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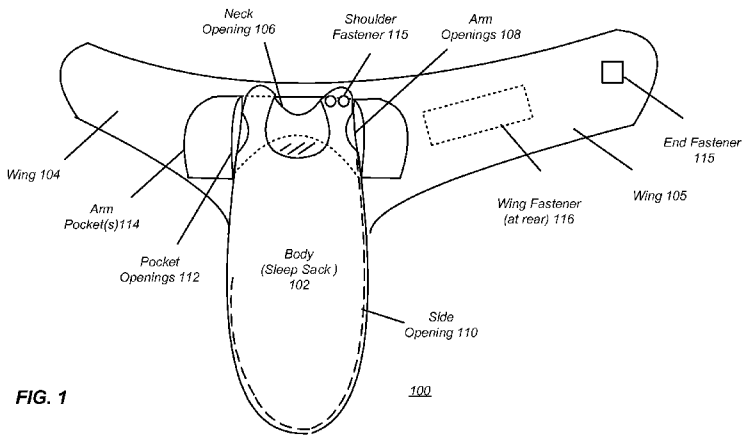

FIG. 1

(57) Abstract: An infant swaddle, and method of using thereof. In accordance with an embodiment the swaddle comprises a body portion, wing portions, and either one or more, or a pair of, arm pockets positioned to the side of the infant's torso so that, when the infant is placed into the body portion and their arms placed into the arm pocket or pockets, the infant's arms are gently initially positioned outwards, with their hands upwards, generally along the orientation of the wings. The wings can then be folded over and fastened which gently folds and constrains the infant's arms in the pockets, so that their hands are positioned at the midline of their chest.

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INFANT SWADDLE AND METHOD OF USING THEREOF

Field of Invention:

[0001] The invention is generally related to childcare products for use with infants, and is particularly related to an infant swaddle, and method of using thereof.

Claim of Priority:

[0002] This application claims the benefit of priority to U.S. Patent Application titled "INFANT SWADDLE AND METHOD OF USING THEREOF", Application No. 13/010,684, filed January 20, 2011; and U.S. Provisional Patent Application titled "INFANT SWADDLE AND METHOD OF USING THEREOF", Application No. 61/298,149, filed January 25, 2010; each of which applications are herein incorporated by reference.

Background:

[0003] Infants up to approximately 4 months old exhibit a physical reflex action known as a startle reflex. If the infant is startled by a noise or other disturbance they rapidly extend or abduct their arms outwards from their torso. This reflex action may also be accompanied by the infant crying out. Infants can even be startled while asleep, which generally causes the infant to awaken, and can cause disturbances in the sleep patterns both of the infant and their caregiver. Swaddling is a universal and commonly used practice intended to reduce the effects of the startle reflex, and in doing so to promote good sleep, and/or soothe an infant's fussiness or crying. The practice of swaddling varies from wrapping the infant in bands, to tightly folding blankets or sheets around them in order to restrict movement. These measures help control the startle reflex, while at the same time providing a secure and safe environment for the infant. Modern swaddles are designed to make it easier to swaddle an infant, for example by being made in more optimal shapes other than the traditional square sheet or blanket. However, despite these advances, little has changed in the design of the swaddles themselves, or the techniques they use to swaddle infants. This is the general area that embodiments of the invention are designed to address.

Summary:

[0004] Described herein is an infant swaddle, and method of using thereof. In accordance with an embodiment the swaddle comprises a body portion, wing portions, and either one or more, or a pair of, arm pockets positioned to the side of the infant's torso so that, when the infant is placed into the body portion and their arms placed into the arm pocket or pockets, the infant's arms are gently initially positioned outwards, with their hands upwards, generally along the orientation of the wings. The wings can then be folded over and fastened which gently folds and constrains the infant's arms in the pocket(s), so that their hands are positioned at the midline of their chest.

Brief Description of the Drawings

[0005] **Figure 1** shows an infant swaddle which incorporates a sleep sack design, in accordance with an embodiment.

[0006] **Figure 2** shows an infant swaddle which includes a detachable sleep sack design, in accordance with an embodiment.

[0007] **Figure 3** shows an infant swaddle as it might be used with an infant, in accordance with an embodiment.

[0008] **Figure 4** shows an infant swaddle which incorporates a pocket design, in accordance with an embodiment.

[0009] **Figure 5** shows an infant swaddle, in accordance with another embodiment.

Detailed Description:

[0010] As described above, swaddling is a universal and commonly used practice to soothe infants. There is no definitive method of swaddling used by every culture, but instead many variations both in the duration of swaddling, and the types and procedure of wrapping used.

[0011] One commonly-followed practice is to swaddle the infant with their arms placed downward, along the sides of the body. However, this is a somewhat unnatural position, and in some instances may even promote dislocation of the hip. During pregnancy, the preterm infant in the womb is in flexion much of the time, and uses their hands and arms to, e.g. reach across their midline, bring their fingers to their mouth or umbilical cord, or grasp their head or shoulders. This motion sets up the infant's neurosensory feedback loop, which the immature nervous system relies on in order to mature the flexor-extensor balance and mutual inhibition and activation. Based on this, embodiments of the present invention recognize that, while swaddled, the infant's hands should preferably still be free to some extent, to allow them to reach their face and mouth. The infant's hands and mouth are innervated from closely adjacent regions in the somatosensory cortex, and they function in complement and concert with one another.

[0012] In accordance with an embodiment, described herein is a swaddle which includes one or more, or a pair of, arm pockets, into which the infant's hands and arms are placed, so that when the swaddle is correctly wrapped the infant's hands are in a position close to the face. This unpromoted flexion arm position (i.e., the hands placed at midline) provides a more natural and comfortable position for the infant, and generally mimics their position in the womb. By gently constraining the infant's arms, the swaddle reduces startle reflex from waking the infant. At the same time, while by placing the hands close to the mouth, the swaddle allows the infant to self-soothe more readily. In accordance with a particular embodiment, the swaddle is referred to herein as the "Hands to Heart Sleep Swaddle", to reflect the manner in which it places the infant's hand near the midline of their chest, close to their heart.

[0013] **Figure 1** shows an infant swaddle in accordance with an embodiment. As shown in Figure 1, in accordance with an embodiment the swaddle 100 comprises a body portion 102, such as a

sleep sack, into which the infant can be placed. A wing portion, including a left-side wing 104 and right-side wing 105 can be either permanently or removably attached to the body. In accordance with an embodiment the wings can, for example, be permanently stitched to, or form part of, the body. In accordance with other embodiments the wings can be removably attached using hook-and-loop fasteners or similar means, which allows them to be removed as necessary, so that the body portion can be used by itself as a standalone sleep sack. In accordance with an embodiment one of the wings (such as in this example the right-side wing 105) can be made longer than its opposite partner, to better assist in swaddling the infant, as described in further detail below. In accordance with those embodiments that use different length wings, the shorter wing is first wrapped across the infant, and tucked under the infant to secure the wing; the longer wing is then folded over the shorter wing. A similar process can be used if both wings are of the same or similar length.

[0014] Each of the body portion and wing portion can be made from a light, stretchable material, such as elasticized cotton, muslin, fleece, or blended materials. Other materials, including the use of organic and/or unbleached materials which are suitable for infant care can also be used.

[0015] In accordance with an embodiment, the body portion can be shaped so that it is slightly wider at the hips, to allow for some movement and greater comfort. The body portion includes a neck opening 106 for the infant's head, and one or more arm openings 108 generally positioned to the side of the infant's torso and near their shoulders. The body portion can optionally include a side opening 110, such as a zip or a series of button fasteners, which allows caregiver to easily access a swaddled infant, without undoing or removing the infant from the swaddle. In accordance with an embodiment, the body portion can also optionally include one or more button fasteners 115 at either shoulder, which allows the sleep sack to be opened into a mirror image of itself.

[0016] In accordance with an embodiment, the wing portion includes either one or more, or a pair of, arm pocket(s) 114 generally positioned on either side of the body portion and adjacent to the arm openings of the body portion. The arm pocket, or pockets, can similarly be made from a light, stretchable material, such as elasticized cotton, muslin, or blended materials, and again other materials, including the use of organic and/or unbleached materials. In accordance with an embodiment, the arm pockets are made of a thin, soft, and flexible enough material that the infant can comfortably move their hands.

[0017] When an infant is placed into the swaddle, with their legs and torso in the body portion, and their arms placed at approximately a 90 degree angle through the pocket openings 112 and into the arm pocket(s) 114, the infant's arms are gently initially positioned outwards, with their hands upwards, generally along the orientation of the wings. The wings can then be folded over and fastened, either by knotting the wings together, or optionally by means of fasteners, such as hook-and-loop fasteners or similar means. In accordance with an embodiment an end fastener 115 and wing fastener 116 are optionally provided on front and rear sides respectively of the longer wing 105, so that when the wing is folded the end fastener can be fastened to the wing fastener, again by using hook-and-loop fasteners or similar means. This process gently folds and constrains the infant's arms

in the pockets, so that their elbows are positioned downwards and their hands are positioned upwards at the midline of their chest.

[0018] **Figure 2** shows an infant swaddle which includes a detachable sleep sack design, in accordance with an embodiment. As shown in Figure 2, in accordance with an embodiment the body portion 102 and the wing portion (with wings 104,105) can be detached or separated from one another, which allows the body portion to be used by itself as a standalone sleep sack. Optionally, a wing coupler 120 and body coupler 122 can be used, such as hook-and-loop fasteners or similar means, to removable attach the wings to the body portion. In accordance with other embodiments the wings can be permanently attached, stitched to, or form part of, the body portion.

[0019] In accordance with the embodiment shown in Figure 2, the arm pocket is generally formed as a single large pocket, with an opening for both the left and right arms. In accordance with an alternative embodiment, shown in Figure 2B, each of the arm pockets can be separate or discrete pockets 124. In accordance with other embodiments other forms of pocket design can be used.

[0020] **Figure 3** shows an infant swaddle as it might be used with an infant, in accordance with an embodiment. As shown in Figure 3, when an infant 130 is placed into the swaddle, their arms are placed through the pocket openings and into the arm pocket(s), which gently initially positions the infant's arms outwards, with their hands upwards, generally along the orientation of the wings. When the wings are folded over and fastened, either by knotting or by means of fasteners, they gently constrain the infant's arms in the arm pocket(s) (illustrated in the figure as a series of dotted lines) so that their elbows are positioned downwards and their hands are positioned upwards, at the midline of their chest, close to their heart. This prevents the infant's hands from escaping the swaddle, while still allowing the infant to bring their body to a fetal tuck position (hands under chin/mouth), and/or to suck, soothe, or settle themselves with their hands-to-mouth, all of which are important regulatory characteristics of newborn infants in their first 4 months. In accordance with an embodiment, the side opening remains accessible to allow a caregiver to easily access a swaddled infant, without undoing or removing the infant from the swaddle, such as, for example, diaper changing at nighttime.

[0021] **Figure 4** shows an infant swaddle in accordance with an alternative embodiment. The embodiment shown in Figure 4 can be fabricated of similar materials and can include many of the same features as described previously. As shown in Figure 4, in accordance with the embodiment therein the swaddle 140 comprises a body portion 142 in the form of a pocket, into which the infant's legs and torso can be placed. Wing portions 144, 145 are attached to or form part of the pocket. The body portion includes one or more, or a pair of, arm pockets 146 with arm openings 148 attached to the wings and generally positioned to the side of the infant's torso and near their shoulders so that, when the infant is placed into the pocket and their arms placed at approximately a 90 degree angle through the pocket openings 148 and into the arm pockets 146, the infant's arms are gently initially positioned outwards, with their hands upwards, generally along the orientation of the wings. The wings can then be folded over and fastened, either by knotting the wings together, or optionally by means of fasteners 147, 152, such as hook-and-loop fasteners or similar means. This process gently

folds and constrains the infant's arms in the pockets, so that their elbows are positioned downwards and their hands are positioned upwards at the midline of their chest.

[0022] As with the previous embodiments, although in Figure 4 the arm pocket is generally formed as a single large pocket with an opening for both the left and right arms, in accordance with alternative embodiments, the arm pockets can be separate or discrete pockets.

[0023] **Figure 5** shows an infant swaddle, in accordance with another embodiment 160, wherein the wing coupler, body coupler and wing fastener are provided as a plurality of hook-and-loop fasteners or similar means. As described above, the end fastener and wing fastener can be optionally provided on the front and rear sides respectively, so that when the wing is folded the end fastener can be fastened to the wing fastener. As with the previous embodiments, although in Figure 5 the arm pocket is generally formed as a single large pocket with an opening for both the left and right arms, in accordance with alternative embodiments, the arm pockets can be separate or discrete pockets.

[0024] The foregoing description of the present invention has been provided for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations will be apparent to the practitioner skilled in the art. In particular, while various embodiments include the use of various fasteners and pocket designs, in accordance with other embodiments, different forms of fastening or pocket designs can be used. The embodiments were chosen and described in order to best explain the principles of the invention and its practical application, thereby enabling others skilled in the art to understand the invention for various embodiments and with various modifications that are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the following claims and their equivalence.

Claims:

What is claimed is:

1. A swaddle for an infant, comprising:

a body portion for accepting and holding an infant;

a wing portion formed as part of, or permanently or removably attachable to the rear of, the body portion, and having wings capable of extending outwards from both sides of the body portion, and one or more arm pockets, for receiving the infant's arms; and

wherein the wings can then be folded over the infant and secured, to fold and constrain the infant's arms in the arm pockets so that their hands are positioned generally upwards near the midline of the infant's chest.

2. The swaddle of claim 1, wherein the body portion is a sleep sack, and the wing portion is permanently or removably attachable to the sleep sack.

3. The swaddle of claim 1, wherein the body portion is a body pocket, and the wing portion is generally formed as an extension of the body pocket.

4. The swaddle of claim 1, wherein the wings are long enough so that when folded over the infant they can be knotted together to secure the infant in the swaddle.

5. The swaddle of claim 1, wherein the wing portion includes a single large arm pocket, with openings generally at the sides of the body portion, for receiving the infant's arms when the infant is placed into the body portion.

6. The swaddle of claim 1, wherein the wing portion includes a plurality of separate or discrete arm pockets generally at the sides of the body portion, for receiving the infant's arms when the infant is placed into the body portion.

7. The swaddle of claim 1, wherein each of the body portion and wing portion are made of a light, stretchable material, such as elasticized cotton, fleece or muslin.

8. The swaddle of claim 1, wherein the body portion is shaped to be wider at the hip to allow for some movement of the infant.

9. The swaddle of claim 1, wherein the body portion includes a side or zip opening along one or more of its sides, which allows the infant to be easily accessed while swaddled.

10. The swaddle of claim 1, wherein the wings include one or more fasteners for securing the wings when folded over the infant.

11. The swaddle of claim 10, wherein the one or more fasteners are hook-and-loop fasteners.

12. The swaddle of claim 1, wherein the wing portion includes one or more end fasteners and wing fasteners, on front and rear sides respectively of one of the wings, so that when that wing is folded the end fastener can be fastened to the wing fastener.

13. The swaddle of claim 12, wherein the wing portion includes a plurality of wing fasteners, so that when that wing is folded the end fastener can be fastened to the plurality of wing fasteners.

14. The swaddle of claim 1, comprising:

the body portion for accepting and holding an infant, wherein the body portion is a body pocket; and

the wing portion, generally formed as an extension of the body pocket, and having wings capable of extending outwards from both sides of the body portion, and one or more arm pockets, for receiving the infant's arms, and wherein the wings include one or more fasteners for securing the wings when folded over the infant.

15. The swaddle of claim 1, comprising:

the body portion for accepting and holding an infant, wherein the body portion is a sleep sack; and

the wing portion, permanently or removably attachable to the rear of, the body portion, and having wings capable of extending outwards from both sides of the body portion, and one or more arm pockets, for receiving the infant's arms, and wherein the wings include one or more fasteners for securing the wings when folded over the infant.

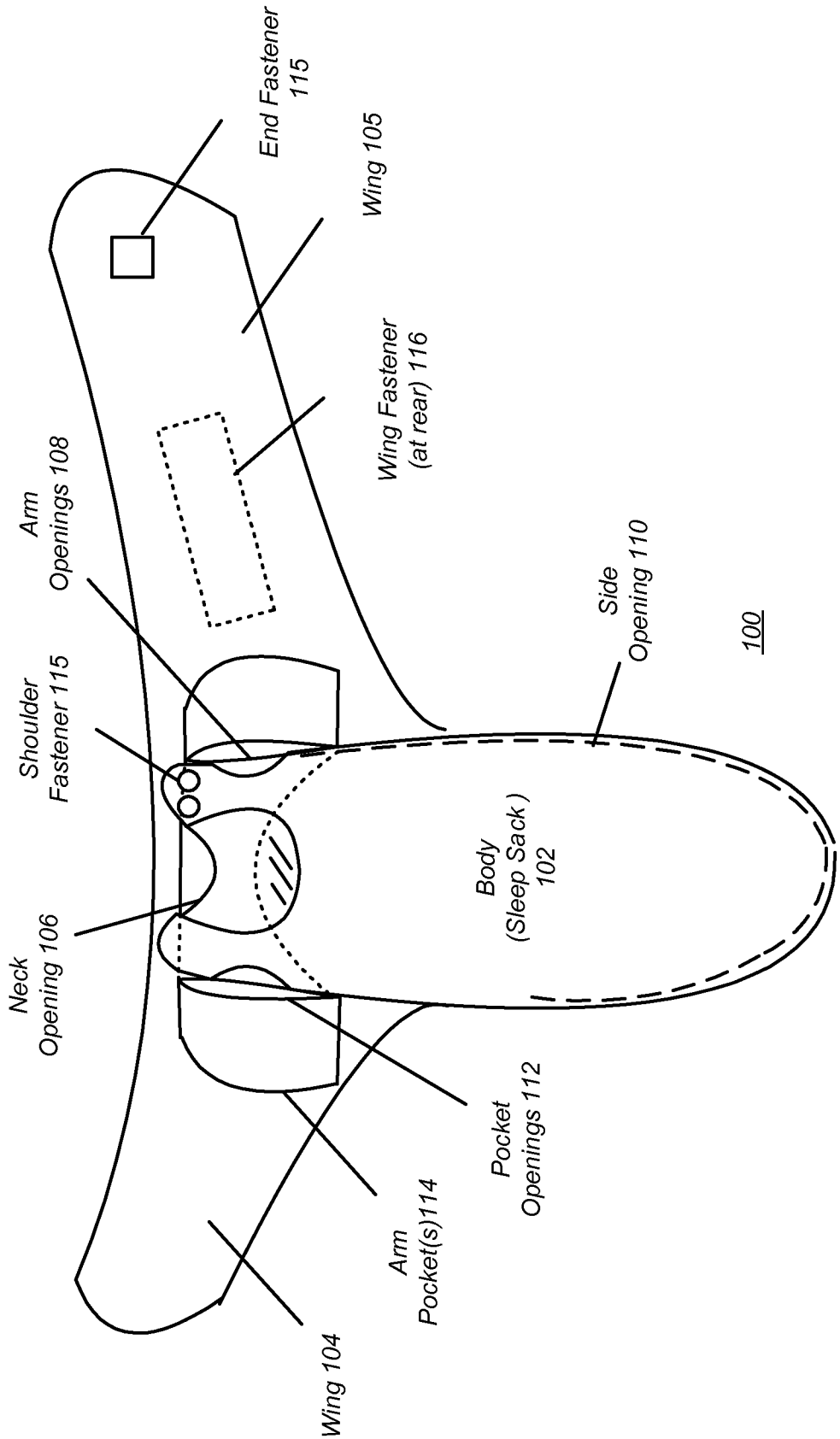
End Fastener 115
Wing 105
Wing Fastener (at rear) 116
Arm Openings 108
Shoulder Fastener 115
Neck Opening 106
Side Opening 110
100
Body (Sleep Sack) 102
Pocket Openings 112
Arm Pocket(s)114
Wing 104

FIG. 1

Arm
Pockets 124

FIG. 2B

Wing 104
Wing 105
End Fastener
115
Wing Fastener
(at rear) 116
Wing Coupler
120
DETACH
WINGS
FLIP
Body Coupler
122
Body
(Sleep Sack)
102
Body
(Sleep Sack)
102
FRONT VIEW
REAR VIEW

FIG. 2

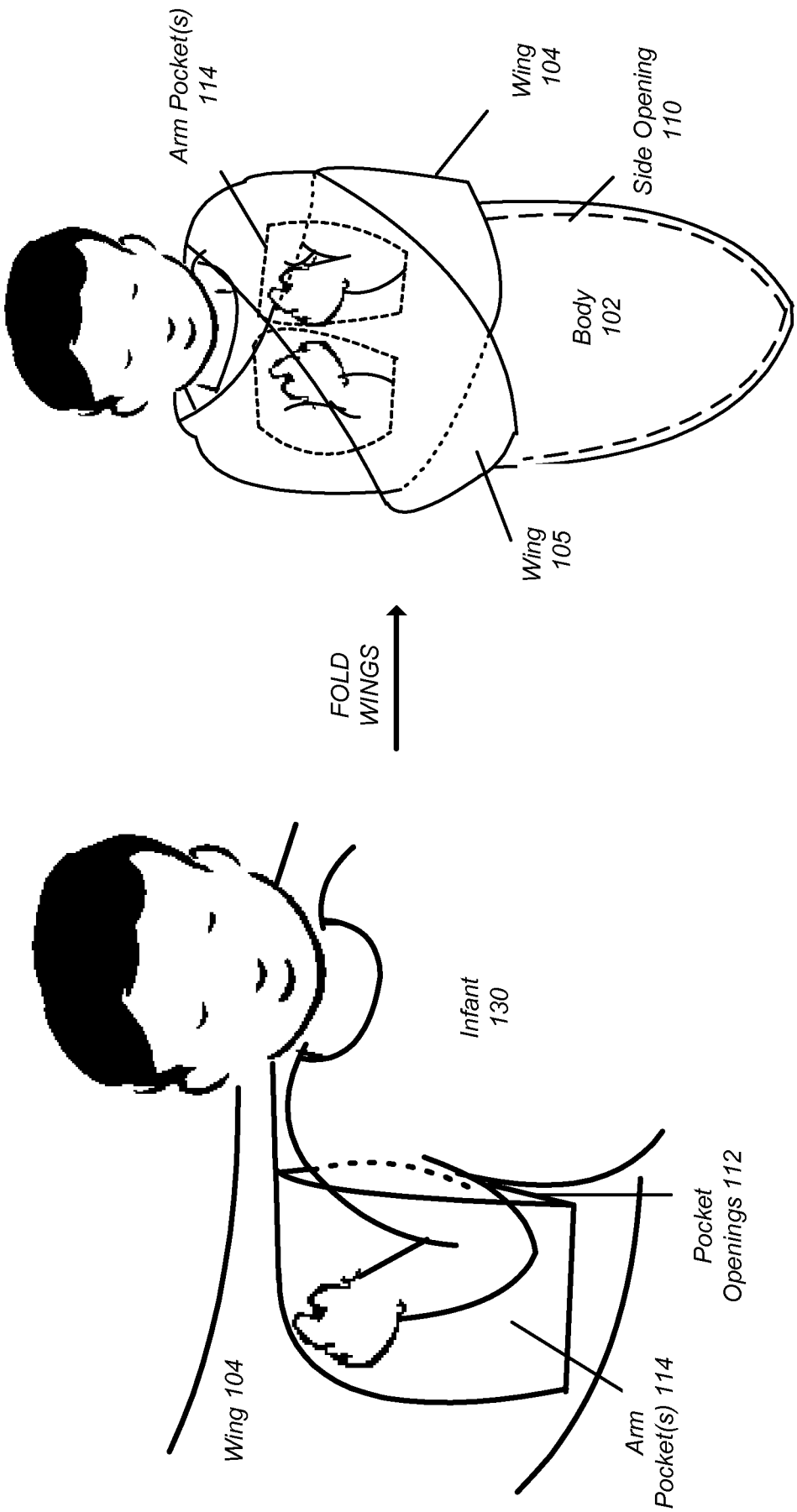
Arm Pocket(s) 114
Wing 104
Side Opening 110
Body 102
Wing 105
FOLD WINGS
Infant 130
Wing 104
Pocket Openings 112
Arm Pocket(s) 114

FIG. 3

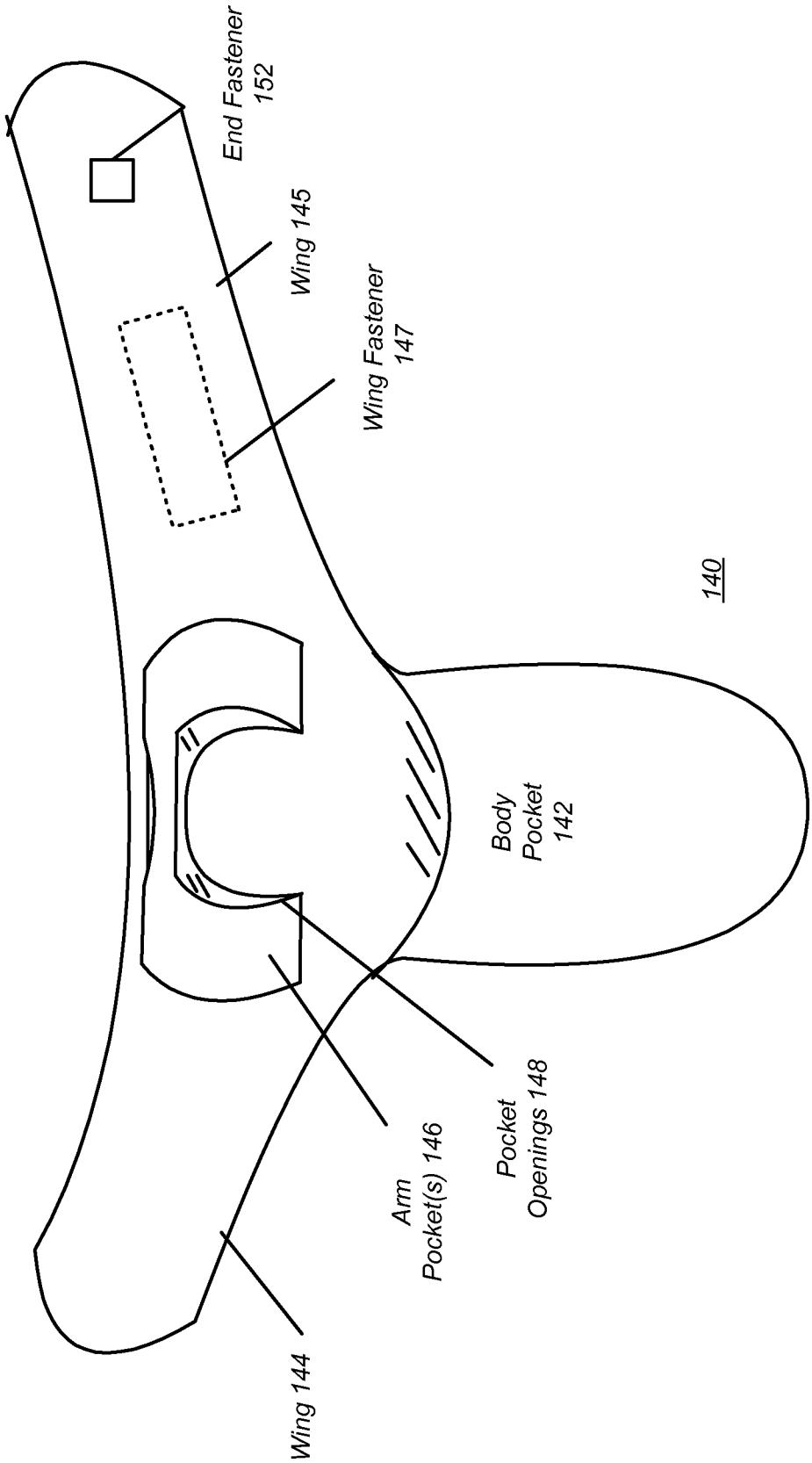
End Fastener
152
Wing 145
Wing Fastener
147
140
Body
Pocket
142
Arm
Pocket(s) 146
Pocket
Openings 148
Wing 144

FIG. 4

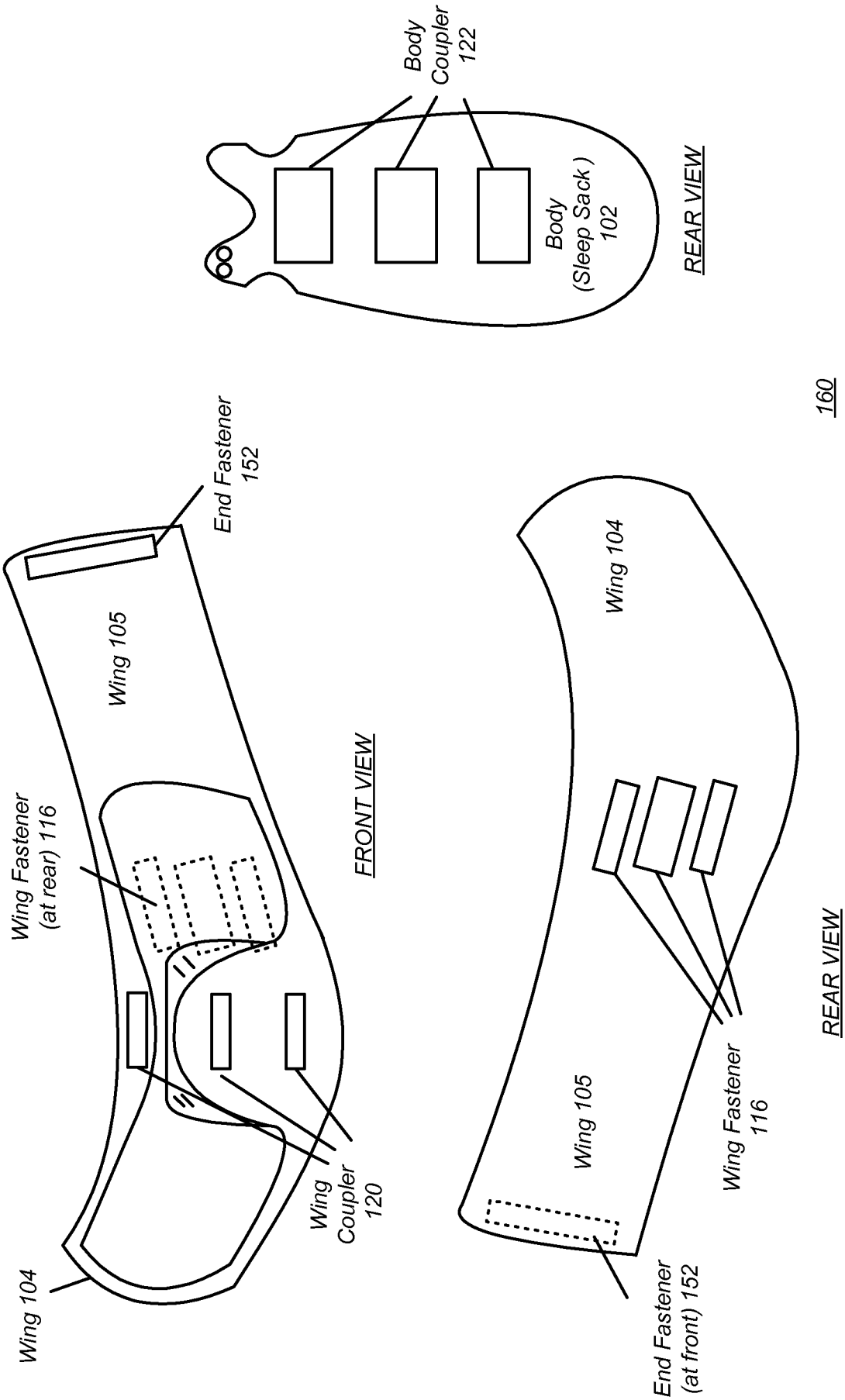
Body Coupler 122
Body (Sleep Sack) 102
REAR VIEW
End Fastener 152
Wing 105
Wing Fastener (at rear) 116
FRONT VIEW
Wing Coupler 120
Wing 104
160
Wing 104
Wing 105
Wing Fastener 116
REAR VIEW
End Fastener (at front) 152

FIG. 5