US 20220202106A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2022/0202106 A1

Champlin et al. (43) Pub. Date: Jun. 30, 2022

(54) SLEEP SUIT FOR CHILDREN

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(21) Appl. No.: **17/499,704**

(22) Filed: **Oct. 12, 2021**

Related U.S. Application Data

(60) Provisional application No. 63/130,588, filed on Dec. 24, 2020.

Publication Classification

(51) **Int. Cl.**

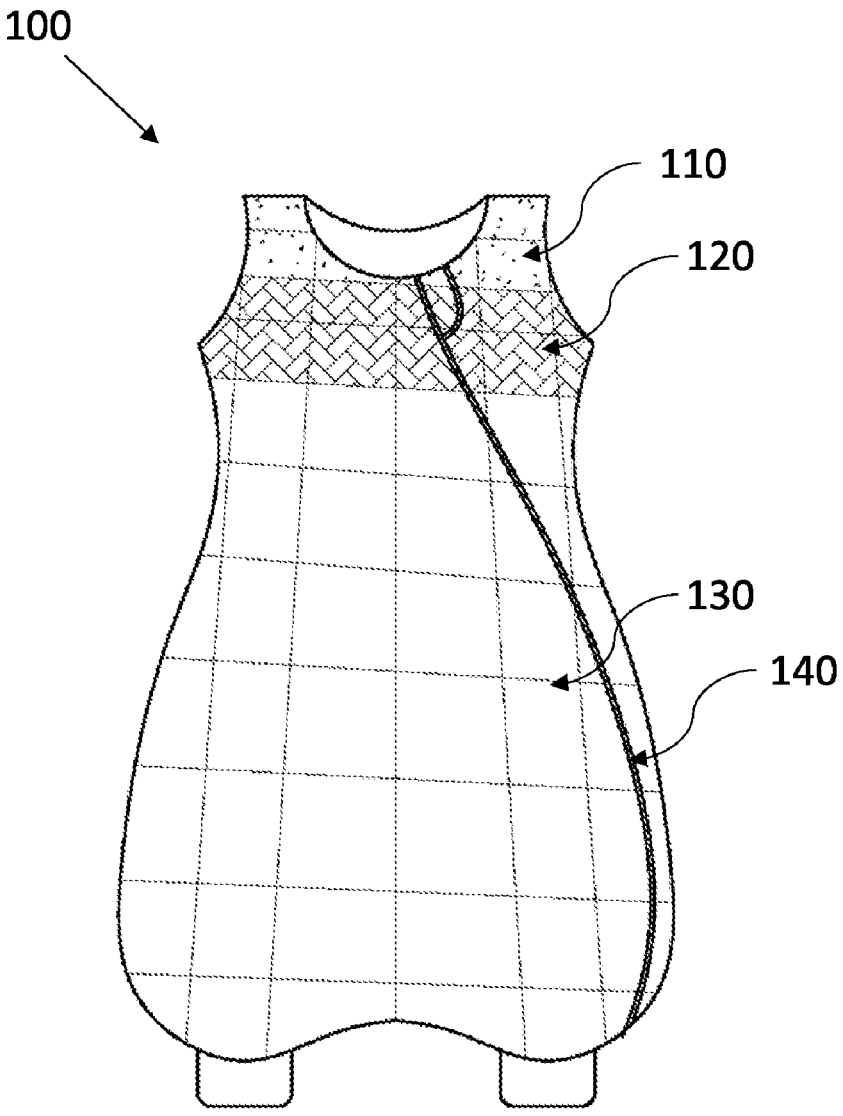
A41B 13/00	(2006.01)
A41D 10/00	(2006.01)
A41D 11/00	(2006.01)

(52) **U.S. Cl.**

CPC ***A41B 13/005*** (2013.01); ***A41D 11/00*** (2013.01); ***A41D 10/00*** (2013.01)

(57) **ABSTRACT**

A sleep suit with compartments gradually increasing in weight from the head to the feet, that covers the torso portion of a child and has an opening for the neck, arms, and legs. The weight is contained in individually sewn compartments in the inner fabric of the suit, keeping the suit's weight properly distributed. The compartments are lighter near the top of the garment that would cover the child's neck and shoulder area, gradually increasing in weight through the middle of the suit that lays over the child's torso. The gradual change in weight ensures child safety and maintains the effectiveness of the pressure around the mid-section.



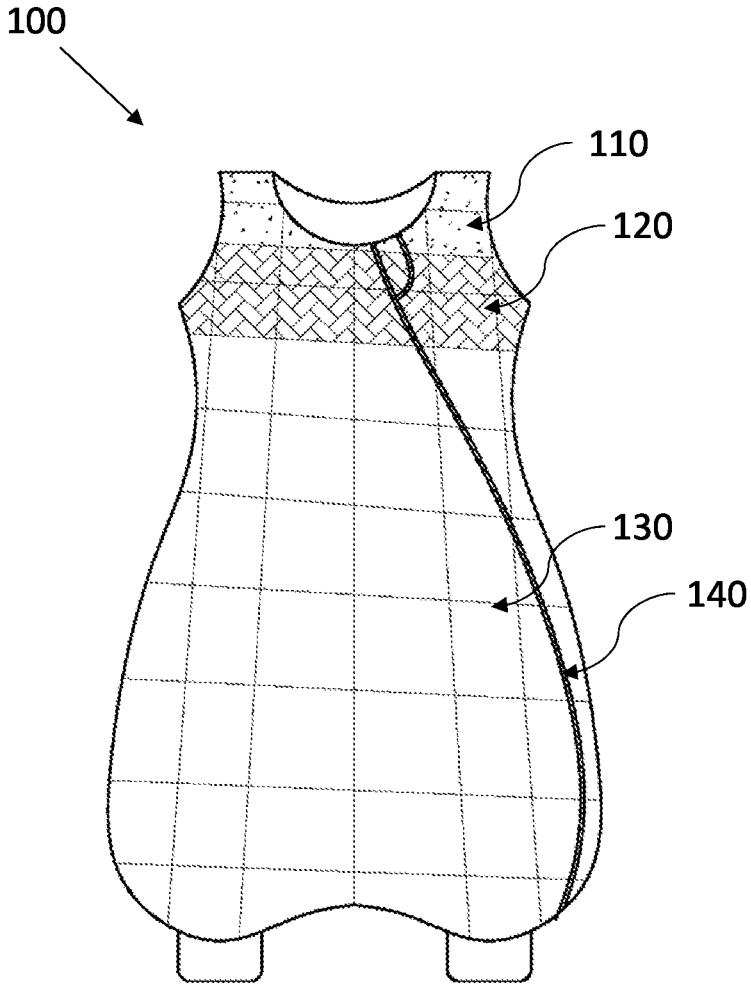


Fig. 1

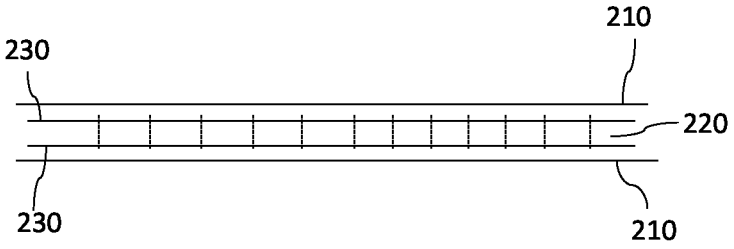


Fig. 2

SLEEP SUIT FOR CHILDREN

FIELD OF INVENTION

[0001] The present invention relates generally to garments for children. More particularly, the present invention relates to a wearable sleep suit for children having one side that contains weighted compartments gradually increasing in weight from top to lower portion of the body.

BACKGROUND

[0002] Lack of sleep can adversely affect the health and development of a young child and can also indirectly affect every member of a family. The learned ability to self-soothe is a developmental milestone that cannot be rushed, and for some babies, this means that they struggle more than others when trying to sleep independently. With a significant number of studies suggesting the positive effects of physical touch on an infant, it is evident that subtle pressure produces a measurable impact that assists babies in reducing stress, calming down, and sleeping better. Cradling an infant throughout a night or duration of a nap is less than ideal and can even lead to compromising safe sleep practices. Parents are left with a long unfulfilled desire for a solution that can calm their babies and help them to sleep.

[0003] Weighted blankets have gained significant popularity among older children and adults alike for their ability to reduce cortisol levels while inducing the release of serotonin. The result is a calmer, relaxed sensation with promising effects on improved sleep; helping those fall asleep faster and stay asleep longer. Similarly, it has been proposed by early studies that the weighted blankets provide a sensory stimulus to the babies which similarly calms them and can improve sleep, as would be the result of uninterrupted touch or cradling from a caregiver or parent.

[0004] Weighted blankets are heavier than normal blankets which may include beads, rice, and like for additional weight. The known weighted blankets suffer from a major drawback of putting the undesired weight on infants and small children on body parts that could pose a risk to their mobility of shoulders, neck, and upper torso. Additionally, any loose garment poses an immediate threat to the safety of an infant or young child given that, when unsecured in place, a garment could migrate up and over the face and cause restricted airflow. Thus, a need is appreciated for an improved, safe, and more effective weighted garment for kids that is devoid of the above drawbacks.

SUMMARY OF THE INVENTION

[0005] The following presents a simplified summary of one or more embodiments of the present invention in order to provide a basic understanding of such embodiments. This summary is not an extensive overview of all contemplated embodiments and is intended to neither identify key or critical elements of all embodiments nor delineate the scope of any or all embodiments. Its sole purpose is to present some concepts of one or more embodiments in a simplified form as a prelude to the more detailed description that is presented later.

[0006] The present invention is a children's garment with a gradually distributed weight system that provides for soothing weight across the child's body.

[0007] The object of the present invention that the sleep suit helps to calm a child by increasing the release of serotonin and melatonin in the body, while decreasing cortisol levels. This allows for better sleep for the child by simulating being held or swaddled, which has a physiological reaction in children as stated above.

[0008] In one aspect, sleep suit includes an upper portion that cover the torso portion of the child and has an opening for the neck, arms, and legs, the upper portion further having individually sewn weighted compartments. The sleep suit has a superior weight distribution that graduation puts pressure on the child, starting with lighter weight at the top of the thoracic area and gradual increase in weight from top to lower portion of the body with the purpose of more safely mimicking the human hold across the body.

[0009] These and other objects and advantages of the embodiments herein and the summary will become readily apparent from the following detailed description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The accompanying figures, which are incorporated herein, form part of the specification and illustrate embodiments of the present invention. Together with the description, the figures further explain the principles of the present invention and to enable a person skilled in the relevant arts to make and use the invention.

[0011] FIG. **1** is a perspective view of a sleep suit for children, according to an exemplary embodiment of the present invention.

[0012] FIG. **2** is a sectional view of a front side of the sleep suit, according to an exemplary embodiment of the present invention.

DETAILED DESCRIPTION

[0013] Subject matter will now be described more fully hereinafter with reference to the accompanying drawings, which form a part hereof, and which show, by way of illustration, specific exemplary embodiments. Subject matter may, however, be embodied in a variety of different forms and, therefore, covered or claimed subject matter is intended to be construed as not being limited to any exemplary embodiments set forth herein; exemplary embodiments are provided merely to be illustrative. Likewise, a reasonably broad scope for claimed or covered subject matter is intended. Among other things, for example, the subject matter may be embodied as methods, devices, components, or systems. The following detailed description is, therefore, not intended to be taken in a limiting sense.

[0014] The word "exemplary" is used herein to mean "serving as an example, instance, or illustration." Any embodiment described herein as "exemplary" is not necessarily to be construed as preferred or advantageous over other embodiments. Likewise, the term "embodiments of the present invention" does not require that all embodiments of the invention include the discussed feature, advantage, or mode of operation.

[0015] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of embodiments of the invention. As used herein, the singular forms "a", "an" and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises", "comprising,", "includes" and/or "including", when used herein, specify the presence of

stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

[0016] The following detailed description includes the best currently contemplated mode or modes of carrying out exemplary embodiments of the invention. The description is not to be taken in a limiting sense but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention will be best defined by the allowed claims of any resulting patent.

[0017] Referring to FIG. **1** is a wearable sleep suit for children having a front side and rear side. The sleep suit **100** can cover the torso portion of a body of a child. The sleep suit **100** can have openings for the neck, arms, and legs. The front side of the sleep suit **100** can cover the front side while the rear side can cover the rear side of the torso. The sleep suit **100** can provide an all-over gradually weighted pressure across the child' body, starting with lighter weight at the top of the thoracic area, and increasing in weight across the rest of the lower portion of the body with the purpose of more safely mimicking the human hold across the body. Self-soothing is a developmental milestone that can safely and effectively calm a child and aid to sleep independently. The disclosed sleep suit **100** addresses the two important factors i.e., safety and efficacy in childcare. The disclosed sleep suit **100** fulfills a long desire of parents who know cradling their baby all night is neither a practical compromise nor a safe option.

[0018] Again, referring to FIG. **1**, the sleep suit **100** is having a top portion **110**, shown using a stippling pattern, adjacent to the shoulder and neck openings of the sleep suit **100**. When worn by a child, the top portion **110** can cover the cervical and adjacent thoracic area of a child's body. Adjacent and below the top portion **110** can be a second gradient portion **120** that is shown by a crosshatch pattern. As can be seen in FIG. **1**, that the second gradient portion **120** is continuous with the arm openings and extending a little lower. The rest of the sleep suit **100** below the second gradient portion **120** can be the third gradient portion **130** that can cover the thoracic and lumbar portion of the child's body. FIG. **1** also shows a fastener **140** that extends from the neck opening and down towards the leg opening. The fastener **140** allows opening the front side of the sleep suit **100** for putting the baby suit on the child's body. The fastener can be a zipper or spaced buttons.

[0019] The front side of the sleep suit **100** is having a weight density that is different from the rear side i.e., the front side is heavier than the rear side. Moreover, the weight density of the top portion **110** is lesser than the second gradient portion **120**, and the weight density of the second gradient portion **120** is lesser than the third gradient portion **130**. This provides the gradual distribution of weight on the child's body, such as not to put unwanted pressure around the neck/shoulders of the infant. The lungs of the children grow faster and the unique weight distribution of the disclosed sleep suit **100** can support all movement efforts of the children ensuring that the children can safely lift their head/chest and roll back over as desired. Weight blankets of the prior art can put too much pressure near the shoulder and neck area of a child that may compromise the breathing and mobility of a child.

[0020] The gradual weight distribution of the disclosed sleep suit **100** can be adapted to the age and weight of a child, to ensure that the sleep suit **100** is safe to use. The gradual weight distribution of the disclosed sleep suit **100** can naturally soothe a baby with an overall pressure sensation to mimic the child being cuddled, without compromising the safety. In one exemplary embodiment, the top portion can have a weight density around 25% of the third gradient portion **130**. The weight density of the second gradient portion **120** can be 40% of the weight density of the third gradient portion **130**.

[0021] Referring to FIG. **2**, which shows a section of the front side of the sleep suit **100**. The front side of the sleep suit **100** can be multilayered. The multilayered front side can be breathable that allows the sweat to evaporate, and so the risk of overheating is eliminated. The inner two layers of the multilayered front side can be stitched/secured to create several compartments. A weighted amount of granular material, such as sand, beads, seeds, and like can be contained in the compartments for the gradient weight distribution of the front side. The granular material is nontoxic and child safe. The compartments can be further sub-divided to create sub-compartments for the desired gradient weight distribution. Preferably, the size of the compartments in the top portion is lesser than that of the compartments in the lower portion of the front side. FIG. **2** shows the layer of granular material **220** sandwiched between the two layers **210**, wherein the several traversing lines spaced across the length of the granular layer illustrates the compartments. The compartments and sub-compartments may form a gradient array of weight that provides gentle, even pressure on the front-side of the infant's body. The front side can further have outer layers **230** reinforcing the inner layers **220**. The material of the outer layers **230** can be child friendly. In one aspect, the overall weight of the front side of the sleep suit **100** can be in a range of 5 to 20 percent of a weight of a child that wears the disclosed sleep suit **100**. Preferably, the front side can weigh a range of 10-20 percent of the weight of the child. Still, more preferably the front side can have a weight that is 10% of the weight of the child.

[0022] While the foregoing written description of the invention enables one of ordinary skill to make and use what is considered presently to be the best mode thereof, those of ordinary skill will understand and appreciate the existence of variations, combinations, and equivalents of the specific embodiment, method, and examples herein. The invention should therefore not be limited by the above-described embodiment, method, and examples, but by all embodiments and methods within the scope and spirit of the invention as claimed.

What is claimed is:

1. A sleep suit for a child, the sleep suit comprising:

a body configured to cover a torso portion of a child's body, the body having a neck opening, a pair of shoulders opening, and a pair of legs opening, the body having a front side and a rear side,

wherein the front side of the body is divided into several compartments, the front side comprises:

a top portion that extends around the neck opening and between the pair of shoulders opening, the top portion is of a pre-determined height, and

a lower portion that extends upwards from the pair of legs opening,

wherein the weight of the front side of the body is heavier than the rear side, the weight of the top portion of the front side is lesser than the weight of the lower portion.

2. The sleep suit according to claim 1, wherein the front side further comprises:

a second gradient portion between the top portion and the lower portion, the weight of the second gradient portion is lesser than the lower portion and more than the top portion.

3. The sleep suit according to claim 1, wherein the second gradient portion is of a height same as the pre-determined height of the top portion.

4. The sleep suit according to claim 3, wherein the second gradient portion further extends between a lower portion of the pair of shoulders openings.

5. The sleep suit according to claim 2, wherein the top portion is having a weight density of about 25% the weight density of the lower portion, the second gradient portion is having a weight density of about 40% the weight density of the lower portion.

6. The sleep suit according to claim 5, wherein the front side is having a weight of about 5-20% of a weight of the child's body.

7. The sleep suit according to claim 5, wherein the front side is having a weight of about 10-15% of a weight of the child's body.

8. The sleep suit according to claim 1, wherein the front side comprises at least two layers stitched together to form the several compartments, several compartments include granular material.

9. The sleep suit according to claim 1, wherein dimension of the compartments in the top portion is less than the dimensions of the compartments in the lower portion.

10. The sleep suit according to claim 1, wherein the sleep suit further comprises a zipper that extends from the neck opening of the body downwards up to one of the pair of legs openings.

11. The sleep suit according to claim 8, wherein the granular material is seeds.

12. A method of applying a graded pressure on a body of a child for calming and assisting to sleep, the method comprises the steps of:

providing, a sleep suit for a child, the sleep suit comprising:

a body configured to worn over a torso portion of a child's body, the body having a neck opening, a pair of shoulders opening, and a pair of legs opening, the body having a front side and a rear side,

wherein the front side of the body is divided into several compartments, the front side comprises:

a top portion that extends around the neck opening and between the pair of shoulders opening, the top portion is of a pre-determined height,

a lower portion that extends upwards from the pair of legs opening, wherein the weight of the front side of the body is heavier than the rear side, the weight of the top portion of the front side is lesser than the weight of the lower portion, and

a second gradient portion between the top portion and the lower portion, the weight of the second gradient portion is less than the lower portion and more than the top portion; and

donning the sleep suit on the child.

13. The method according to claim 12, wherein the top portion is having a weight density of about 25% the weight density of the lower portion, the second gradient portion is having a weight density of about 40% the weight density of the lower portion.

14. The method according to claim 13, wherein the front side is having a weight of about 5-20% of a weight of the child's body.

15. The method according to claim 13, wherein the front side is having a weight of about 10-15% of a weight of the child's body.

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