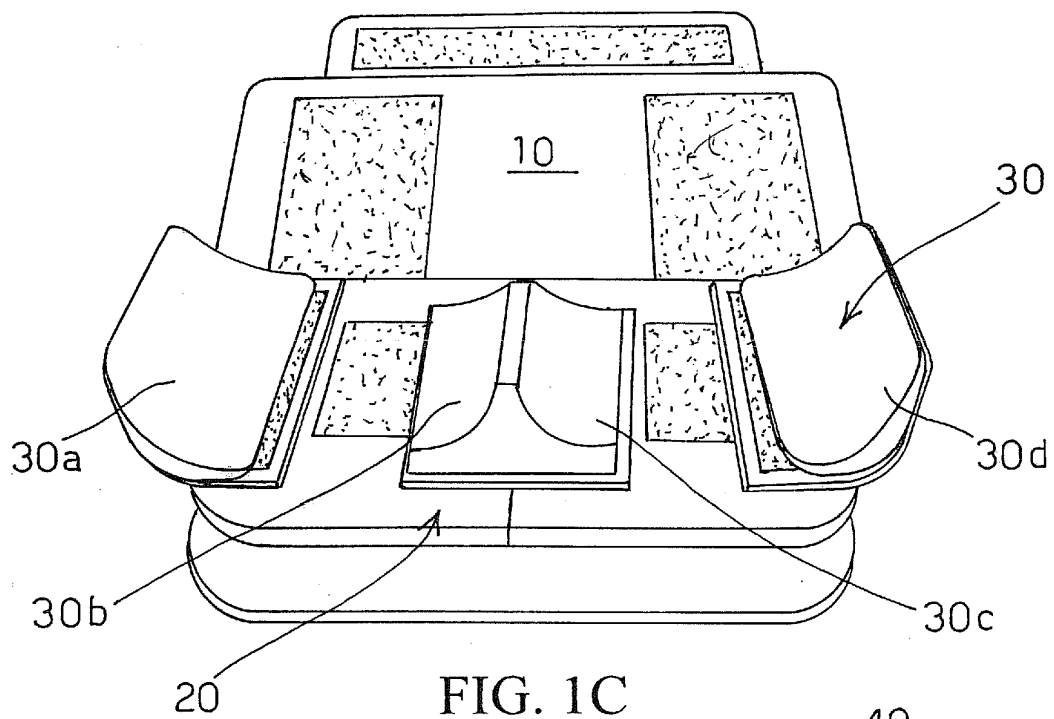
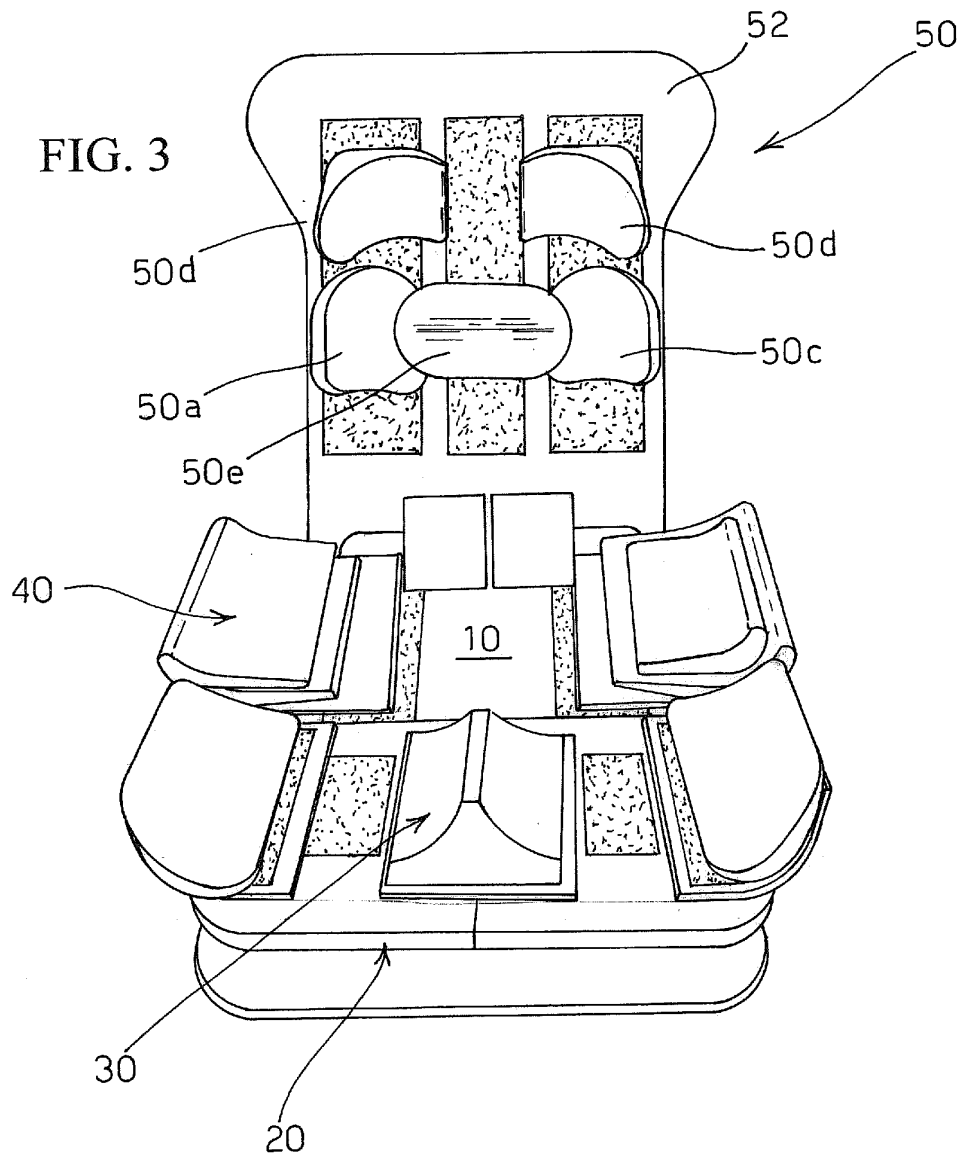
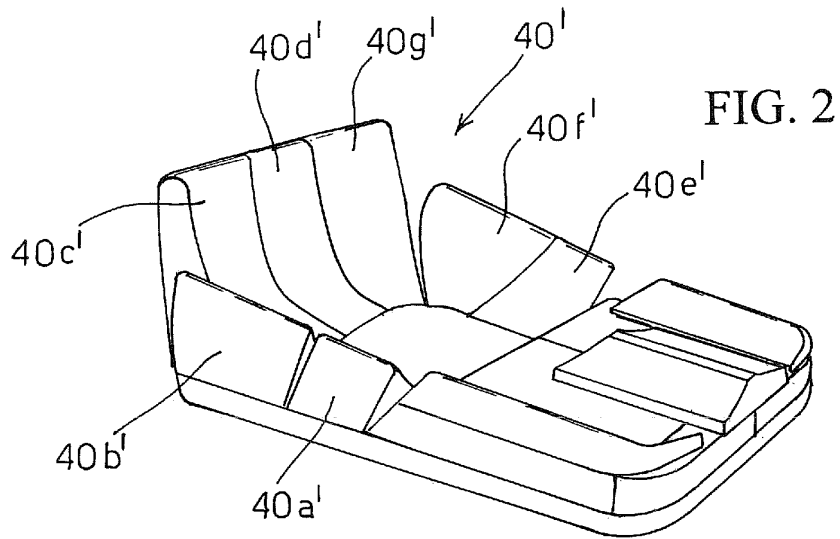


FIG. 1B







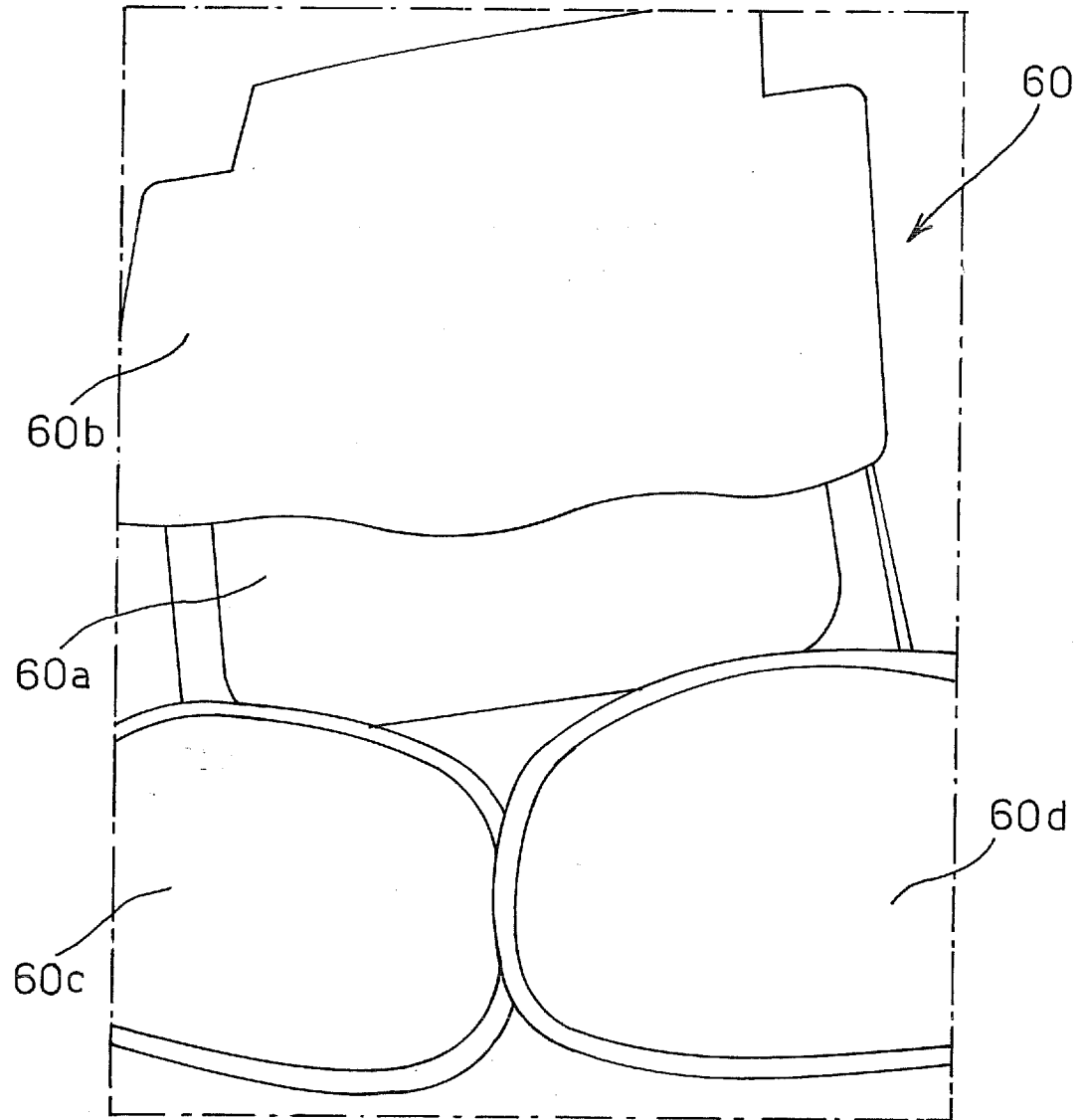


FIG. 4

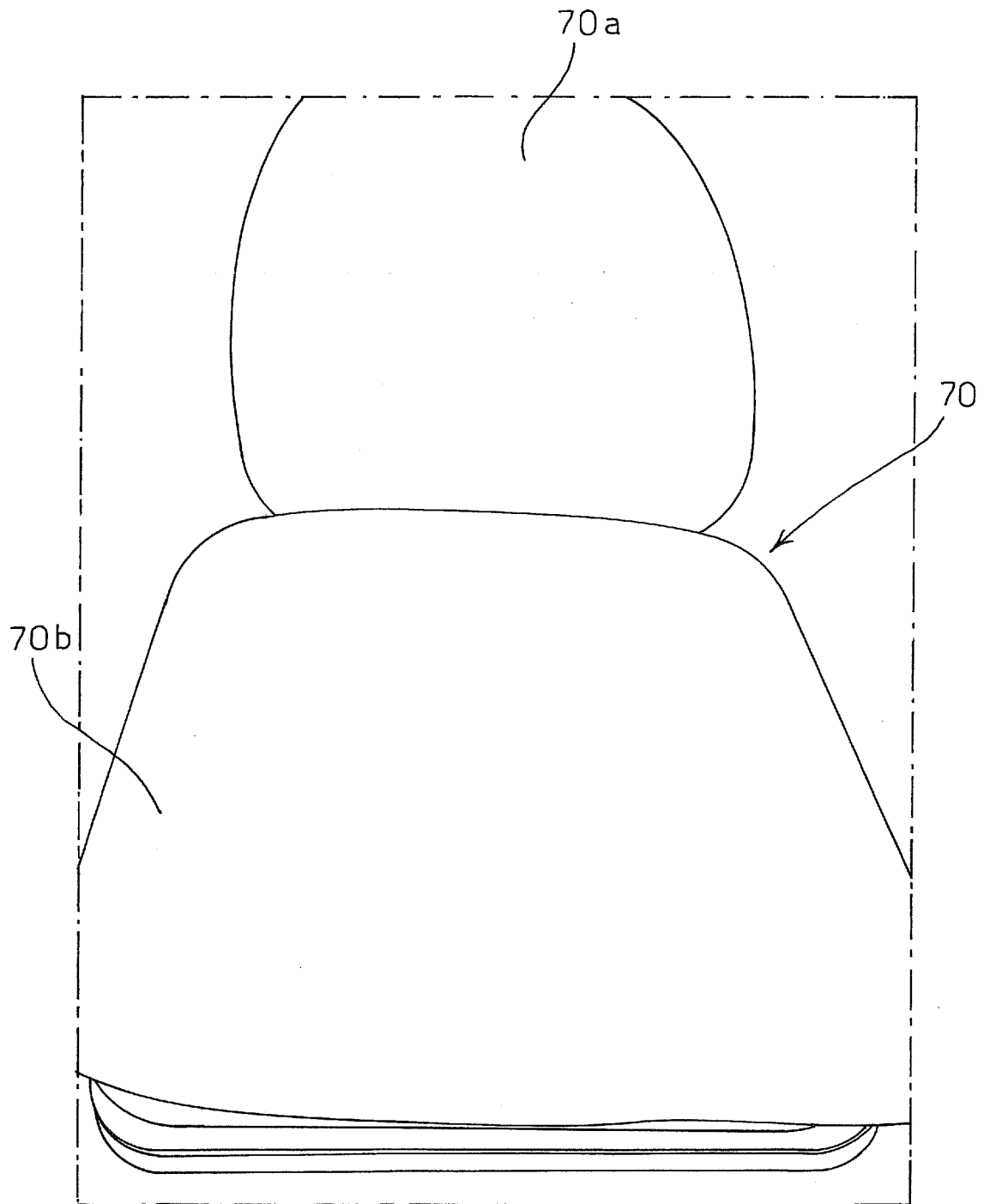


FIG. 5

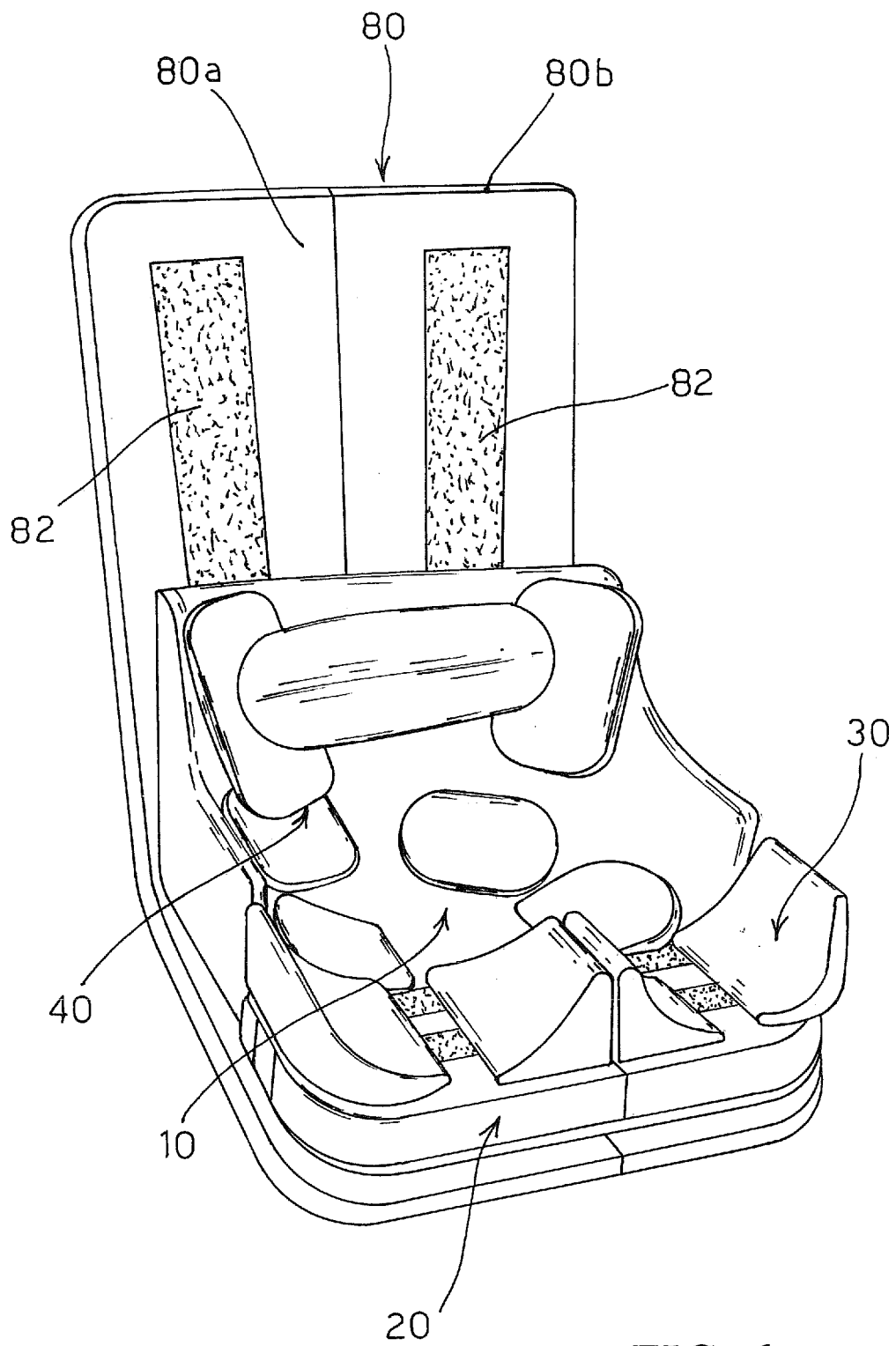


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 5333921 A [0015]
- WO 9533396 A [0015]
- GB 2102283 A [0018]
- US 5343876 A [0020] [0022]