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(54) **SUPPORT STRUCTURE AND BABY CARRIAGE**

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(57) **ABSTRACT**

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A support structure (2) is used for supporting an infant in a supine position. The support structure (2) includes a support body (21) and a neck bolster portion (22) for supporting a neck of the infant. A bottom surface of the support body (21) is a horizontal surface. A top surface of the support body (21) is an inclined surface for supporting the infant. The neck bolster portion (22) protrudes from the inclined surface. A concave structure (23) for resisting buttocks of the infant is provided along a downward direction of the inclined surface. The support structure (2) keeps an airway open when the infant sleeps in the supine position, so as to avoid sudden infant death syndrome. The support body (21) has the concave structure (23) for resisting buttocks of the infant and providing support for buttocks and legs of the infant, thereby preventing the infant from sliding down due to gravity and providing the infant with a comfortable feeling of being contained.

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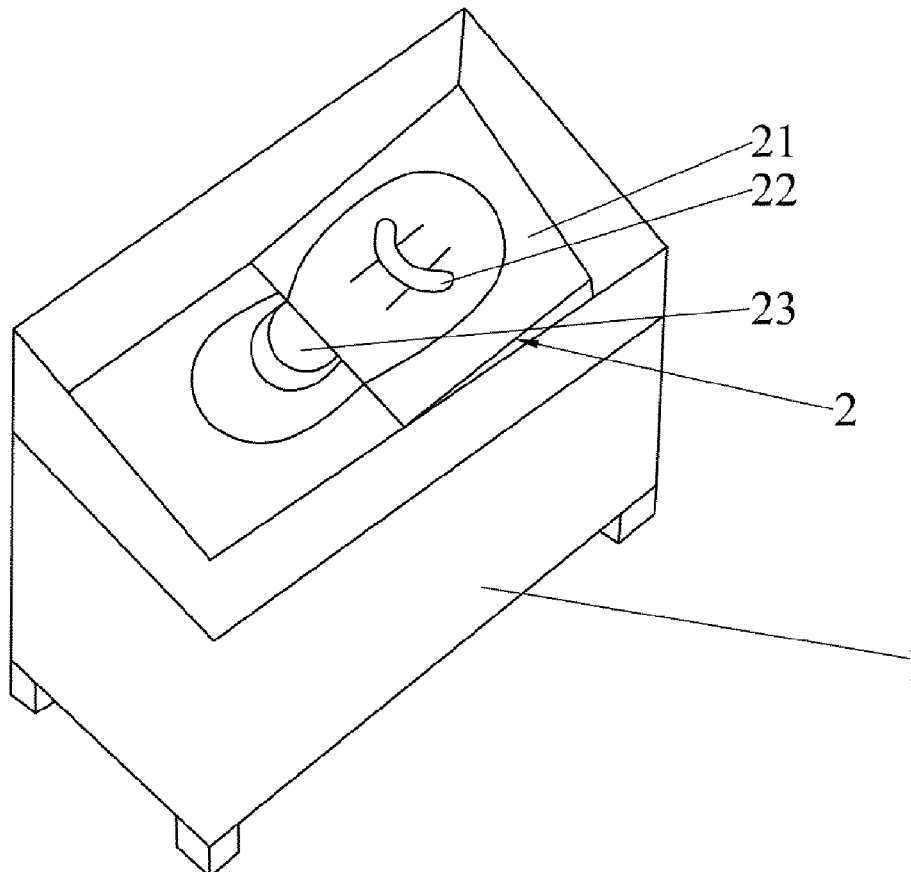
§ 371 (c)(1),

(2) Date: **Jun. 10, 2022**

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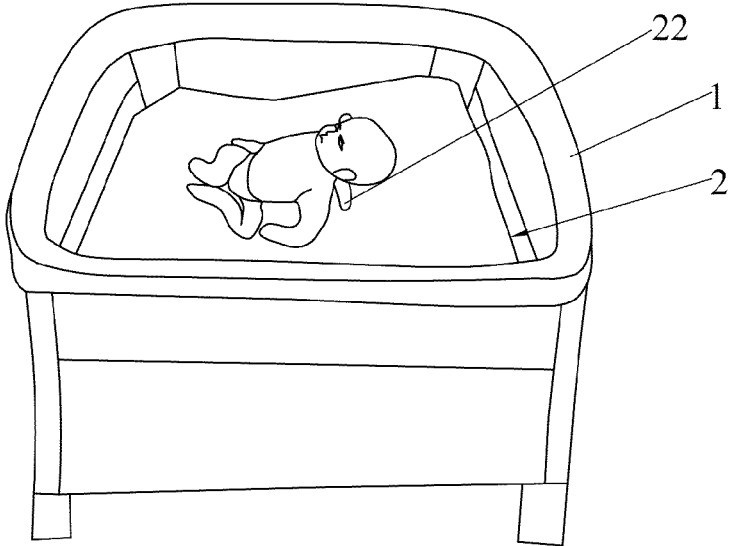


FIG. 1

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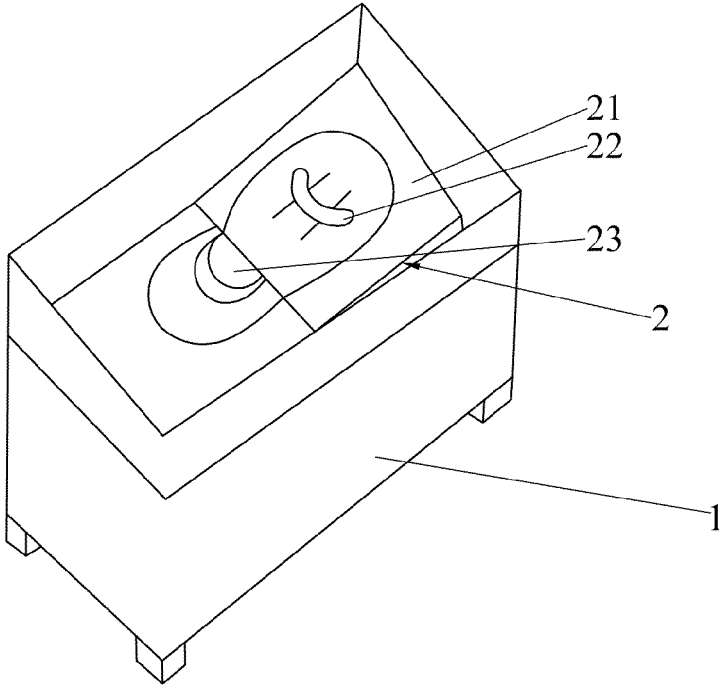


FIG. 2

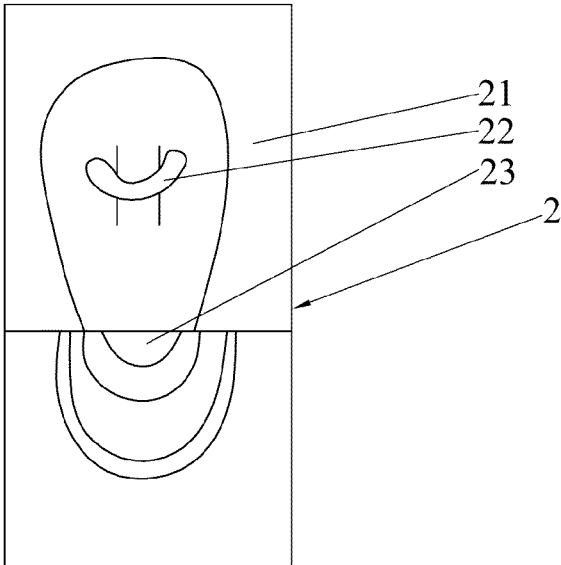


FIG. 3

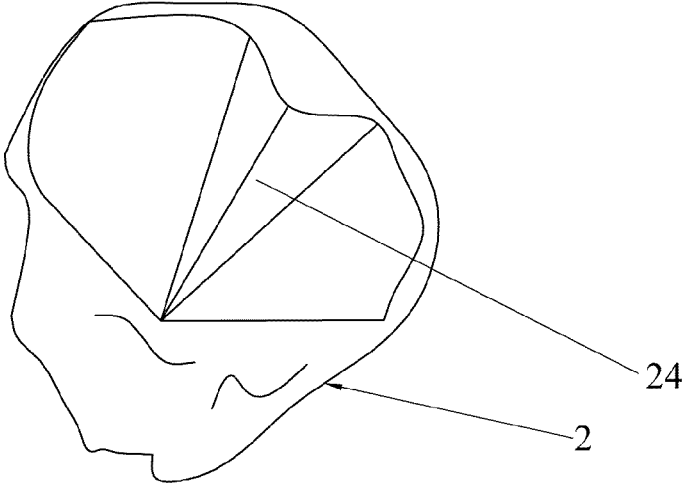


FIG. 4

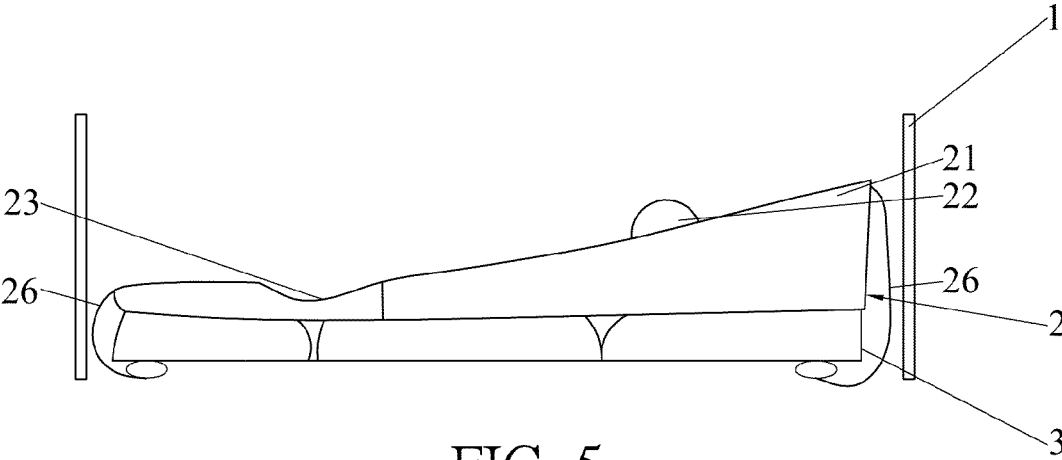


FIG. 5

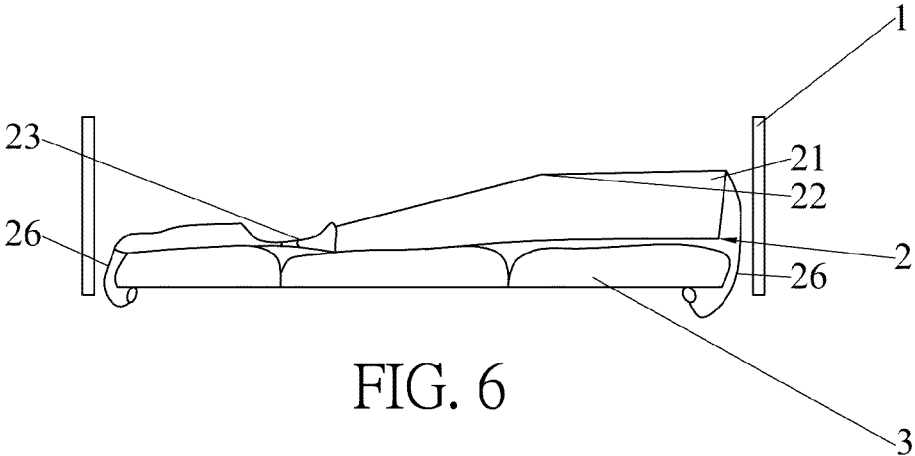


FIG. 6

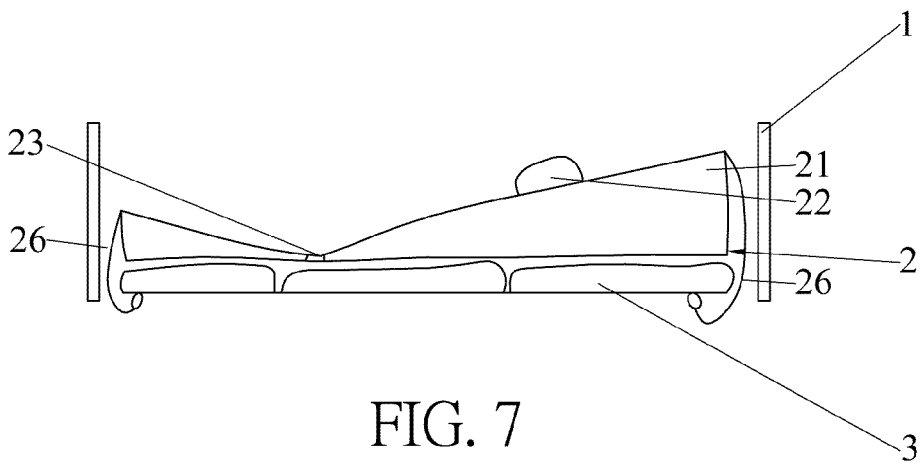
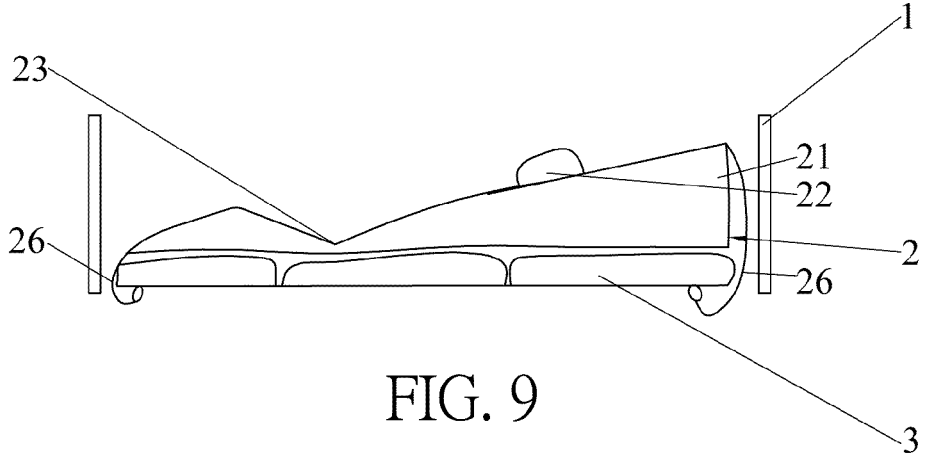
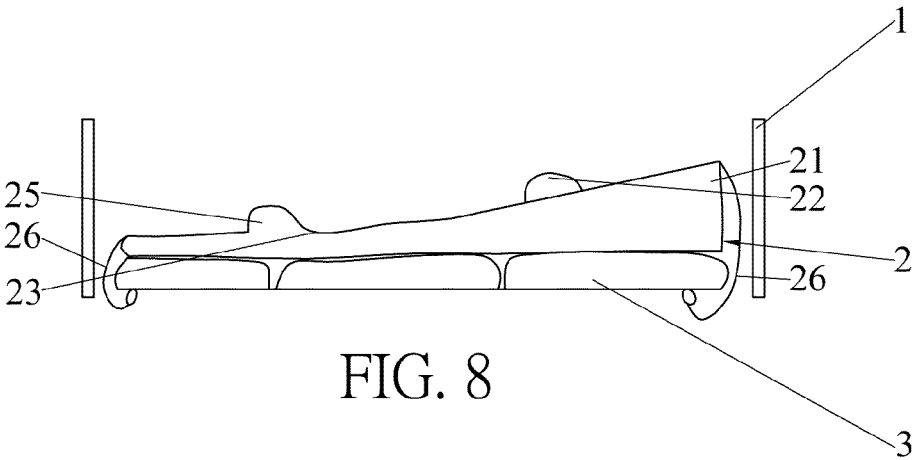


FIG. 7



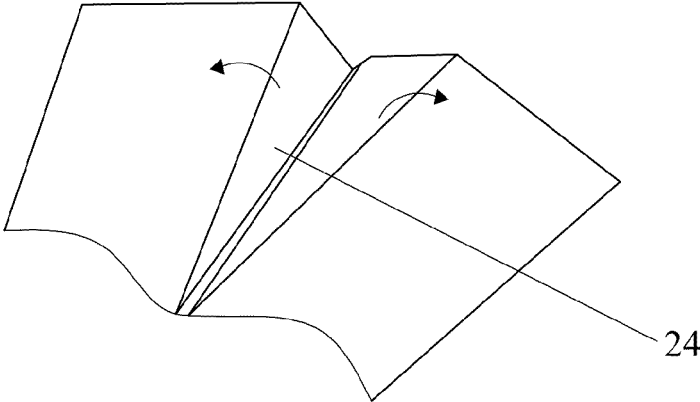


FIG. 10

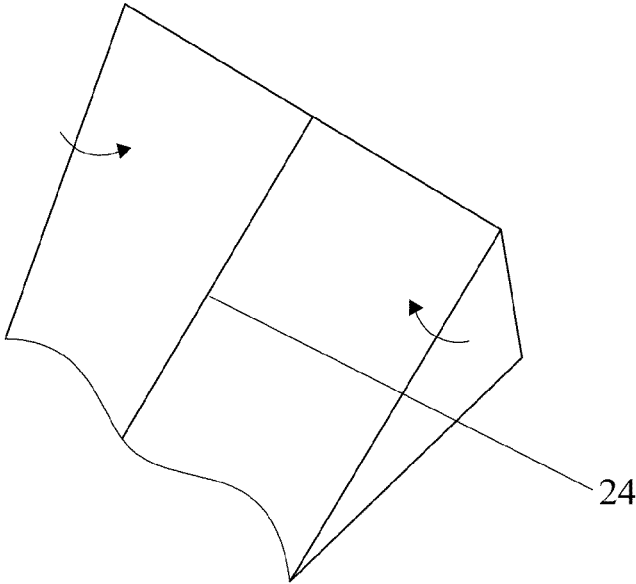


FIG. 11

SUPPORT STRUCTURE AND BABY CARRIAGE

FIELD OF THE INVENTION

[0001] The present invention relates to a baby product, particularly a support structure and a baby carriage.

BACKGROUND OF THE INVENTION

[0002] Bassinets typically have a totally flat sleeping surface for an infant to rest on. It is common for the infant to have trouble sleeping on such a flat surface. Generally, the infant sleeps better in a bassinet with an inclined angle or in “cocooning” environment like a swaddle. However, the conventional bassinet has a steep inclined angle, to the point that the infant would be easy to slide down due to gravity. Furthermore, the spine of the infant would be curved by the steep angle, such that the airway would be blocked and then the infant may suffer from suffocation. The conventional bassinet cannot provide good support and protection for the infant, and does not meet the ergonomics of the infant.

[0003] Therefore, it is necessary to provide a support structure that conforms to the ergonomics of the infant, fits the physiological curve of the infant during sleep, ensures that the airway is open, and prevents the infant from suffocation during sleep, thereby improving the comfort and safety of the infant during sleep.

SUMMARY OF THE INVENTION

[0004] The present invention aims at providing a support structure that meets the ergonomics of the infant, fits the physiological curve of the infant during sleep, ensures that the airway is open, and prevents the infant from suffocation during sleep, thereby improving the comfort and safety of the infant during sleep.

[0005] The present invention further aims at providing a baby carriage that meets the ergonomics of the infant, fits the physiological curve of the infant during sleep, ensures that the airway is open, and prevents the infant from suffocation during sleep, thereby improving the comfort and safety of the infant during sleep.

[0006] This is achieved by a support structure according to claim 1 and a baby carriage according to claim 16. The dependent claims pertain to corresponding further developments and improvements.

[0007] As will be seen more clearly from the detailed description following below, the claimed support structure is used for supporting an infant in a supine position. The support structure includes a support body and a neck bolster portion for supporting a neck of the infant. A bottom surface of the support body is a horizontal surface. A top surface of the support body is an inclined surface for supporting the infant. The neck bolster portion protrudes from the inclined surface. A concave structure for resisting buttocks of the infant is provided along a downward direction of the inclined surface.

[0008] Compared to the prior art, since the top surface of the support body of the support structure of the invention is an inclined surface and the neck bolster portion protrudes from the inclined surface, the invention provides a comfortable inclined sleeping surface for the infant in the supine position and further supports the torso and head of the infant stably, so as to keep an airway open with a better posture when the infant sleeps in the supine position and avoid

sudden infant death syndrome. The support body has the concave structure along the downward direction of the inclined surface for resisting buttocks of the infant and providing support for buttocks and legs of the infant, thereby preventing the infant from sliding down due to gravity and providing the infant with a comfortable feeling of being contained. The support structure of the invention meets the ergonomic positioning of the infant, fits the physiological curve of the infant during sleep, thereby improving the comfort and safety of the infant during sleep.

[0009] Preferably, the support body is a wedge-shaped structure or a trapezoid structure.

[0010] Preferably, an angle formed between the inclined surface and the horizontal surface of the support body is represented by α and $0^\circ < \alpha < 10^\circ$. A slope of the support body ensures that the angle formed between the sleeping surface and the horizontal surface is smaller than 10° , so as to provide the infant with a comfortable feeling of being contained. Furthermore, the airway of the infant will not be blocked due to an excessive inclined angle, so as to prevent the infant from suffocation during sleep.

[0011] Preferably, the concave structure and the support body are formed integrally.

[0012] Preferably, the support body is concaved along the downward direction of the inclined surface to form the concave structure.

[0013] Preferably, a bottom end of the support body extends along a direction away from the inclined surface and protrudes to form a protrusion, and the concave structure is formed between the protrusion and the bottom end of the support body.

[0014] Preferably, a bottom end of the support body extends along a direction away from the inclined surface and is bent to form a bent area, and the bent area forms the concave structure.

[0015] Preferably, the concave structure is an arc structure.

[0016] Preferably, the concave structure is detachably connected to the support body.

[0017] Preferably, an end of the concave structure connected to the support body is concaved or lifted along a downward direction of the inclined surface of the support body.

[0018] Preferably, a central area of the support body is concaved along a downward direction of the inclined surface to form a folding structure. During use, the support body is expanded as the folding structure is expanded and the support body is folded as the folding structure is folded.

[0019] Preferably, the neck bolster portion is formed integrally with the support body, and the support body protrudes in a direction away from the inclined surface to form the neck bolster portion.

[0020] Preferably, the neck bolster portion is detachably connected to the support body by a zipper, a fastener, an adhesive member, a set of fixing buckle and fixing hole, a Velcro, a plug-in buckle or a snap buckle.

[0021] Preferably, the neck bolster portion is a U-shaped bolster structure to fit the physiological curve of the head of the infant, such that the neck and the chin-to-chest position of the infant in the supine position are positioned in an optimal orientation, so as to keep the airway of the infant open and prevent the infant from suffocation.

[0022] Preferably, the neck bolster portion is slidably connected to the support body. The position of the neck bolster portion can be slid and adjusted to an optimal state

according to a body length of the infant, so as to match different growth and development stages of the infant, extend the life of the product, and improve the comfort of the infant.

[0023] As will be seen more clearly from the detailed description following below, the claimed baby carriage includes a carriage body and the aforesaid support structure. The support structure is connected to the carriage body.

[0024] Preferably, the support structure is fixedly connected to the carriage body.

[0025] Preferably, the support structure is detachably connected to the carriage body.

[0026] Preferably, the support structure has a fixing member for fixing the support structure to the baby carriage, an end of the fixing member is fixedly connected to the support structure, and another end of the fixing member is detachably connected to the carriage body.

[0027] Preferably, the fixing member is an elastic structure.

[0028] Preferably, the elastic structure is an elastic bed sheet, a connecting webbing, an elastic rope or a spring sheet.

[0029] Preferably, the baby carriage further includes a cushion connected to the carriage body, and a bottom surface of the support structure is connected to a top surface of the cushion.

[0030] Preferably, the baby carriage is a cradle structure, a bassinet structure, a safety seat structure or a stroller structure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0031] In the following, the invention is further illustrated by way of example, taking reference to the accompanying drawings thereof:

[0032] FIG. 1 is a schematic view illustrating a baby carriage of the invention in use,

[0033] FIG. 2 is a schematic view illustrating a baby carriage of the invention,

[0034] FIG. 3 is a schematic view illustrating a support structure of the invention in an expanded state,

[0035] FIG. 4 is a schematic view illustrating a support structure of the invention in a folded state,

[0036] FIG. 5 is a cross-sectional view illustrating a support structure of a first embodiment of the invention,

[0037] FIG. 6 is a cross-sectional view illustrating a support structure of a second embodiment of the invention,

[0038] FIG. 7 is a cross-sectional view illustrating a support structure of a third embodiment of the invention,

[0039] FIG. 8 is a cross-sectional view illustrating a support structure of a fourth embodiment of the invention,

[0040] FIG. 9 is a cross-sectional view illustrating a support structure of a fifth embodiment of the invention,

[0041] FIG. 10 is a schematic view illustrating a folding structure of a support structure of the invention in an expanded state, and

[0042] FIG. 11 is a schematic view illustrating a folding structure of a support structure of the invention in a folded state.

DETAILED DESCRIPTION

[0043] In order to explain the disclosure and structural features in detail, the invention will be further described with the embodiments and drawings in the following. A baby

carriage of the invention is exemplified by a bassinet structure in detail in the following. Needless to say, the baby carriage may also be a cradle structure, a safety seat structure or a stroller, so the invention is not limited to the bassinet structure described in the following paragraphs.

[0044] As shown in FIGS. 1 to 5, a baby carriage 100 of the invention is used for supporting an infant in a supine position. The baby carriage 100 includes a carriage body 1, a support structure 2, and a cushion 3 connected to the carriage body 1. The support structure 2 is detachably connected to the carriage body 1. A bottom surface of the support structure 2 is connected to a top surface of the cushion 3. Specifically, the support structure 2 has a fixing member 26 for fixing the support structure 2 to the baby carriage 100, an end of the fixing member 26 is fixedly connected to the support structure 2, and another end of the fixing member 26 is detachably connected to the carriage body 1. More specifically, the fixing member 26 is an elastic structure. Specifically, the elastic structure may be a connecting webbing, an elastic rope or a spring sheet.

[0045] It should be noted that the support structure 2 may also be fixedly connected to the carriage body 1. The support structure 2 and the carriage body 1 may be formed integrally, so as to keep the overall structure of the baby carriage 100 simple.

[0046] As shown in FIGS. 3 and 4, the support structure 2 of the first embodiment is a fabric, such as an elastic bed sheet, sleeved on the carriage body 1. The fixing members 26 are disposed at four corners of the bed sheet or around the periphery of the bed sheet. As shown in FIG. 3, the support structure 2 is stretched taut by the tension of the fixing member 26 after being fixed with the carriage body 1 by the fixing member 26. As shown in FIG. 4, when the fixing member 26 is not fixed with the carriage body 1 anymore, the tension of the fixing member decreases, such that the support structure 2 changes to a storage state.

[0047] As shown in FIG. 5, the support structure 2 includes a support body 21 and a neck bolster portion 22 for supporting a neck of the infant. A bottom surface of the support body 21 is a horizontal surface. A top surface of the support body 21 is an inclined surface for supporting the infant. The neck bolster portion 22 protrudes from the inclined surface. A concave structure 23 for resisting buttocks of the infant is provided along a downward direction of the inclined surface. Specifically, an angle formed between the inclined surface and the horizontal surface of the support body 21 is represented by α and $0^\circ < \alpha < 10^\circ$, wherein the angle α is preferably 9° . A slope of the support body 21 ensures that the angle formed between the sleeping surface and the horizontal surface is smaller than 10° , so as to provide the infant with a comfortable feeling of being contained. Furthermore, the airway of the infant will not be blocked due to an overly inclined angle, so as to prevent the infant from suffocation during sleep. Preferably, the support body 21 is a wedge-shaped structure. The support body 21 is concaved along the downward direction of the inclined surface to form the concave structure 23. Specifically, the neck bolster portion 22 is detachably connected to the support body 21 by a zipper, a fastener, an adhesive member, a set of fixing buckle and fixing hole, a Velcro, a plug-in buckle, or a snap buckle. The connection between the neck bolster portion 22 and the support body 21 is not limited to the aforementioned embodiment. The neck bolster portion 22 may be formed integrally with the support body 21,

wherein the support body 21 protrudes in a direction away from the inclined surface to form the neck bolster portion 22. Preferably, the neck bolster portion 22 is a U-shaped bolster structure to fit the physiological curve of the head of the infant, such that the neck and the chin-to-chest positions of the infant when lying are optimal, therefore the airway of the infant would be cleared. The U-shape of the neck bolster portion 22 also prevents the infant from suffocation. A sliding adjustment device (not shown) is disposed between the neck bolster portion 22 and the support body 21, such that the neck bolster portion 22 is slidably connected to the support body 21 by the sliding adjustment device. Accordingly, the position of the neck bolster portion 22 can be slid and adjusted to an optimal state according to a body length of the infant, so as to match different growth and development stages of the infant, extend the lifespan of the product, and improve the comfort of the infant.

[0048] As shown in FIGS. 5 to 7, the concave structure 23 is detachably connected to the support body 21. An end of the concave structure 23 connected to the support body 21 is concaved or lifted along a downward direction of the inclined surface of the support body 21. As shown in FIG. 5, the concave structure 23 of the first embodiment is detachably connected to the support body 21. As shown in FIG. 6, the support body 21 of the second embodiment is a trapezoid structure, wherein the concave structure 23 is detachably connected to the trapezoid structure. The neck bolster portion 22 is formed with the support body integrally and located at a joint between a horizontal top surface and an inclined surface of the trapezoid structure, wherein the inclined surface is used for supporting the torso of the infant in the supine position. As shown in FIG. 7, the support body 21 of the third embodiment consists of two wedge-shaped structures in opposite angles. A bottom area between opposite inclined surfaces of the two wedge-shaped structures forms the concave structure 23. The concave structure 23 is detachably connected to the wedge-shaped structures.

[0049] As shown in FIGS. 8 and 9, the concave structure 23 and the support body 21 are formed integrally and the concave structure 23 is an arc structure. As shown in FIG. 8, a bottom end of the support body 21 of the fourth embodiment extends along a direction away from the inclined surface and protrudes to form a protrusion 25, wherein the concave structure 23 is formed between the protrusion 25 and the bottom end of the support body 21. As shown in FIG. 9, a bottom end of the support body 21 of the fifth embodiment extends along a direction away from the inclined surface and is bent to form a bent area, wherein the bent area forms the concave structure 23.

[0050] As shown in FIGS. 10 and 11, a central area of the support body 21 is concaved along a downward direction of the inclined surface to form a folding structure 24. During use, the support body 21 is expanded while the folding structure 24 is expanded and the support body 21 is folded while the folding structure 24 is folded.

[0051] As shown in FIGS. 1 to 11, the top surface of the support body 21 of the support structure 2 of the invention is an inclined surface, and the neck bolster portion 22 protrudes from the inclined surface. The invention provides a comfortable inclined sleeping surface for the infant in the supine position and further supports the torso and head of the infant stably, so as to keep an airway open with a better posture when the infant sleeps in the supine position and avoid sudden infant death syndrome. The support body 21

has the concave structure 23 along the downward direction of the inclined surface for resisting buttocks of the infant and providing support for buttocks and legs of the infant, thereby preventing the infant from sliding down due to gravity and providing the infant with a comfortable feeling of being contained. The support structure 2 of the invention provides an ergonomic position for the infant and fits the physiological curve of the infant during sleep, thereby improving the comfort and safety of the infant during sleep.

[0052] The foregoing are only embodiments of the invention while the protection scope thereof is not limited to the above description. Any change or substitution within the technical scope disclosed by the invention should be covered by the protection scope of the invention.

1. A support structure for supporting an infant in a supine position the support structure comprising: a support body and a neck bolster portion for supporting a neck of the infant, a bottom surface of the support body being a horizontal surface, a top surface of the support body being an inclined surface for supporting the infant, the neck bolster portion protruding from the inclined surface, a concave structure for resisting buttocks of the infant being provided along a downward direction of the inclined surface.

2. The support structure of claim 1, wherein the support body is a wedge-shaped structure or a trapezoid structure.

3. The support structure of claim 1, wherein an angle formed between the inclined surface and the horizontal surface of the support body is represented by α and $0^\circ < \alpha < 10^\circ$.

4. The support structure of claim 1, thatwherein the concave structure and the support body are formed integrally.

5. The support structure of claim 1, wherein the support body is concaved along the downward direction of the inclined surface to form the concave structure.

6. The support structure of claim 1, wherein a bottom end of the support body extends along a direction away from the inclined surface and protrudes to form a protrusion, and the concave structure is formed between the protrusion and the bottom end of the support body.

7. The support structure of claim 1, wherein a bottom end of the support body extends along a direction away from the inclined surface and is bent to form a bent area, and the bent area forms the concave structure.

8. The support structure of claim 1, wherein the concave structure is an arc structure.

9. The support structure of claim 1, wherein the concave structure is detachably connected to the support body.

10. The support structure of claim 1, wherein an end of the concave structure connected to the support body is concaved or lifted along a downward direction of the inclined surface of the support body.

11. The support structure of claim 1, wherein a central area of the support body is concaved along a downward direction of the inclined surface to form a folding structure.

12. The support structure of claim 1, wherein the neck bolster portion is formed integrally with the support body, and the support body protrudes in a direction away from the inclined surface to form the neck bolster portion.

13. The support structure of claim 1, wherein the neck bolster portion is detachably connected to the support body by a zipper, a fastener, an adhesive member, a set of fixing buckle and fixing hole, a Velcro, a plug-in buckle, or a snap buckle.

14. The support structure of claim 1, wherein the neck bolster portion is a U-shaped bolster structure.

15. The support structure of claim 1, wherein the neck bolster portion is slidably connected to the support body.

16. A baby carriage comprising a carriage body, the baby carriage further including the support structure of claim 1, the support structure being connected to the carriage body.

17. The baby carriage of claim 16, wherein the support structure is fixedly connected to the carriage body.

18. The baby carriage of claim 16, wherein the support structure is detachably connected to the carriage body.

19. The baby carriage of claim 18, wherein the support structure has a fixing member for fixing the support structure to the baby carriage, an end of the fixing member is fixedly connected to the support structure, and another end of the fixing member is detachably connected to the carriage body.

20. The baby carriage of claim 19, wherein the fixing member is an elastic structure.

21. The baby carriage of claim 20, wherein the elastic structure is an elastic bed sheet, a connecting webbing, an elastic rope or a spring sheet.

22. The baby carriage of claim 16, wherein the baby carriage further comprises a cushion connected to the carriage body, and a bottom surface of the support structure is connected to a top surface of the cushion.

23. The baby carriage of claim 16, wherein the baby carriage is a cradle structure, a bassinet structure, a safety seat structure or a stroller structure.

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