2/11 © EPODOC / EPO

PN - US2006248652 A1 20061109

PNFP - US7496981 B2 20090303

PR - ES20030001824 20030731; WO2004ES00338 20040719

AP - US20050558443 20051128

DT - **

CT - || STSE (B2)
US4194255 A 19800325 [ ] (POPPE WILLY [BE])
US4901387 A 19900220 [ ] (LUKE JOHN K [US])
US5007124 A 19910416 [ ] (RABURN RICHARD W [US], et al)
US6541094 B1 20030401 [ ] (LANDVIK DAG [SE], et al)
US7000277 B2 20060221 [ ] (TORRES CERVERA MANUEL [ES])

- || R141 (A1)
US4901387 A [ ];
US7000277 B2 [ ];
US4194255 A [ ];
US5007124 A [ ];
US6541094 B1 [ ]

CCI - A47C27/144 ; A47C27/15

TI - (A1 B2)
Foam spring **mattress**

AB - (A1)
The **mattress** (1) is made of a block of flexible **polyurethane foam** (4) with a **density** of 40 Kg/m<3 >or of any other **density**, said block being firstly cut with a cut programmable automatic machine, by the main side and then turned at a 90 DEG degree angle by its small side. A certain amount of springs (5) is thereby formed depending on each type of **mattress** (1). The amount of spirals (5.1) of every spring (5) depends on the position of each spring in the **mattress** (1) with the purpose of varying the flexibility thereof so that the **mattress** (1) can perfectly adapt to the contour to of every user or so that the flexibility can remain constant throughout the entire **mattress**. **Multiple** variations can be realized while the height of the **mattress** remains the same (less spirals having the same spiral thickness and more base and uncut, etc.; the width of a spiral can be changed, as well as the number

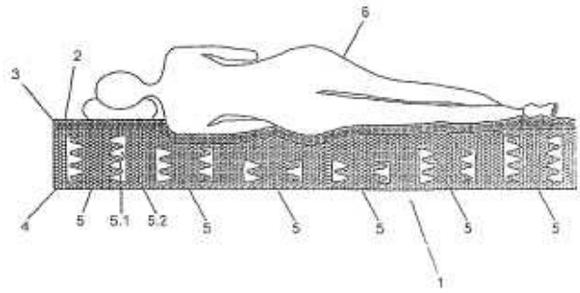


FIGURA 4

of spirals, the inclination of the axis of the spirals, the total height of an area-budge or cavity, etc. The upper surface of the product is covered with a viscous elastic **layer** (3) of **polyurethane** with a 50 Kg m<3 >**density**, 4 cm thickness and threaded padding (2)

- (B2)
The **mattress** (1) is made of a block of flexible **polyurethane foam** (4) with a **density** of 40 Kg/m3 or of any other **density**, said block being firstly cut with a cut programmable automatic machine, by the main side and then turned at a 90 DEG degree angle by its small side. A certain amount of springs (5) is thereby formed depending on each type of **mattress** (1). The amount of spirals (5.1) of every spring (5) depends on the position of each spring in the **mattress** (1) with the purpose of varying the flexibility thereof so that the **mattress** (1) can perfectly adapt to the contour to of every user or so that the flexibility can remain constant throughout the entire **mattress**. **Multiple** variations can be realized while the height of the **mattress** remains the same (less spirals having the same spiral thickness and more base and uncut, etc.; the width of a spiral can be changed, as well as the number of spirals, the inclination of the axis of the spirals, the total height of an area-budge or cavity, etc. The upper surface of the product is covered with a viscous elastic **layer** (3) of **polyurethane** with a 50 Kg/m3 **density**, 4 cm thickness and threaded padding (2).

3/11 © EPODOC / EPO

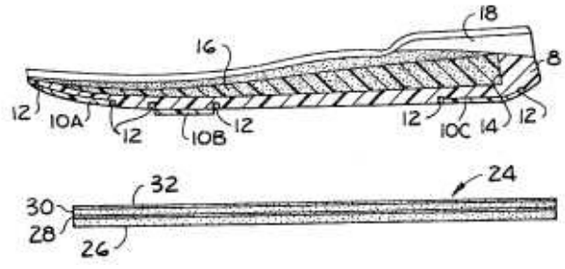
PN - US5718064 A 19980217

PR - US19940222013 19940404; US19950523948 19950906

AP - US19950523948 19950906

DT - *

CT - US2348336 A [ ]; US3766669 A [ ]; US3824716 A [ ]; US3971145 A [



];
US4016661 A [ ]; US4128950 A [ ];
US4185402 A [ ]; US4316332 A [ ];
US4316335 A [ ]; US4319412 A [ ];
US4361912 A [ ]; US4398357 A [ ];
US4399620 A [ ]; US4461099 A [ ];
US4463505 A [ ]; US4481726 A [ ];
US4513518 A [ ]; US4551930 A [ ];
US4564966 A [ ]; US4641438 A [ ];
US4654983 A [ ]; US4667423 A [ ];
US4676010 A [ ]; US4709490 A [ ];
US4757620 A [ ]; US4760652 A [ ];
US4897936 A [ ]; US4999237 A [ ];
US5025573 A [ ]; US5068983 A [ ];
US5146698 A [ ]; US5147589 A [ ];
US5163237 A [ ]; US5174049 A [ ];
US5216825 A [ ]; US5384974 A [ ]

CCI - A43B13/187

PA - NINE WEST GROUP INC [US]

TI - **Multi**-**layer** sole construction for walking shoes

AB - A conforming sole construction for a walking shoe is characterized by a flexible PVC outsole containing in its upper surface a low **density** **polyurethane** insert for shock absorption. Mounted on the upper surface of the outsole and insert is a combined footbed and **multilayered** socklining. The footbed is formed of EVA and includes integral heel and arch support portions. The socklining has a lower **layer** of shock absorbing closed cell **foam** material, a **layer** of latex material containing humidity and odor absorbing carbon particles, an upper **layer** of open cell ergonomic **foam** material, and a cover **layer** of woven water absorbing and polyester fiber

materials for wicking moisture from the foot of the wearer. The sole construction provides increased support for the heel and arch of the wearer's foot and improved **cushioning** over the length of the foot.

4/11 © EPODOC / EPO

PN - KR20060103313 A 20060928

PR - ES20030001824 20030731

AP - KR20067001886 20060126

DT - I

CCI - A47C27/144 ; A47C27/15

PA - QONFORT CONI S L [ES]

TI - **FOAM** SPRING **MATTRESS**

AB - The **mattress** (1) is made from a block of flexible **polyurethane foam** (4) with a **density** of 40 Kg/m3 or any other **density**, said block being firstly cut with a programmable automatic machine by the main side and then turned at a 900 degree angle by its small side. A certain amount of springs (5) is thereby formed depending on each type of **mattress** (1). The amount of spirals (5.1) of every spring (5) depends on the position of each spring in the **mattress** (1) with the purpose of varying the flexibility thereof so that the **mattress** (1) can perfectly adapt to the contour of every user or so that the flexibility can remain constant throughout the entire **mattress**. **Multiple** variations can be realized while the height of the entire **mattress** remains the same (less spirals having the same spiral thickness and more base and uncut, etc.; the width of a spiral can be changed, as well as the number of spirals, the inclination of the axis of the spiral, the total height of an area -bulge or cavity-, etc.) The upper surface of the product is covered with a viscous elastic **layer** (3) of **polyurethane** with a 50 Kg/m3 **density**, 4 cm thickness and a threaded padding (2).

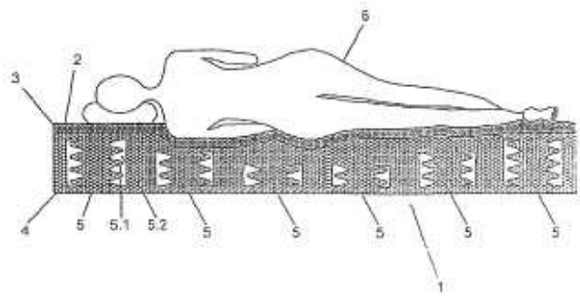


FIGURA 4

5/11 © EPODOC / EPO

PN - JP2008113798 A 20080522

PR - JP20060298889 20061102

AP - JP20060298889 20061102

DT - I

FI - A47C27/22&B; B32B27/40; B32B5/24&101; C08G101/00; C08G18/00&F; C08G18/48&F; C08G18/48&037

FT - 3B096/AB07; 3B096/AD04; 3B096/AD07; 4F100/AJ04; 4F100/AK01B; 4F100/AK42; 4F100/AK51A; 4F100/AK51C; 4F100/AK51J; 4F100/AK51K; 4F100/AL01A; 4F100/BA02; 4F100/BA03; 4F100/BA07; 4F100/BA10A; 4F100/BA10B; 4F100/DC16B; 4F100/DG11B; 4F100/DG15B; 4F100/DJ01A; 4F100/DJ01C; 4F100/GB71; 4F100/JA13A; 4F100/JA13B; 4F100/JA13C; 4F100/JB16B; 4F100/JD02A; 4F100/JD02B; 4F100/JD02C; 4F100/JK07A; 4F100/JK07B; 4F100/JK07C; 4F100/JK11B; 4F100/JK12A; 4F100/JK12C; 4F100/JK13A; 4F100/JK13C; 4F100/YY00A; 4F100/YY00B; 4J034/BA03; 4J034/DA01; 4J034/DB03; 4J034/DB04; 4J034/DB05; 4J034/DB07; 4J034/DG04; 4J034/DG08; 4J034/DG09; 4J034/DG10; 4J034/DG14; 4J034/HA01; 4J034/HA06; 4J034/HA07; 4J034/HA08; 4J034/HA11; 4J034/HA13; 4J034/HC03; 4J034/HC12; 4J034/HC17; 4J034/HC22; 4J034/HC34; 4J034/HC35; 4J034/HC46; 4J034/HC52; 4J034/HC61; 4J034/HC64; 4J034/HC67; 4J034/HC71; 4J034/HC73; 4J034/KB02; 4J034/KD12; 4J034/NA02; 4J034/NA03; 4J034/NA05; 4J034/QA02; 4J034/QB01; 4J034/QB15; 4J034/QB19; 4J034/QC01; 4J034/QC02; 4J034/QC03

PA - TOYO TIRE & RUBBER CO; TOYO BOSEKI

TI - **CUSHION** MATERIAL

AB - PROBLEM TO BE SOLVED: To provide a **cushion** material having a sufficient **cushioning** performance required for **cushion** materials such as **mattress** and good soft elastic touch.

- SOLUTION: The **cushion** material has **multilayered cushion** layers of an upper **layer** composed of flexible **polyurethane foam** on the human body side and a lower **layer** composed of highly air permeable **cushion layer** in a bag-shaped skin material. The **cushion** material is composed of a three-dimensional mesh body of the flexible **polyurethane foam** which is a closed-cell flexible **polyurethane foam** having a **density** between 40 kg/m<SP>3</SP>and 90 kg/m<SP>3</SP>, a 25% hardness of 100 N/314 cm<SP>2</SP>or less, a modulus of repulsion elasticity of 40% or above, and a thickness of 10 mm or above, and the highly air permeable **cushion layer** which is composed of a continuous filament random loop of thermoplastic elastomeric resin having an apparent **density** of the majority of fused contact section of the continuous filament of 5 to 100 kg/m<SP>3</SP>and a thickness of 10 mm or above.

-

6/11 © EPODOC / EPO

PN - **JP2006296461** A 20061102

PR - JP20050118134 20050415

AP - JP20050118134 20050415

DT - I

CCI - **A47C27/144** ; **A47C27/148**

FI - A47C27/15&B

FT - 3B096/AB05; 3B096/AB07; 3B096/AD07

PA - TOYO TIRE & RUBBER CO

TI - **MULTI**-LAYERED SOFT **POLYURETHANE FOAM** FOR **MATTRESS**, METHOD OF MANUFACTURING THE SAME, AND **MATTRESS**

AB - PROBLEM TO BE SOLVED: To provide **multi**-layered soft **polyurethane foam** for a **mattress**, capable of providing natural sinking feel for a sleeper when the sleeper turns from side to side while sleeping when the **polyurethane foam** is used as a sleeping **mattress**, and keeping the sleeper comfortably sleeping by securing a favorable sleeping posture, and the method of manufacturing the same, and the **mattress**.

- SOLUTION: The **multi**-layered soft **polyurethane foam** for the **mattress** comprises a lower soft **polyurethane foam layer** 2, whose **density** is 50-100 kg/m<SP>3</SP>and

whose hardness is 50-150 N, disposed on the floor surface side, and a plurality of upper soft **polyurethane foam** layers 1, whose **density** is 40-80 kg/m<SP>3</SP>and whose hardness is 20-60 N, disposed on the upper surface side of the lower soft **polyurethane foam layer**. Recesses 2a, 2b and 2c are formed on the lower soft **polyurethane foam layer** 2 at positions abutting to projections of the body of the sleeper when the sleeper turns from side to side, and the thickness of the upper soft **polyurethane foam** layers 1 is thickened at the positions 1a, 1b and 1c of the **polyurethane foam** layers 1 corresponding to the recesses 2a, 2b and 2c.

- COPYRIGHT: (C)2007,JPO&INPIT

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PN - **JP2000313096** A 20001114

PR - JP19990124522 19990430

AP - JP19990124522 19990430

DT - I

FI - B29C43/18; B29K105/04; B32B27/40; B32B5/32

FT - 4F100/AK01A; 4F100/AK51B; 4F100/AK51C; 4F100/AT00B; 4F100/BA03; 4F100/BA07; 4F100/BA10A; 4F100/BA10B; 4F100/CB00; 4F100/DJ01B; 4F100/DJ01C; 4F100/EC182; 4F100/EH312; 4F100/GB33; 4F100/JA14B; 4F100/JA15C; 4F100/JB16A; 4F100/JK11; 4F204/AA42; 4F204/AG03; 4F204/AG20; 4F204/AH26; 4F204/FA01; 4F204/FB01; 4F204/FB13; 4F204/FB24; 4F204/FG04; 4F204/FQ01

PA - SUMITOMO CHEMICAL CO

TI - **MULTILAYERED** MOLDED ARTICLE AND PRODUCTION THEREOF

AB - PROBLEM TO BE SOLVED: To produce a **multilayered** molded article at a low cost without generating the damage or **cushioning** properties caused by the collapse of a **foam layer**, by constituting a skin material of two or more kinds of urethane **foam** layers different in **density** and positioning low **density** urethane **foam layer** on the surface side of the molded article and positioning a high **density** urethane **foam layer** on a base material side. SOLUTION: An urethane **foam layer** 3 is constituted of two kinds of **foam** layers respectively comprising soft or semihard **polyurethane** foams different in **density**. As a backing material, a nonwoven fabric of a natural fiber or a synthetic fiber such as a polyamide fiber or a synthetic resin sheet or film is used and, as a thermoplastic resin 7, polyethylene or polypropylene is used. A skin material consists of a skin **layer** 2, the urethane **foam layer** 3 consisting of two layers different in **density** and a backing **layer** 4, and the urethane **foam layer** 3 is arranged so that a low **density** urethane **foam layer** 3-1 is provided on the side of the skin **layer** 2, and a high **density** urethane **foam layer** 3-2 is provided on the side of the backing **layer** 4. By this constitution, the damage of **cushioning** properties caused by the collapse of the **foam layer** is prevented and a **multilayered** molded article can be produced at a low cost.

8/11 © EPODOC / EPO

PN - **WO2005011442** A1 20050210

PNFP - WO2005011442 A8 20060601

- WO2005011442 B1 20050421

PR - ES20030001824 20030731

AP - WO2004ES00338 20040719

DT - **

CT - |ES| ISR (A1)
US4901387 A 19900220
[X] (LUKE JOHN K [US]);
EP0367607 A1 19900509
[X] (SPAN AMERICA MEDICAL SYST [US]);
DE19919502 C1 20000621
[X] (HUELSTA WERKE HUELS KG [DE]);

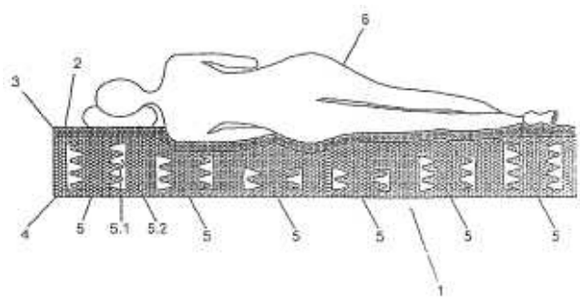

FIGURA 4

ES1028212U U 19941216
[A] (GREGORIO CASAMIAN JOSE MANUEL [ES], et al)

CCI - A47C27/144 ; A47C27/15

PA - (A1)
QONFORT CONI S L [ES]
- (A8)
QONFORT CONI S L [ES]; ALONSO CUCURULL RICARDO [ES]
- (B1)
QONFORT QONI S L [ES]

TI - (A1 B1)
FOAM SPRING **MATTRESS**
- (A8)
Foam spring **mattress**

AB - (A1 A8 B1)
The **mattress** (1) is made from a block of flexible **polyurethane foam** (4) with a **density** of 40 Kg/m<3> or any other **density**, said block being firstly cut with a programmable automatic machine by the main side and then turned at a 90<0> degree angle by its small side. A certain amount of springs (5) is thereby formed depending on each type of **mattress** (1). The amount of spirals (5.1) of every spring (5) depends on the position of each spring in the **mattress** (1) with the purpose of varying the flexibility thereof so that the **mattress** (1) can perfectly adapt to the contour of every user or so that the flexibility can remain constant throughout the entire **mattress**. **Multiple** variations can be realized while the height of the entire **mattress** remains the same (less spirals having the same spiral thickness and more base and uncut, etc.; the width of a spiral can be changed, as well as the number of spirals, the inclination of the axis of the spiral, the total height of an area -bulge or cavity-, etc.) The upper surface of the product is covered with a viscous elastic **layer** (3) of **polyurethane** with a 50 Kg/m<3> **density**, 4 cm thickness and a threaded padding (2).

PN - **EP1692975** A1 20060823

PNFP - EP1692975 B1 20111228

PR - WO2004ES00338 20040719; ES20030001824 20030731

AP - EP20040742066 20040719

DT - *

CCI - **A47C27/144** ; **A47C27/15**

PA - (A1)
QONFORT QONI S L [ES]
- (B1)
QONFORT CONI S L [ES]

TI - (A1 B1)
FOAM SPRING **MATTRESS**

AB - (A1)
This **mattress** (1) is made of a block of flexible **polyurethane foam** (4) of 40 Kg/m 3 or of any other **density**, which is cut with an automatic programmable machine, first on the larger side and later turning the block by 90 DEG on its smaller side, thus forming a certain number of springs (5) depending on each type of **mattress** (1). The number of spirals (5.1) that each spring (5) has depends on the position of each one in the **mattress** (1) with the objective of varying its flexibility and that said **mattress** (1) should adapt perfectly to the shape of each person, or it can be constant throughout the entire **mattress**. **Multiple** variations can be carried out, maintaining the same height throughout the whole of the **mattress** (less spirals of the same spiral width with more uncut base, etc.; the width of a spiral can vary, the number of spirals, the inclination of the axis of the spirals, the inclination of the spiral, the total height of an area - raised section or cavity - etc.). The product is finished on its upper face with a visco-elastic **layer** (3) of 50 Kg/m 3 **polyurethane**, 4 cm thick, and finally it includes knit padding (2).

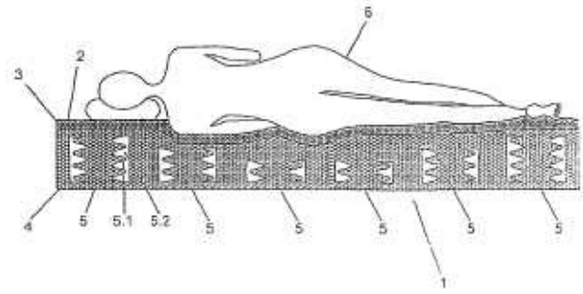

FIGURA 4

PN - **CA2533009** A1 20050210

PR - ES20030001824 20030731; WO2004ES00338 20040719

AP - CA20042533009 20040719

DT - I

CCI - **A47C27/144** ; **A47C27/15**

PA - QONFORT CONI S L [ES]

TI - **FOAM** SPRING **MATTRESS**

AB - The **mattress** (1) is made from a block of flexible **polyurethane foam** (4) with a **density** of 40 Kg/m3 or any other **density**, said block being firstly cut with a programmable automatic machine by the main side and then turned at a 900 degree angle by its small side. A certain amount of springs (5) is thereby formed depending on each type of **mattress** (1). The amount of spirals (5.1) o f every spring (5) depends on the position of each spring in the **mattress** (1) with the purpose of varying the flexibility thereof so that the **mattress** (1) can perfectly adapt to the contour of every user or so that the flexibility can remain constant throughout the entire **mattress**. **Multiple** variations can be realized while the height of the entire **mattress** remains the same (less spirals having the same spiral thickness and more base and uncut, etc.; the width of a spiral can be changed, as well as the number of spirals, the inclination of the axis of the spiral, the total height of an area -bulge or cavity-, etc.) The upper surface of the product is covered with a viscous elastic **layer** (3) of **polyurethane** with a 50 Kg/m3 **density**, 4 cm thickness an d a threaded padding (2).

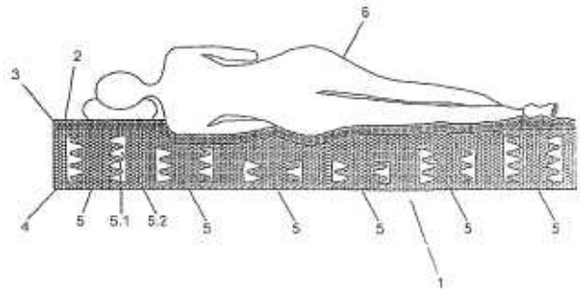

FIGURA 4

11/11 © EPODOC / EPO

PN - **BE897702** A 19840102

PR - BE19830897702 19830907

AP - BE19830897702 19830907

DT - *; Rep

CCI - **A47C20/04**

PA - BOONANTS MARIUS BIEFNOT HENRI

TI - Semi-rigid **mattress** on **multi**-purpose orthopaedic bed - having one or more firm but soft core layers of expanded **polyurethane foam**

AB - Bed comprising a chassis carrying at least three separate panels which are independently adjustable into positions for supporting the head, trunk and limbs respectively of a recumbent or semi-recumbent patient is complemented by a semi-rigid **mattress** made from a combination of two layers of expanded plastics matl, the lower **layer** being sufficiently dense to support the incumbent and the upper **layer** being less dense and hence more flexible to provide greater comfort. The **mattress** is pref. enclosed by a soft but hardwearing cover of e.g. a knitted nylon (polyamide) fabric. - No particular materials are claimed for the various rigid components described for assembly of the chassis. The **mattress** components pref. comprise a lower **layer** 3-6 cm thick of flexible **polyurethane foam** of **density** 20-50 kg/m3.

[SS 9]