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(54) **HAMMOCK FOR BABIES**

HÄNGEMATTE FÜR BABYS

HAMAC POUR BÉBÉS

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(56) References cited:

GB-A- 2 596 272 JP-A- 2010 148 657

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Description**TECHNICAL FIELD**

[0001] The invention relates to a baby hammock. In a second aspect, the invention relates to a kit comprising said baby hammock and a stand.

PRIOR ART

[0002] The most commonly used form of cribs for babies from birth is a bassinet-style crib. This consists of a flat base part with a surrounding wall, and a lying mat [in Dutch: 'ligmat'] on top of the base part. This creates a flat surface on which the baby can sleep. Young babies need more sleep and often do not cope well with the transition from the womb to sleeping on a flat surface.

[0003] To remedy this, attempts have been made in the past to comfort babies in their early stages of life by putting them to sleep in a hammock. There are many types of supports and/or hammocks for babies. For example, WO2013088432A1 describes a hammock device adapted to support a baby in a reclined/recumbent position.

[0004] However, such hammocks for babies are often not safe. US5097545 describes a baby hammock comprising a safety belt, however this belt hinders the baby's natural sleeping movements. On the other hand, other known baby hammocks include a lying mat made of materials that allow the baby to sink into the lying mat or materials that do not sufficiently prevent overheating. This can create dangerous situations.

[0005] GB2596272 concerns a hammock that is aimed at allowing a natural rocking movement. JP2010148657 discloses a mattress composed of a three-dimensional knitting consisting of surface fabric, reverse fabric and a group of connecting yarns interposed between the surface fabric and the reverse fabric and connecting the surface fabric and the reverse fabric.

[0006] There is a need for safer baby hammocks that both guarantee comfort for the baby and significantly reduce the risk of suffocation or SIDS in babies. The present invention aims to find a solution for at least some of the above problems.

SUMMARY OF THE INVENTION

[0007] The invention relates in a first aspect to a baby hammock according to claim 1.

[0008] The advantage of the present invention is that when a baby rolls over in the hammock and lies with its face against the side walls of the hammock or against the lying mat, the baby is not restricted in its breathing. A hammock according to claim 1 also allows sufficient ventilation and perspiration, which reduces the risk of overheating while sleeping. It is therefore an object of the invention to propose a safe baby hammock, which both guarantees comfort for the baby and significantly re-

duces the risk of suffocation or SIDS in babies.

[0009] Preferred forms of the baby hammock are set out in claims 2-14

DESCRIPTION OF THE FIGURES

[0010]

10 **Figure 1A** shows a perspective view of the hammock in its entirety according to an embodiment of the present invention.

Figure 1B shows a perspective view of the support structure according to an embodiment of the present invention.

15 **Figure 2** shows an enlarged view of the fabric of the support structure according to an embodiment of the present invention.

Figure 3 shows an enlarged view of the foot end of the hammock according to an embodiment of the present invention.

20 **Figure 4** shows a schematic representation of the open three-dimensional knitted structure according to an embodiment of the present invention.

25 **Figure 5** shows a schematic enlarged view of the lying mat according to an embodiment of the present invention.

Figure 6 shows a perspective view of the kit according to an embodiment of the present invention.

30 **Figure 7** shows an enlarged view of a suspension system according to an embodiment of the present invention.

35 **Figure 8** shows a perspective view of a stand included in a kit according to an embodiment of the present invention.

DETAILED DESCRIPTION

[0011] The invention concerns a safe baby hammock.

40 [0012] Unless otherwise defined, all terms used in the description of the invention, including technical and scientific terms, have the meaning as commonly understood by a person skilled in the art to which the invention pertains. For a better understanding of the description of the invention, the following terms are explained explicitly.

45 [0013] In this document, "a" and "the" refer to both the singular and the plural, unless the context presupposes otherwise. For example, "a segment" means one or more segments.

50 [0014] When the term "around" or "about" is used in this document with a measurable quantity, a parameter, a duration or moment, and the like, then variations are meant of approx. 20% or less, preferably approx. 10% or less, more preferably approx. 5% or less, even more preferably approx. 1% or less, and even more preferably approx. 0.1% or less than and of the quoted value, insofar as such variations are applicable in the described invention. However, it must be understood that the value of a quantity used where the term "about" or "around" is used,

is itself specifically disclosed.

[0015] The terms "comprise," "comprising," "consist of," "consisting of," "provided with," "have," "having," "include," "including," "contain," "containing" are synonyms and are inclusive or open terms that indicate the presence of what follows, and which do not exclude or prevent the presence of other components, characteristics, elements, members, steps, as known from or disclosed in the prior art.

[0016] Quoting numerical intervals by endpoints comprises all integers, fractions and/or real numbers between the endpoints, these endpoints included.

[0017] The term "polyester layer" refers to a layer made mainly of polyester material, or even made entirely of polyester as understood by a skilled person in the textile industry.

[0018] The term "polyurethane layer" refers to a layer made mainly of polyurethane (PU) as understood by a skilled person in the textile industry.

[0019] The term "top" as used in the description of the lying mat and the layers of the lying mat refers to the side of the lying mat or layer that faces the baby when it would be lying in the hammock.

[0020] The term "lamination", as used in the text, refers to the bonding together of two or more layers of textiles by means of adhesives, thanks to the adhesive power of one or more layers of which the whole is composed or under the influence of heat or pressure, as understood by a skilled person in the textile industry.

[0021] The term "three-dimensional knitted product" or "three-dimensional knitted structure" in the description of the invention refers to the distinction with a conventional - two-dimensional - knitted product. Conventional knitted products comprise one layer of textile which consists - in a simple implementation - of a number of rows of a number of stitches. To produce conventional knitted products comprising several layers of textile, several textile layers must be sewn together, or hems must be provided. Three-dimensional knitted products, however, comprise several layers of textile without having to sew them together and without having to provide one or more hems.

[0022] In the description of the present invention, the term "heat-setting" refers to a process in which fibers, yarn, fabric, textile and/or a knitted product are treated with heat to stabilize them.

[0023] In a first aspect, the invention relates to a baby hammock, wherein the hammock comprises a textile support structure, suitable for attachment to a suspension point and wherein the support structure in suspended condition defines a lying surface, head and foot end, and side walls, wherein the support structure is at least partly manufactured from a textile provided with a pattern of perforations.

[0024] According to a preferred embodiment, the lying surface is provided with a lying mat, wherein the lying mat comprises an open three-dimensional knitted structure.

[0025] Providing such an open structure allows the baby to breathe freely, even in situations where the baby

is lying face down. The perforated side walls also contribute to a safe situation, for example when a baby rolls over in the hammock and lies with its face against the side walls of the hammock. Also in this situation the baby is not restricted in its breathing. Said hammock also allows sufficient ventilation and perspiration, which reduces the risk of overheating while sleeping. In this way, the hammock can guarantee both comfort for the baby and significantly reduce the risk of suffocation or SIDS in babies.

[0026] The open three-dimensional knitted structure also ensures that the baby does not sink into the lying mat. This is because the structure is prevented from bending or turning back under the weight of a baby placed on it, so that the lying mat becomes more or less incompressible under such weight.

[0027] According to a specific embodiment, the open three-dimensional knitted structure is formed by substantially rigid monofilaments, preferably upright rigid monofilaments. The upright monofilaments are at a sufficient distance from each other to allow said air flow. In a preferred embodiment, the open three-dimensional knitted structure has a thickness between 0.2 and 2 cm, preferably between 0.5 and 1.5 cm. Preferably, the monofilaments are made of polyester and preferably the monofilaments have a diameter between 0.1 and 0.2 mm, more preferably between 0.12 and 0.16 mm.

[0028] According to a preferred form, the open three-dimensional knitted structure comprises between 30 and 100 monofilaments per cm², preferably between 40 and 80 monofilaments per cm², more preferably between 50 and 70 monofilaments per cm².

[0029] According to an embodiment, the load-bearing capacity of the open three-dimensional knitted structure is between 1 and 3 ton/m², preferably a minimum of 1.5 and 2.5 ton/m², more preferably 1.8 and 2.2 ton/m², even more preferably between 1.9 and 2.1 ton/m³.

[0030] The load-bearing capacity of the three-dimensional knitted structure strongly depends on the number of monofilaments per cm² and the diameter of the monofilaments. The fewer monofilaments present per cm², the lower the load-bearing capacity. The larger the diameter of the monofilament, the higher the load-bearing capacity. A higher number of thin monofilaments can achieve the same load-bearing capacity as a lower number of thicker monofilaments.

[0031] The thickness of the open three-dimensional knitted structure also influences the load-bearing capacity of the open three-dimensional knitted structure. For the same number of monofilaments with the same diameter, the load-bearing capacity will be greater for an open three-dimensional knitted structure with a smaller thickness.

[0032] According to an embodiment, the open three-dimensional structure comprises meshes, preferably hexagonal meshes. The meshes preferably have a diameter between 0.5 and 10 mm, more preferably a diameter between 1 and 3 mm.

[0033] In particular, the meshes in the open three-dimensional structure are made in a pattern of a honeycomb structure. A three-dimensional honeycomb structure pattern provides sufficient support and provides support that is equal over the entire surface of the relevant knitted product. In addition, the meshes in the honeycomb structure pattern provide the air permeability of the textile. Preferably, the honeycomb structure pattern mainly comprises hexagonal shapes.

[0034] The open three-dimensional structure is preferably further provided with monofilaments, which extend obliquely with respect to the mutually parallel top and bottom sides of the open three-dimensional structure and are crossed at the same angle to each other and with respect to these top and bottom sides, in order to give the open three-dimensional structure, in a direction perpendicular to it, sufficient resilience and at the same time the required rigidity to ensure that it is little compressed under the weight of a baby lying on the lying mat and thus said airflow is maintained.

[0035] The open three-dimensional knitted structure can be produced by methods known in the art, such as by means of a knitting machine, wherein the open three-dimensional knitted structure is held under tension, stretched and heat set during manufacture. During the manufacturing process, the open three-dimensional knitted structure is preferably kept under tension, whereby the knitted product is continuously tensioned, so that stronger and wider stitches can be produced than if no tension were maintained. The strength of stitches prevents unwanted loosening of stitches during the further production process or use of the knitted product or the produced lying mat, while wide stitches give rise to a larger mesh size in the textile and consequently increase the air permeability of the knitted product and the final produced lying mat. It is important that the textile can be stretched later in production in order to increase the mesh sizes in the textile and thus induce an air-permeable structure in the textile.

[0036] According to the present invention, at least the side walls and the head end of the support structure are manufactured from a textile provided with a pattern of perforations, preferably the entire support structure is manufactured from a textile provided with a pattern of perforations. At least the side walls and the head end must be made of a textile with a pattern of perforations, because the baby can lie with their face against this. When the entire support structure is made of a textile provided with a pattern of perforations. In this way, the entire support structure can be made from one continuous textile, which improves production efficiency.

[0037] According to an embodiment, the perforations in the pattern of perforations of the support structure have a diameter between 0.5 and 1.5 mm, preferably about 1 mm.

[0038] According to an embodiment, the pattern of perforations consists of between 4 and 7 regularly positioned perforations per cm², preferably between 5 and 6

regularly positioned perforations per cm², even more preferably about 5.4 regularly positioned perforations per cm². Sufficient perforations in the perforation pattern are necessary to allow air to pass through the fabric. This is necessary in order not to hinder a baby who has its face against the side walls of the support structure during breathing.

[0039] According to an embodiment, the support structure is made of cotton or polyester (PES). According to a preferred form, the support structure is made of polyester (PES). Polyester is a breathable textile that does not absorb moisture. Unlike, for example, cotton or linen, the openings in the textile do not close when it comes into contact with moisture, such as during perspiration. In addition, PES is colorfast, and the color does not fade after a wash.

[0040] According to a preferred embodiment, the lying mat comprises a multi-layer structure. According to a preferred form, the open three-dimensional knitted structure is provided with an air-permeable finishing layer, which is laminated to the open three-dimensional knitted structure. The air-permeable finishing layer is preferably laminated to the top of the open three-dimensional knitted structure.

[0041] According to a specific preferred form, the air-permeable finishing layer is the layer of the lying mat on which the baby will lie. This is preferably manufactured from the same textile provided with a pattern of perforations as from which the support structure is at least partly manufactured. The perforations also ensure that the lying mat is permeable to air and that the baby can continue to breathe when it comes to lie with its face on the finishing layer. The air-permeable finishing layer also protects the open three-dimensional knitted structure, without completely covering the open structure.

[0042] The lying mat according to the invention has the further advantage that it is easy to wash, in particular due to the more or less continuous free space of the open three-dimensional knitted structure.

[0043] Furthermore, this lying mat remains free of dust mites thanks to the continuous airflow in the open three-dimensional knitted structure, the relatively low temperature that is maintained and the absence of perspiration, making it ideal for babies who have allergies.

[0044] According to an embodiment, the lying mat is further provided with one or more moisture-absorbing layers and one or more water-repellent layers, or a combination thereof. The lying mat preferably comprises one moisture-absorbing layer and one water-repellent layer. Even more preferably, the moisture-absorbing layer and the water-repellent layer are laminated to each other. The water-repellent layer is laminated to the underside of the moisture-absorbing layer. The moisture-absorbing layer ensures that the underside of the lying mat is moisture-resistant. Thanks to the moisture-repellent effect, the moisture does not penetrate the lying mat. A moisture-absorbing layer on top of the water-repellent layer absorbs the moisture.

[0045] According to a preferred form, the lying mat comprises at least the following sequential layers:

- an air-permeable finishing layer,
- a layer comprising the open three-dimensional knitted structure,
- a moisture-absorbing layer,
- a water-repellent layer,
- a finishing layer.

[0046] According to this preferred form, the air-permeable finishing layer forms the top of the lying mat which makes contact with the baby when it is lying in the hammock. According to a specific preferred form, this air-permeable finishing layer is manufactured from the same textile provided with a pattern of perforations as from which the support structure is at least partly manufactured. The perforations ensure that the lying mat is permeable to air and that the baby can continue to breathe when it comes to lie with its face on the finishing layer. The air-permeable finishing layer also protects the open three-dimensional knitted structure, without completely covering the open structure.

[0047] According to this embodiment, the layers in the lying mat are laminated to each other according to their sequence.

[0048] According to an embodiment, the lying mat has a thickness between 2 and 3 cm. This is necessary to provide sufficient support to the baby while sleeping.

[0049] According to an embodiment, the lying mat has a length between 70 and 90 cm. The minimum length is necessary so that babies of different lengths can be put down to sleep in the hammock, always leaving enough space between the baby's head and the head end and the baby's feet and the foot end.

[0050] According to an embodiment, the lying mat has a width between 25 and 35 cm. This minimum width is necessary so that the baby can move enough and does not end up in a forced position.

[0051] According to an embodiment, a mattress is also provided. In a preferred form, this mattress is positioned between the lying mat and the lying surface. According to a specific embodiment, this mattress is removably positioned between the lying mat and the lying surface.

[0052] According to an embodiment, the mattress has the same dimensions as or smaller dimensions than the lying mat. In this way, the lying mat always covers the entire mattress. According to a preferred form, the lying mat and the mattress have the same dimensions. According to a further preferred form, the lying mat is attached to the lying surface of the support structure by means of seams over the length of the sides and by means of a seam at the head end. In this way, the mattress can be placed on the side of the foot end between the lying mat and the lying surface. The mattress can be removed from the hammock when the hammock is washed, for example.

[0053] According to a preferred form, the mattress is

manufactured from a material selected from the list of: memory foam, cold foam, hybrid foam and KAPUA® foam.

[0054] Memory foam provides excellent support and relieves pressure. When memory foam gets warm, it becomes soft. The memory foam makes a "mold" of the baby. The baby therefore does not suffer from pressure points. Furthermore, the cell structure of memory foam is open instead of closed, as is the case with polyether, for example. The open-cell structure, also called homogeneous structure, ensures high air permeability (ventilation). Memory foam, however, deforms under the influence of body heat, so that the cells are slightly compressed and the ventilation capacity decreases.

[0055] Cold foam is flexible and resilient, which means that it offers a lot of support, but also a lot of comfort. The comfort of cold foam is mainly due to its high elasticity (point elasticity). Point elasticity is the ability to compress a portion of the foam without a large area of the foam springing down. Furthermore, the cell structure of cold foam is open instead of closed, as is the case with polyether, for example. The open-cell structure, also referred to as a homogeneous structure, ensures high air permeability (ventilation) and thus excellent moisture regulation and heat dissipation, which also helps prevent SIDS in babies.

[0056] Hybrid foam is an evolved version of cold foam. The hybrid foam is more elastic and therefore has less or no chance of dimple formation. Because the hybrid foam molds to the contours of the body, it feels very good to the baby. The body is well supported without pressure points. When pressure from the baby's body is exerted on the hybrid foam, the air in the cells is spread to the cells next to them. In this way, the pressure is spread over a large number of cells and the baby does not suffer from pressure points. Thanks to the open-cell structure, hybrid foam provides excellent ventilation and good moisture regulation and ventilation, which also helps prevent SIDS in babies.

[0057] According to an embodiment, the mattress is surrounded by a removable cover.

[0058] The hammock as described above must be hung in order to be functional. According to an embodiment, the hammock further comprises a suspension system, suitable for attachment to a suspension point.

[0059] In a specific embodiment, the suspension system comprises a vertical spring. Furthermore, the suspension system preferably comprises two retaining clips in line with the vertical spring, wherein a retaining clip is movably attached to each end of the spring. The suspension system is attached to the top of the support structure, wherein a lower retaining clip of the suspension system provides the connection to the support structure and an upper retaining clip of the suspension system is adapted to make a connection with a suspension point.

[0060] According to an embodiment, the foot end is provided with a double closure via a button system or a

hook-and-loop fastener. The double closure ensures that the foot end can be hung open like a flap. The double closure also ensures that the baby cannot push the foot end open with its feet.

[0061] According to a preferred form, the suspension point is a stand. A stand is advantageous for using the hammock in a house with high ceilings or outdoors.

[0062] According to an alternative preferred form, the suspension point is a screw eye or ring on a ceiling. Hanging the hammock from a screw eye or ring on the ceiling is advantageous for indoor use and does not take up any extra space. In addition, a house or room can be equipped with two or more screw eyes or rings on the ceiling so that the hammock can be easily moved.

[0063] In a second aspect, the invention relates to a kit comprising a baby hammock according to an embodiment of the present invention and a stand suitable for hanging the hammock.

[0064] According to an embodiment, the stand can be four-legged or three-legged. A four-legged stand has four support points on the ground, and a three-legged stand has three support points on the ground. The legs of the stand are connected centrally.

[0065] According to another embodiment, the stand has a support surface with the ground. A stand is provided with a central ring at the top of the structure, suitable for attaching a retaining clip of a hammock suspension system.

[0066] In what follows, the invention is described by way of non-limiting figures illustrating the invention, and which are not intended to and should not be interpreted as limiting the scope of the invention.

DETAILED DESCRIPTION OF THE DRAWINGS

[0067] For advantages and technical effects of elements described below in the detailed description of the drawings, reference is made to the advantages and technical effects of corresponding elements described above in the detailed description.

[0068] The baby hammock **1** as shown in **Figures 1A and 1B** comprises a support structure **2** and a suspension system **3**. The suspension system **3** provides a safe and almost vertical connection for the support structure **2**. The support structure **2** is made of a perforated textile **5** and in suspended condition is built up from a lying surface **6**, a foot end **7**, a head end **8** and two side walls **9**. The lying surface **6** is provided with a lying mat **10**. A baby (not shown in the figure) is typically supported in the support structure **2** substantially in a reclined recumbent position, with its body oriented so that the baby's head is at a head end **8** and the baby's feet are at a foot end **7**.

[0069] The side walls **9** of the support structure **2** are gathered **11** at the ends **12** of a horizontal stabilizer **13**. The gathered side walls **14** are then bundled **15** and attached to the suspension system **3**. Thus, a triangular shape **16** is defined between the gathered side walls **14** and the horizontal stabilizer **13**. Under the horizontal

stabilizer **13** an opening **17** is thus defined above the lying surface **6**.

[0070] The side walls **9** thus connect the ends of the horizontal stabilizer **11** with the lying surface **6** of the support structure **2**. The horizontal stabilizer **13** can be attached at both ends **12** by means of cords **18** that can be tied, wherein the assembled side walls are enclosed.

[0071] The foot end **7** is provided with a double closure **19**, each closure comprising three press studs **20**.

[0072] The suspension system **3** further consists of a spring (not shown in the figure) surrounded by a sleeve **21** and two retaining clips at both ends of the spring (not shown in the figure).

[0073] As shown in **Figure 2**, the support structure **2** can be made of a perforated textile **5** with a pattern of perforations **22**. An example of such a pattern contains 5.4 perforations per cm², each perforation having a diameter of about 1 mm.

[0074] The foot end **7** as shown in **Figure 3** is provided with a double closure with press studs, the female part **23** of the snap fastener being on the foot end **7**, and the male part **24** of the snap fastener being on the side walls **9**. The foot end **7** can thus be opened to place the baby in the hammock and closed again.

[0075] The lying surface **6** is provided with a lying mat **10**, attached to the lying surface by means of seams **25** along the length of the lying mat, and a mattress **26** which is removably positioned between the lying surface and the lying mat. The mattress is also provided with a removable cover **27** made of the same perforated textile **5**.

[0076] The open three-dimensional knitted structure **28** forms the main component of the lying mat. A detail is shown in **Figure 4**.

[0077] As can be seen in **Figure 4**, both the top and the bottom are formed by a very open network, the meshes **29** of which are hexagonal, and a honeycomb structure is formed. Furthermore, the meshes **29** are directly opposite each other and the corresponding sides of those meshes are connected by monofilaments **30**, part of which are positioned perpendicularly between the top and bottom of the open three-dimensional knitted structure. The remaining monofilaments **31** are crossed over each other and are evenly distributed over the entire volume of the open three-dimensional knitted structure.

[0078] The obliquely oriented monofilaments **31** prevent the upright monofilaments **30** from bending or turning back under the weight of a baby lying on it, so that the lying mat becomes more or less incompressible under such weight.

[0079] In the embodiment according to **Figure 4**, the monofilaments are made of polyester with a diameter of 0.16 mm.

[0080] **Figure 5** shows a schematic construction of a lying mat according to an embodiment of the present invention. The lying mat **10** is made up of five layers, which are laminated to each other. A top layer **32** is made of the same perforated textile **5** as the support structure. This upper air-permeable finishing layer **32** is laminated

to a second layer **33** consisting of an open three-dimensional knitted structure **28**. A third layer is a moisture-absorbing layer. A fourth layer is a water-repellent layer. In the figure, the third and fourth layers are combined into one moisture-resistant layer **34**. A fifth layer **35** is laminated to the fourth layer and serves as a final finishing layer of the mattress.

[0081] In the embodiment according to **Figure 5**, the lying mat meets the following specifications:

- air-permeable finishing layer **32**: 100% polyester,
- layer consisting of an open three-dimensional knitted structure **33**: 100% polyester,
- moisture-absorbing layer: 80% cotton and 20% polyester,
- water-repellent layer: 100% polyurethane,
- finishing layer **35**: 100% polyester.

[0082] **Figure 6** shows a baby hammock **1** that is suspended from a ring **36** of a four-legged stand **4** consisting of four legs **37** to allow the hammock to hang freely safely (i.e. movements from left to right are possible). The hammock is attached to the stand by means of the suspension system **3** comprising a vertical spring (not shown in the figure) and an upper **38** retaining clip and a lower (not shown in the figure) retaining clip. The upper retaining clip **38** provides the connection between the top of the suspension system and the ring **36** of the stand **4**. The lower retaining clip provides the connection between the bottom of the suspension system and the support structure.

[0083] The upper retaining clip **38** is mechanically connected to the vertical spring (not shown in the figure), which is encased in a sleeve **21**. The vertical spring, in turn, is mechanically connected to the lower retaining clip.

[0084] An alternative embodiment of a four-legged stand **4**, consisting of four legs **37** and four support points **41** on the ground, belonging to a kit according to an embodiment of the present invention is shown in **Figure 8**.

[0085] The suspension system **3** as seen in **Figure 7** consists of an upper retaining clip **38** coupled to a spring **39**, which in turn is coupled to a second, lower retaining clip **40**. The lower retaining clip **39** has a spring lock (not shown in the figure) as is known in the art.

[0086] The vertical spring **39** is a spring, as known in the art, that allows a gentle, rocking, substantially vertically oriented movement to be imparted to the support structure.

[0087] The following numbers refer to:

- 1: hammock
- 2: support structure
- 3: suspension system
- 4: stand
- 5: textile provided with a pattern of perforations
- 6: lying surface

- 7: foot end
- 8: head end
- 9: side wall
- 10: lying mat
- 11: textile of the side wall gathered
- 12: end of the horizontal stabilizer
- 13: horizontal stabilizer
- 14: gathered side wall
- 15: bundled side walls
- 16: triangular shape
- 17: opening above lying surface
- 18: cord
- 19: closure
- 20: press stud
- 21: sleeve for the vertical spring
- 22: perforation
- 23: female part of the press stud
- 24: male part of the press stud
- 25: seam
- 26: mattress
- 27: cover for the mattress
- 28: open three-dimensional knitted structure
- 29: mesh
- 30: upright monofilament
- 31: oblique monofilament
- 32: air-permeable finishing layer
- 33: layer consisting of an open three-dimensional knitted structure
- 34: combined layer containing a moisture-absorbing layer and a water-repellent layer
- 35: finishing layer
- 36: ring on stand
- 37: leg of stand
- 38: upper retaining clip
- 39: vertical spring
- 40: lower retaining clip
- 41: support point of leg of a stand on the ground

[0088] The present invention should not be construed as being limited to the embodiments described above and certain modifications or changes may be added to the figures described without departing from the scope of the appended claims.

Claims

1. A baby hammock (1), wherein the hammock (1) comprises a textile support structure (2), suitable for attachment to a suspension point, and wherein the support structure (1) in suspended condition defines a lying surface (6), head (8) and foot end (7), and side walls (9), wherein the support structure (2) is at least partly manufactured from a textile provided with a pattern of perforations (5), **characterized in that** the lying surface (6) is provided with a lying mat (10), wherein the lying mat (10) comprises an open three-dimensional knitted structure (28),

wherein the portion of the support structure (2) forming the side walls (9) and the head end (8) is provided with a pattern of perforations (5).

2. The baby hammock according to claim 1, wherein the open three-dimensional structure is formed by substantially rigid monofilaments.
3. The baby hammock according to claim 1 or 2, wherein the open three-dimensional structure comprises meshes, preferably hexagonal meshes.
4. The baby hammock according to claim 3, the meshes having a diameter between 0.5 and 10 mm.
5. The hammock according to any of the preceding claims, wherein the entire support structure is provided with a pattern of perforations.
6. The hammock according to any of the preceding claims, wherein the perforations in the pattern of perforations of the support structure have a diameter between 0.5 and 1.5 mm.
7. The baby hammock according to any of the preceding claims, wherein the pattern of perforations consists of between 4 and 7 regularly positioned perforations per cm².
8. The baby hammock according to any of the preceding claims, wherein the support structure is manufactured from a polyester.
9. The baby hammock according to any of the preceding claims, wherein the lying mat comprises a multi-layer structure, wherein the open three-dimensional knitted structure is provided with an air-permeable finishing layer, which is laminated to the open three-dimensional knitted structure.
10. The baby hammock according to claim 9, wherein the lying mat is further provided with one or more moisture-absorbing layers and one or more water-repellent layers, or a combination thereof.
11. The baby hammock according to any of the preceding claims, wherein the lying mat comprises at least the following sequential layers:
 - an air-permeable finishing layer,
 - a layer comprising the open three-dimensional knitted structure,
 - a moisture-absorbing layer,
 - a water-repellent layer,
 - a finishing layer.
12. The baby hammock according to any of the preceding claims, wherein a mattress is provided between

the lying mat and the lying surface, preferably manufactured from memory foam, cold foam or hybrid foam.

- 5 13. The baby hammock according to any of the preceding claims, wherein the foot end is provided with a double closure via a button system or hook-and-loop fastener.
- 10 14. A kit comprising a baby hammock according to any of claims 1-13 and a stand suitable for hanging the hammock.

15 Patentansprüche

1. Kleinkind-Hängematte (1), wobei die Hängematte (1) eine textile Tragestruktur (2) umfasst, die zu Anbringung an einem Aufhängungspunkt geeignet ist, und wobei die Tragestruktur (1) im aufgehängtem Zustand eine Liegefläche (6), Kopf- (8) und Fußende (7) und Seitenwände (9) definiert, wobei die Tragestruktur (2) zumindest teilweise aus einer Textilie hergestellt ist, die mit einem Muster aus Perforationen (5) versehen ist, **dadurch gekennzeichnet, dass** die Liegefläche (6) mit einer Liegematte (10) versehen ist, wobei die Liegematte (10) eine offene dreidimensionale gewirkte Struktur (28) umfasst, wobei der Abschnitt der Tragestruktur (2), der die Seitenwände (9) und das Kopfende (8) bildet, mit einem Muster aus Perforationen (5) versehen ist.
2. Kleinkind-Hängematte nach Anspruch 1, wobei die offene dreidimensionale Struktur durch im Wesentlichen starre Monofilamenten gebildet ist.
3. Kleinkind-Hängematte nach Anspruch 1 oder 2, wobei die offene dreidimensionale Struktur Maschen umfasst, vorzugsweise sechseckige Maschen.
4. Kleinkind-Hängematte nach Anspruch 3, wobei die Maschen einen Durchmesser zwischen 0,5 und 10 mm aufweisen.
5. Kleinkind-Hängematte nach einem der vorhergehenden Ansprüche, wobei die gesamte Tragestruktur mit einem Muster aus Perforationen versehen ist.
6. Kleinkind-Hängematte nach einem der vorhergehenden Ansprüche, wobei die Perforationen in dem Muster aus Perforationen der Tragestruktur einen Durchmesser zwischen 0,5 und 1,5 mm aufweisen.
7. Kleinkind-Hängematte nach einem der vorhergehenden Ansprüche, wobei das Muster aus Perforationen aus zwischen 4 und 7 regelmäßig positionierten Perforationen pro cm² besteht.

8. Kleinkind-Hängematte nach einem der vorhergehenden Ansprüche, wobei die Tragestruktur aus einem Polyester hergestellt ist.
9. Kleinkind-Hängematte nach einem der vorhergehenden Ansprüche, wobei die Liegematte eine mehrschichtige Struktur umfasst, wobei die offene dreidimensionale gewirkte Struktur mit einer luftdurchlässigen Oberflächenschicht versehen ist, die an die offene dreidimensionale gewirkte Struktur laminiert ist.
10. Kleinkind-Hängematte nach dem vorhergehenden Anspruch 9, wobei die Liegematte ferner mit einer oder mehreren feuchtigkeitsabsorbierenden Schichten und einer oder mehreren wasserabweisenden Schichten oder einer Kombination daraus versehen ist.
11. Kleinkind-Hängematte nach einem der vorhergehenden Ansprüche, wobei die Liegematte mindestens eine der folgenden aufeinanderfolgenden Schichten umfasst:
- eine luftdurchlässige Oberflächenschicht,
 - eine Schicht, welche die offene dreidimensionale gewirkte Struktur umfasst,
 - eine feuchtigkeitsabsorbierende Schicht,
 - eine wasserabweisende Schicht,
 - eine Oberflächenschicht.
12. Kleinkind-Hängematte nach einem der vorhergehenden Ansprüche, wobei zwischen der Liegematte und der Liegefläche eine Matratze bereitgestellt ist, die vorzugsweise aus Formgedächtnisschaum, Kaltschaum oder Hybridschaum hergestellt ist.
13. Kleinkind-Hängematte nach einem der vorhergehenden Ansprüche, wobei das Fußende mit einem Doppelverschluss aus einem Knopfsystem oder einem Klettverschluss versehen ist.
14. Bausatz, eine Kleinkind-Hängematte nach einem der Ansprüche 1 bis 13 und ein Gestell umfassend, das zum Aufhängen der Hängematte geeignet ist.
- perforations (5), **caractérisé en ce que** la surface de couchage (6) est pourvue d'un tapis de couchage (10), dans lequel le tapis de couchage (10) comprend une structure (28) tricotée tridimensionnelle ouverte, dans lequel la partie de la structure de support (2) formant les parois latérales (9) et l'extrémité (8) pour la tête est pourvue d'un motif de perforations (5).
2. Hamac pour bébés selon la revendication 1, dans lequel la structure tridimensionnelle ouverte est formée par des monofilaments sensiblement rigides.
3. Hamac pour bébés selon la revendication 1 ou 2, dans lequel la structure tridimensionnelle ouverte comprend des mailles, de préférence des mailles hexagonales.
4. Hamac pour bébés selon la revendication 3, les mailles présentant un diamètre entre 0,5 et 10 mm.
5. Hamac selon l'une quelconque des revendications précédentes, dans lequel la structure de support entière est pourvue d'un motif de perforations.
6. Hamac selon l'une quelconque des revendications précédentes, dans lequel les perforations dans le motif de perforations de la structure de support présentent un diamètre entre 0,5 et 1,5 mm.
7. Hamac pour bébés selon l'une quelconque des revendications précédentes, dans lequel le motif de perforations est constitué d'entre 4 et 7 perforations régulièrement positionnées par cm².
8. Hamac pour bébés selon l'une quelconque des revendications précédentes, dans lequel la structure de support est fabriquée à partir d'un polyester.
9. Hamac pour bébés selon l'une quelconque des revendications précédentes, dans lequel le tapis de couchage comprend une structure multicouche, dans lequel la structure tricotée tridimensionnelle ouverte est pourvue d'une couche de finition perméable à l'air, qui est stratifiée sur la structure tricotée tridimensionnelle ouverte.
10. Hamac pour bébés selon la revendication 9, dans lequel le tapis de couchage est en outre pourvu d'une ou plusieurs couches absorbant l'humidité et d'une ou plusieurs couches hydrofuges, ou d'une combinaison de celles-ci.
11. Hamac pour bébés selon l'une quelconque des revendications précédentes, dans lequel le tapis de couchage comprend au moins les couches séquentielles suivantes :

Revendications

1. Hamac (1) pour bébés, dans lequel le hamac (1) comprend une structure de support (2) en textile, appropriée pour une fixation à un point de suspension, et dans lequel la structure de support (1) en état suspendu définit une surface de couchage (6), une extrémité (8) pour la tête et une extrémité (7) pour les pieds, et des parois latérales (9), dans lequel la structure de support (2) est au moins partiellement fabriquée à partir d'un textile pourvu d'un motif de

- une couche de finition perméable à l'air,
 - une couche comprenant la structure tricotée tridimensionnelle ouverte,
 - une couche absorbant l'humidité,
 - une couche hydrofuge, 5
 - une couche de finition.
- 12.** Hamac pour bébés selon l'une quelconque des revendications précédentes, dans lequel un matelas est prévu entre le tapis de couchage et la surface de couchage, de préférence fabriqué à partir de mousse à mémoire, de mousse froide ou de mousse hybride. 10
- 13.** Hamac pour bébés selon l'une quelconque des revendications précédentes, dans lequel l'extrémité pour les pieds est pourvue d'une double fermeture par l'intermédiaire d'un système de bouton ou d'une fermeture autoagrippante. 15
- 14.** Kit comprenant un hamac pour bébés selon l'une quelconque des revendications 1 à 13 et un support approprié pour suspendre le hamac. 20

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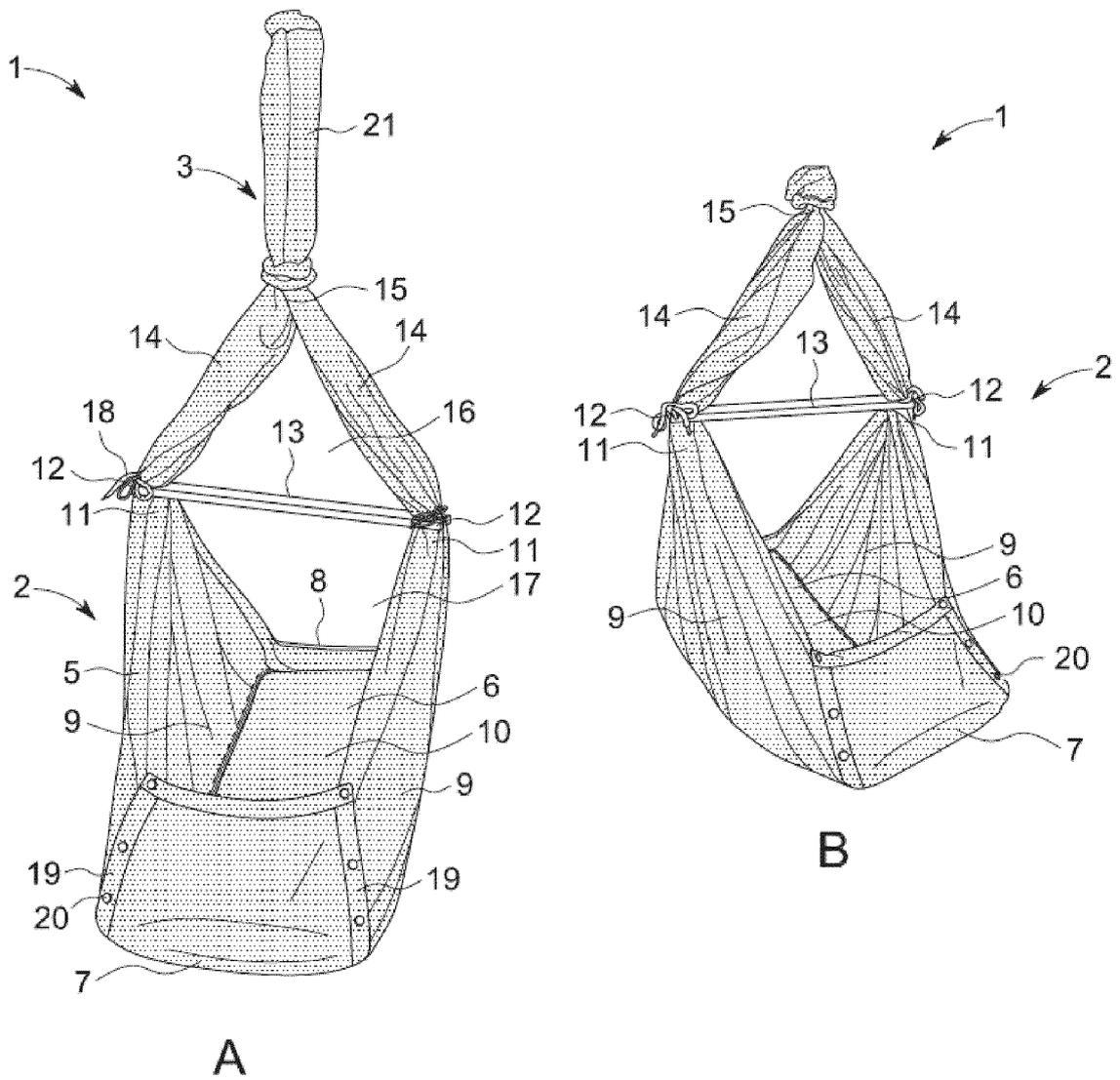


FIG. 1

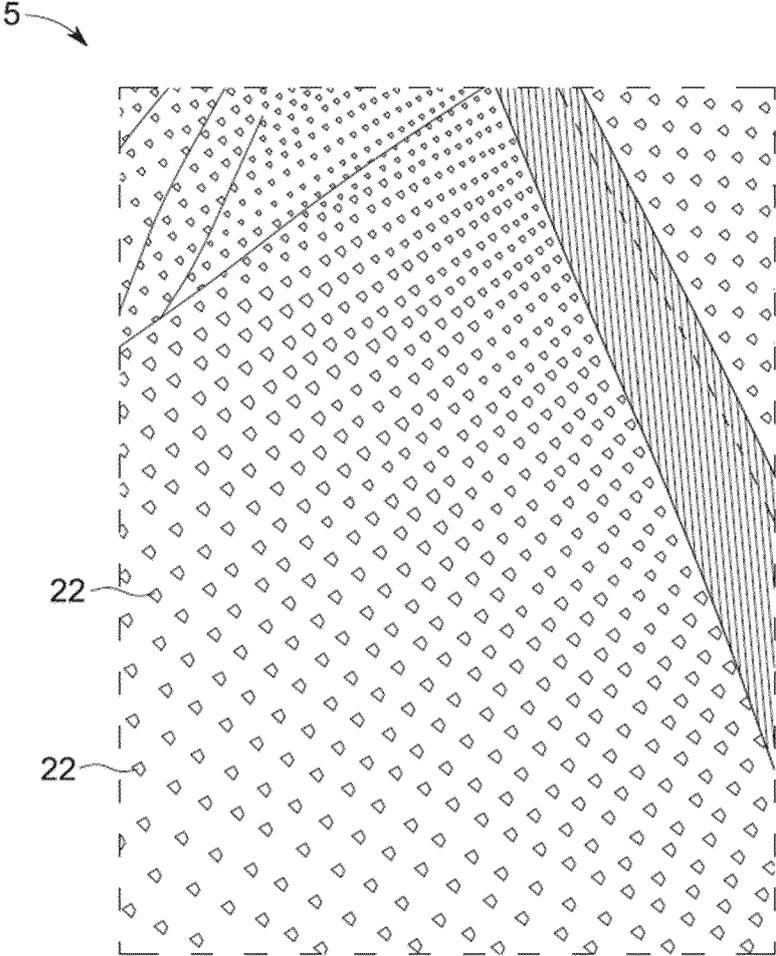


FIG. 2

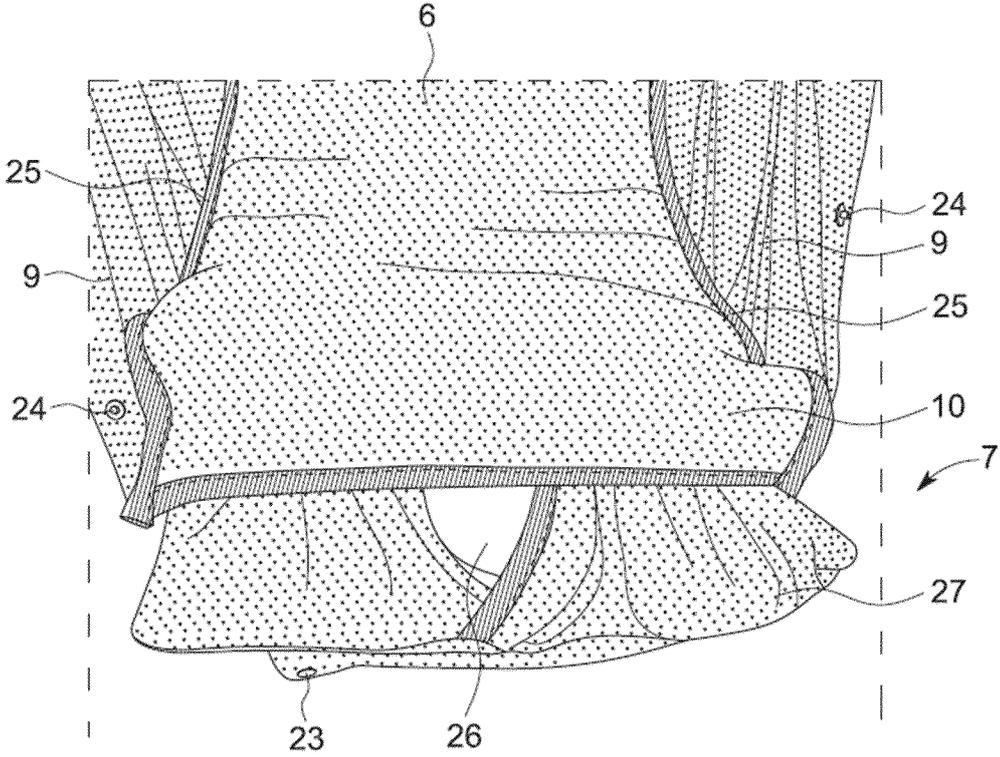


FIG. 3

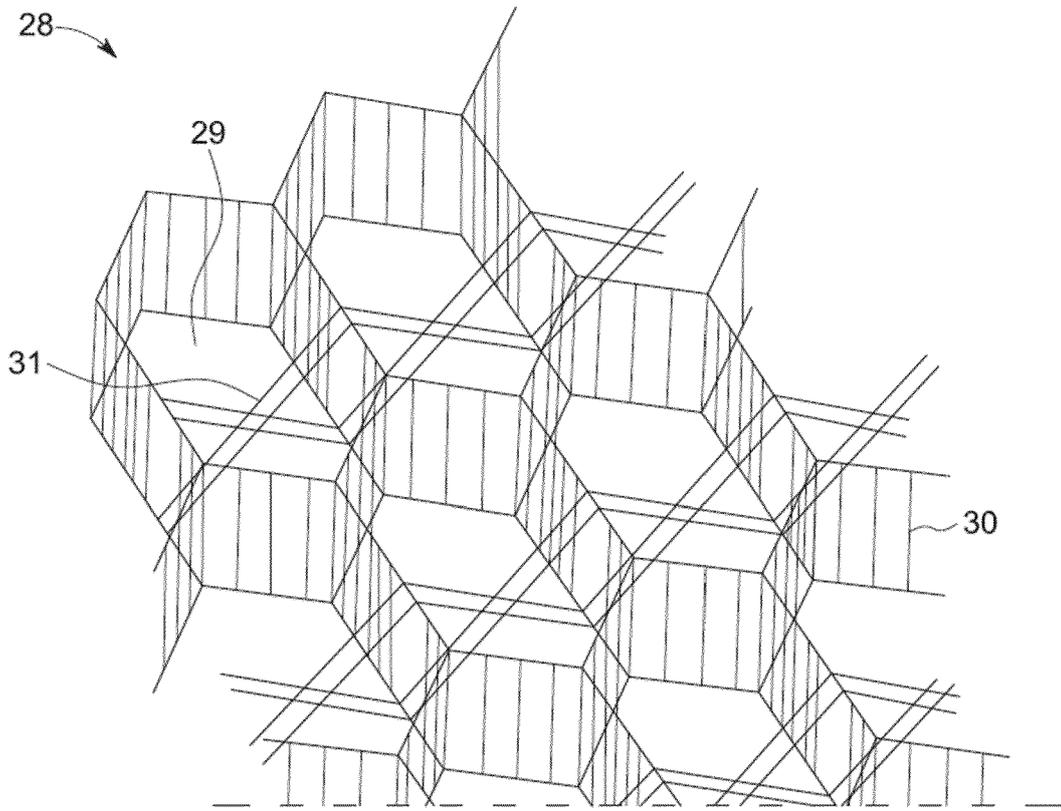


FIG. 4

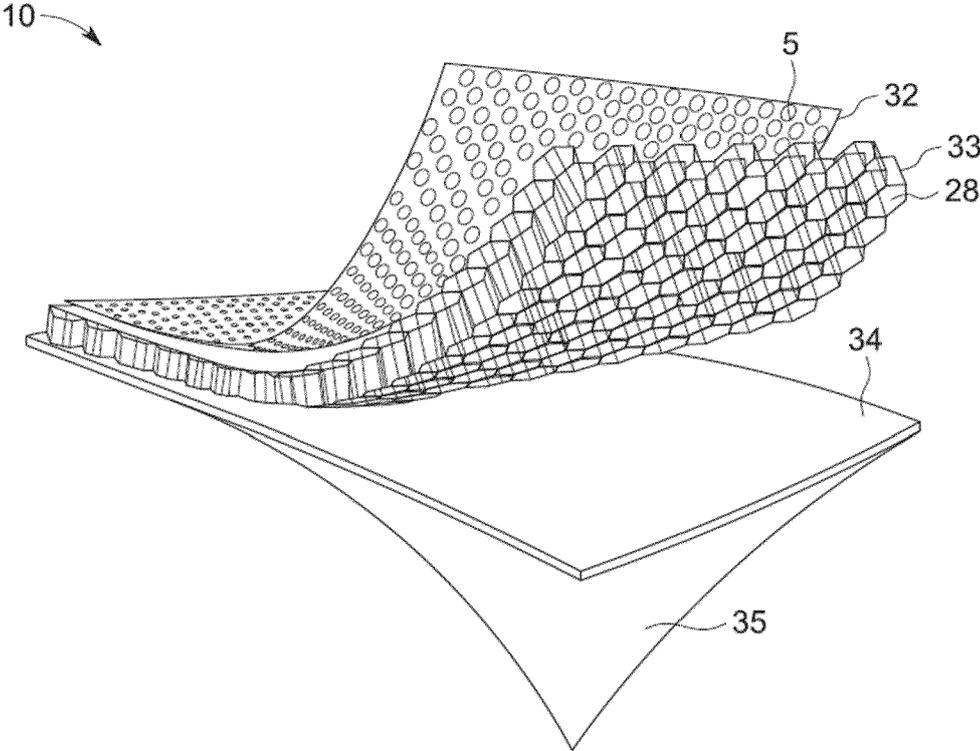


FIG. 5

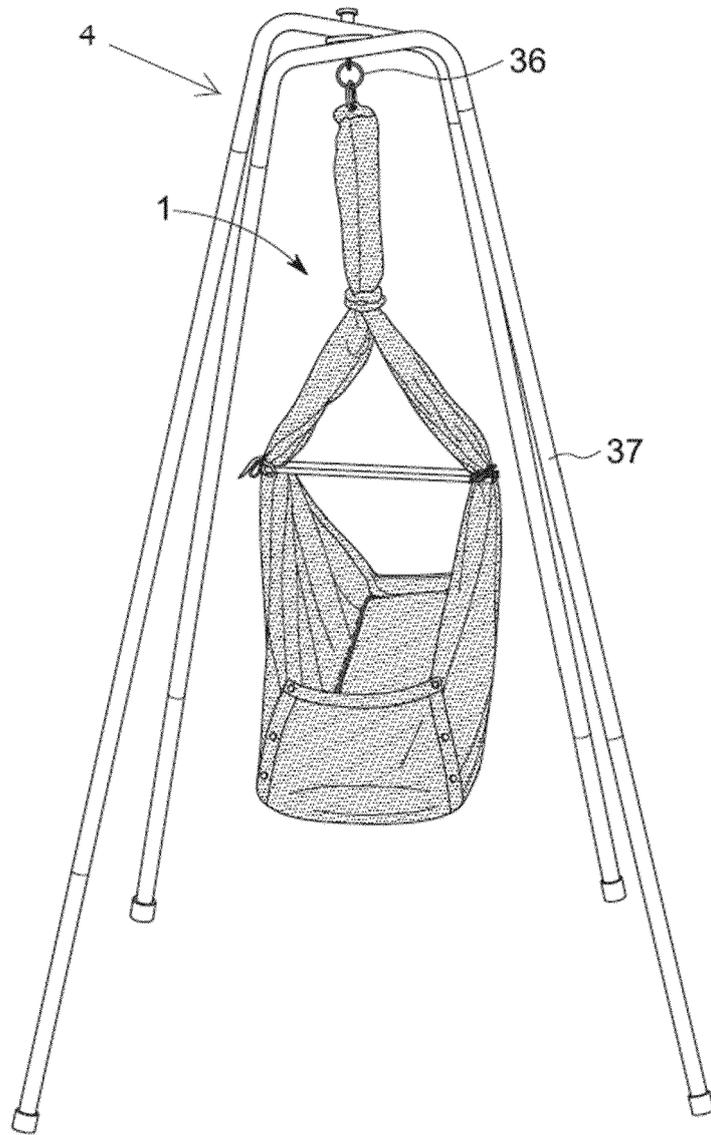


FIG. 6

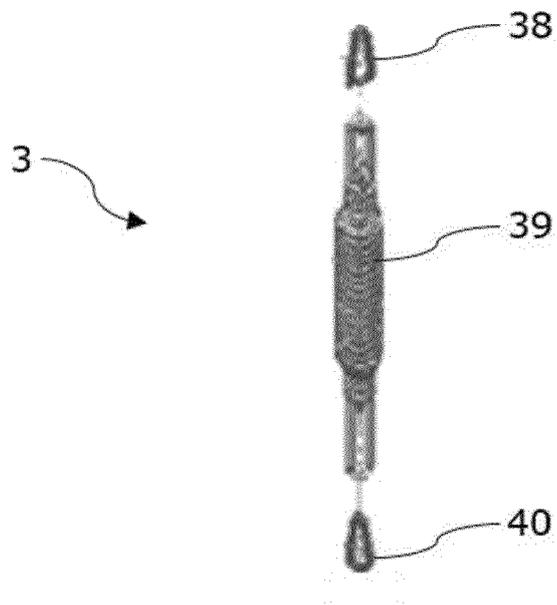


FIG. 7

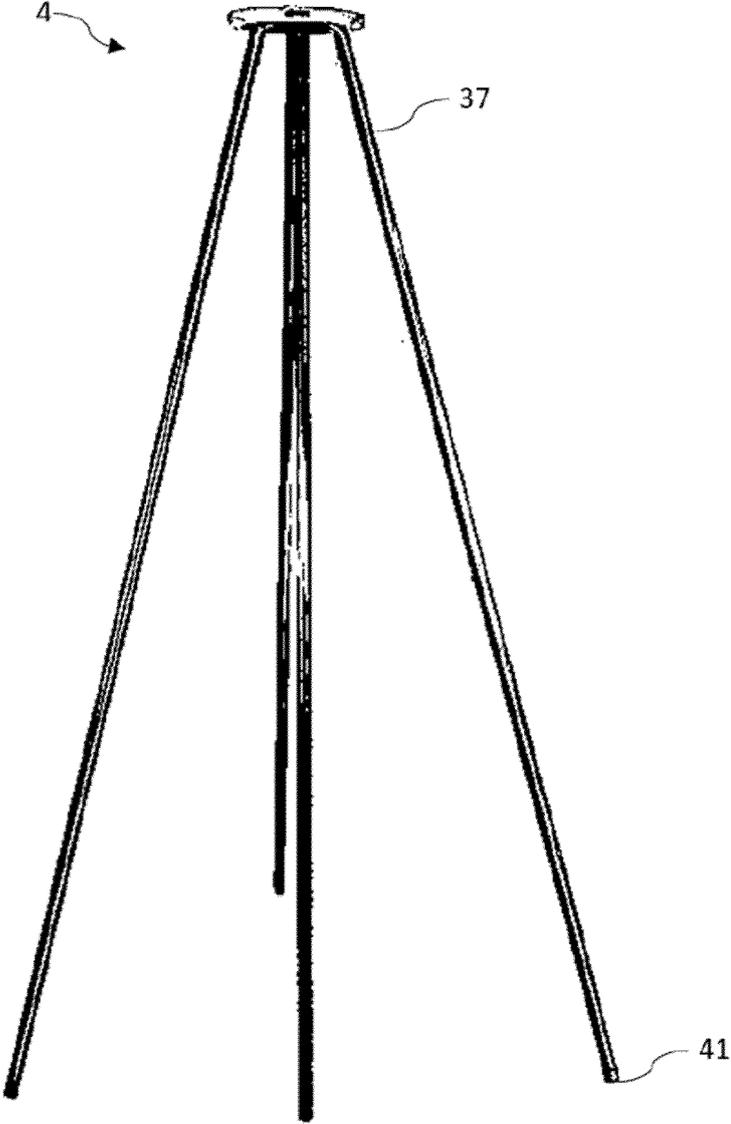


FIG. 8

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2013088432 A1 [0003]
- US 5097545 A [0004]
- GB 2596272 A [0005]
- JP 2010148657 B [0005]