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(54) **DIAPER CHANGING APPARATUS AND METHODS**

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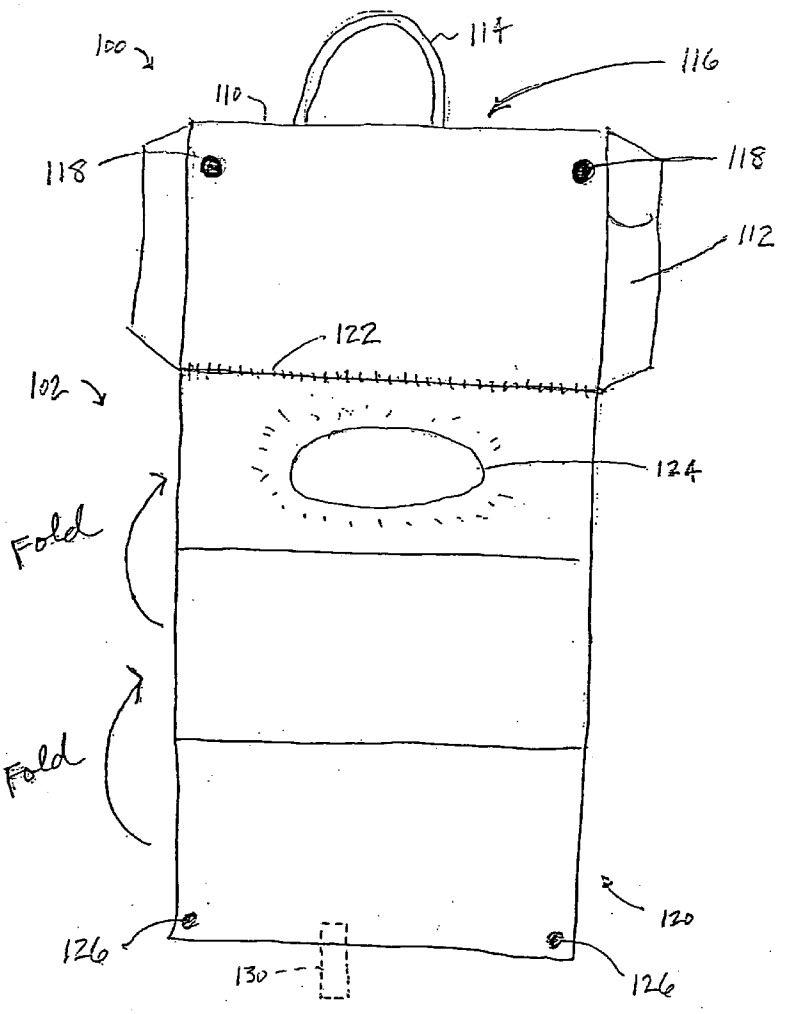
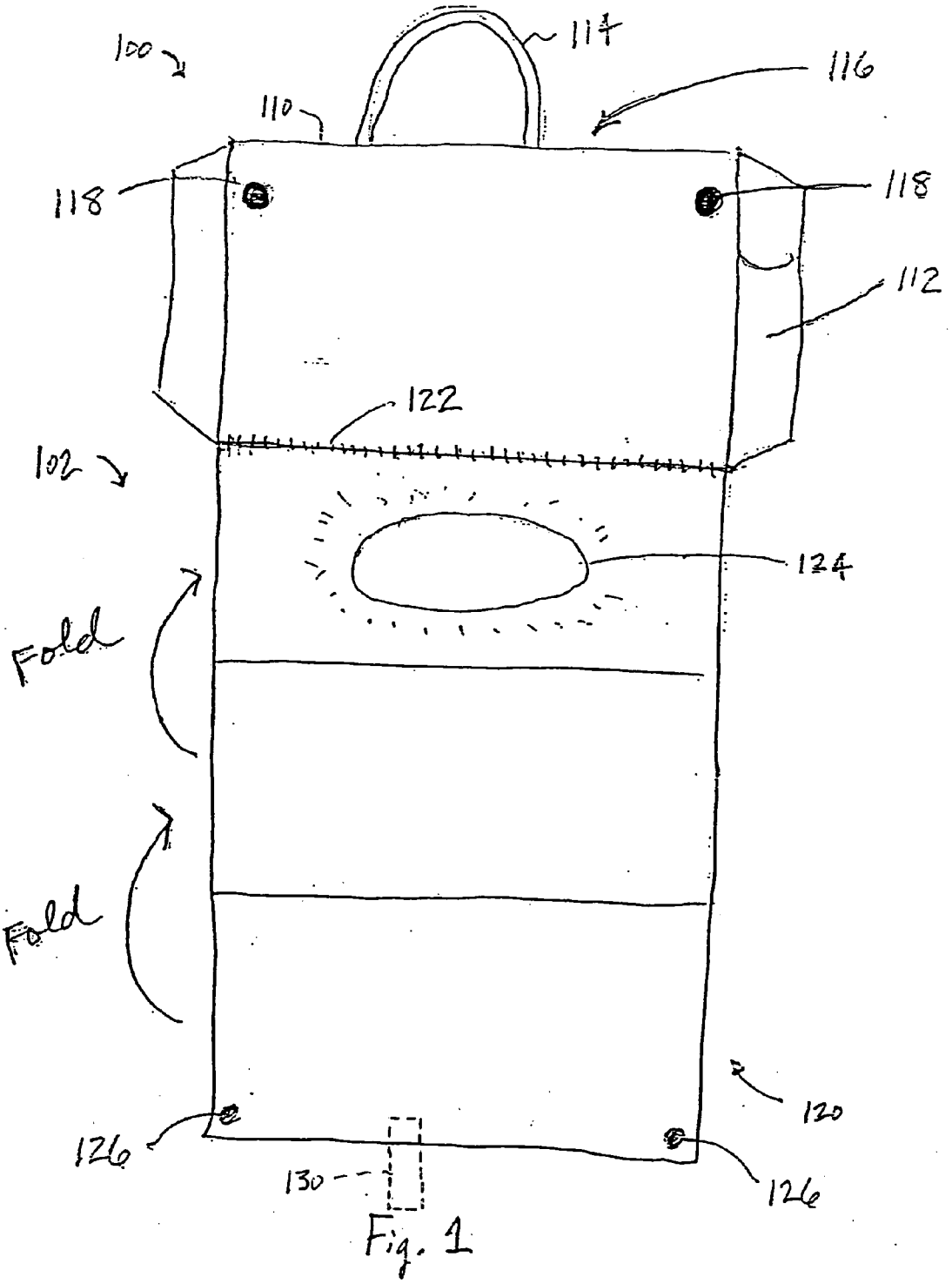
(57) **ABSTRACT**

Apparatus and methods for changing diapers are disclosed. In one embodiment, an apparatus includes a bag member partially enclosing an interior region and an outer surface having at least one first securing member formed thereon. A changing mat is operatively coupled to the outer surface and has at least one second securing member formed thereon. The changing mat is deployable between a closed position wherein the first and second securing members are engageable and the changing mat occupies a stowed position proximate to the outer surface of the bag member, and an open position wherein the changing mat is unfolded to provide an elongated changing surface. The bag member remains substantially unchanged during deployment of the changing mat between the open and closed positions.




100
114
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118
118
112
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102
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120
126
130
126

Fig. 1

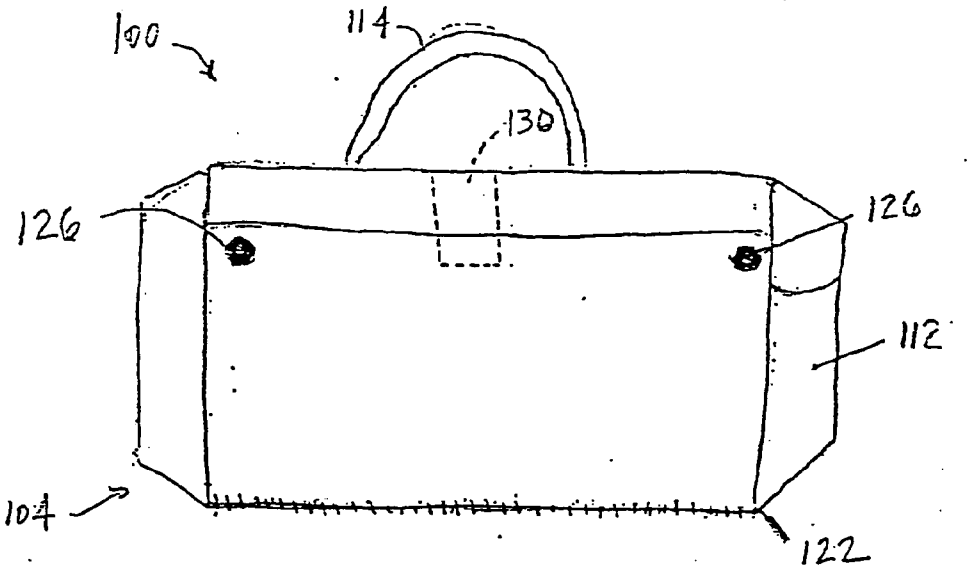
100
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Fig. 2

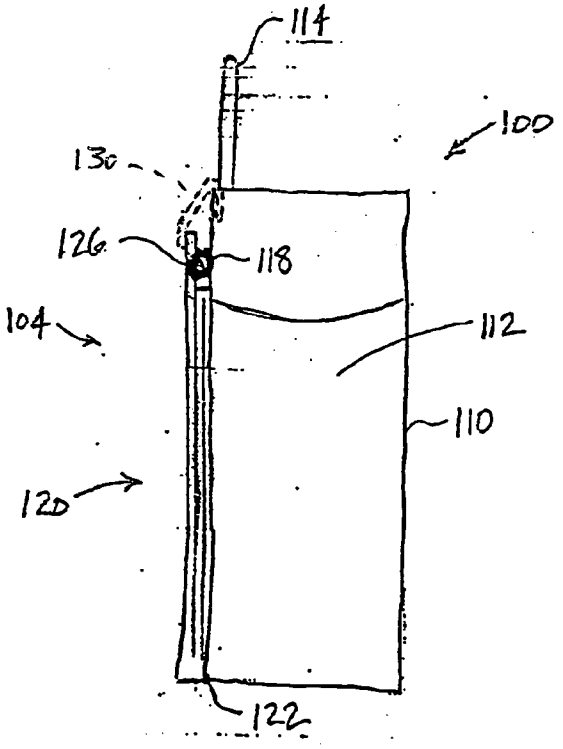
114
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Fig. 3

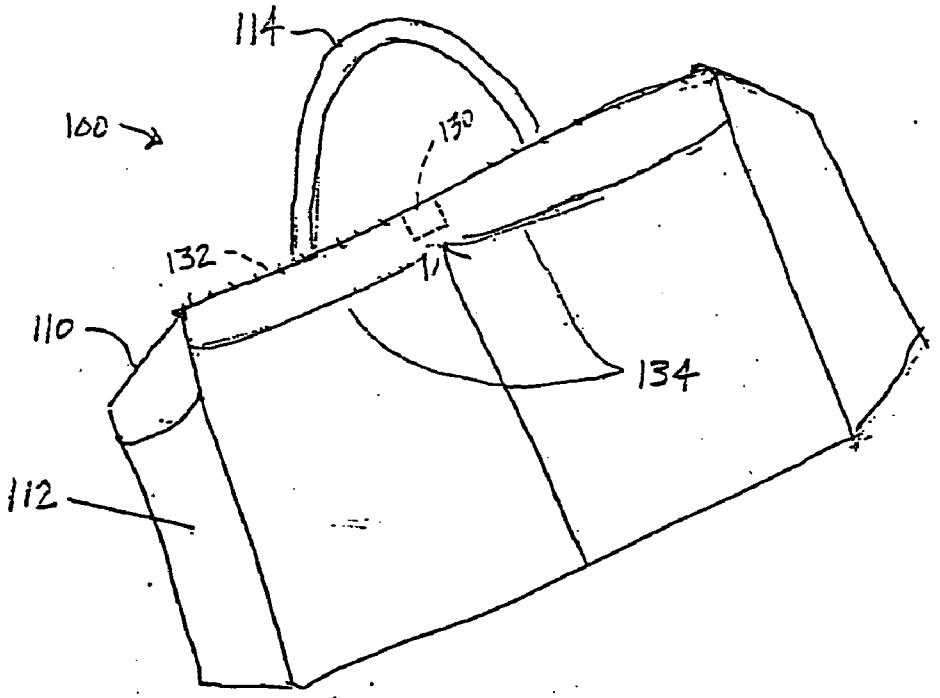

Fig. 4

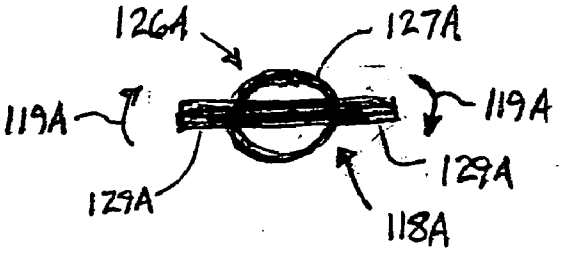

Fig. 5

DIAPER CHANGING APPARATUS AND METHODS

FIELD OF THE INVENTION

[0001] The present disclosure relates to diaper changing apparatus and methods, and more specifically, to apparatus having a removable changing mat operatively coupled to an outside surface of a diaper carrying bag.

BACKGROUND OF THE INVENTION

[0002] Diapers are useful and ubiquitous products that occupy a prominent place in the lives of parents and care-givers in virtually every country around the world. Whether disposable or reusable, diapers are almost the exclusive choice of clothing for a variety of wearers, including, for example, younger children (e.g. babies, toddlers, etc.) and certain persons with disabilities. In many public areas frequented by parents, it is common to see parents carrying both their infants and the ever-present diaper bag.

[0003] Conventional diaper bags are typically characterized by a relatively large compartment suited to carry an assortment of diapers, wipes, lotions, baby bottles, and a variety of other products useful for the task of caring for an infant. Other conventional devices also provide a surface upon which to lay the infant during changing operations, including, for example, the devices disclosed in U.S. Pat. No. 6,298,509 Bi issued to Vickers, U.S. Pat. No. 5,692,257 issued to Albertieri, U.S. Pat. No. 5,649,658 issued to Hoffman et al., U.S. Pat. No. 5,615,433 issued to Martin, U.S. Pat. No. 4,917,505 issued to Bullard et al., U.S. Pat. No. 4,566,130 issued to Coates, and U.S. Pat. No. 4,154,323 issued to Sneider.

[0004] Although desirable results have been achieved using such prior art devices, there is room for improvement. For example, several prior art apparatus require the diaper bag to be substantially disassembled in order to form the changing surface. This requires that the parent or care-giver unload the diaper bag prior to performing a changing procedure in order to form the changing surface, and then to reassemble and reload the diaper bag after the changing procedure is complete. This obviously adds inconvenience to the diaper changing procedure. Furthermore, other prior art apparatus have storage compartments located within the changing surface portion of the apparatus, which again may require the care-giver to unload portions of the apparatus, or alternately, which may cause the infant to suffer discomfort during the diaper changing procedure due to objects stored in the compartments. Therefore, diaper changing apparatus and methods that mitigate these adverse characteristics would be useful.

SUMMARY OF THE INVENTION

[0005] The present invention is directed to diaper changing apparatus and methods that mitigate several of the disadvantages of prior art changing devices. Embodiments of apparatus and methods in accordance with the present invention may advantageously improve the efficiency of the diaper changing process, and may improve the comfort of the baby during a changing operation.

[0006] In one embodiment, a diaper changing assembly in accordance with the present invention includes a bag member partially enclosing an interior region and forming an access opening leading thereto. The bag member includes an outer surface having at least one first securing member formed thereon. A changing mat is operatively coupled to the outer surface and has at least one second securing member formed thereon. The changing mat is foldable into a plurality of portions such that in a closed position, the plurality of portions are positionable proximate the outer surface and the first and second securing members are engageable with the changing mat occupying a stowed position external to the bag member. In an open position, the plurality of portions may be unfolded to provide an elongated changing surface. The bag member remains substantially unchanged during articulation of the changing mat between the open and closed positions. In an alternate aspect, the changing mat is removably coupled to the bag member. In a further aspect, the changing mat includes a compartmentless exterior surface. In yet another embodiment, the changing mat includes a pillow member disposed therein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The preferred and alternative embodiments of the present invention are described in detail below with reference to the following drawings.

[0008] **FIG. 1** is a front perspective view of a diaper changing assembly in an open position in accordance with an embodiment of the present invention;

[0009] **FIG. 2** is a front perspective view of the diaper changing assembly of **FIG. 1** in a closed position;

[0010] **FIG. 3** is a side elevational view of the diaper changing assembly of **FIG. 2**;

[0011] **FIG. 4** is a rear perspective view of the diaper changing assembly of **FIG. 2**; and

[0012] **FIG. 5** is an enlarged elevational view of an alternate embodiment of first and second attachment devices of the diaper changing assembly of **FIG. 2**.

DETAILED DESCRIPTION OF THE INVENTION

[0013] The present invention relates to present diaper changing apparatus and methods, and more specifically, to diaper changing apparatus having a removable changing mat operatively coupled to an outside surface of a diaper carrying bag. Many specific details of certain embodiments of the invention are set forth in the following description and in **FIGS. 1-5** to provide a thorough understanding of such embodiments. One skilled in the art, however, will understand that the present invention may have additional embodiments, or that the present invention may be practiced without several of the details described in the following description.

[0014] **FIG. 1** is a front perspective view of a diaper changing assembly **100** in accordance with an embodiment of the present invention. In this embodiment, the diaper changing assembly **100** includes a bag member **110** removeably coupled to a changing mat **120**. As described more fully below, the diaper changing assembly **100** advantageously allows diapers, wipes, lotions, and other supplies to be conveniently stored for transport in the bag member **110**, and with the changing mat **110** deployed in an open position **102**,

the items within the bag member **110** remain readily accessible during a diaper changing operation. These and other advantages of the diaper changing assembly **100** will become apparent in the following discussion.

[**0015**] As shown in **FIG. 1**, in this embodiment, the bag member **110** has an approximately rectangular or box-like shape having a pair of opposing side panels, a pair of opposing end panels, and a bottom panel (not visible). A pocket **112** (e.g. for baby bottles, etc.) is coupled to one of the end panels of the bag member **110**. One or more handles **114** may be coupled to the side panels to facilitate carrying of the diaper changing assembly **100**. The panels of the bag member **110** cooperate to partially enclose an interior region **116** into which the diapers, wipes, lotions, and other desired changing supplies may be stored. It will be appreciated, however, that a variety of alternate embodiments of the bag member **110** may be readily conceived, and that the invention is not limited the particular embodiment of the bag member **110** described above and shown in the accompanying figures.

[**0016**] As further shown in **FIG. 1**, the changing mat **120** may be removeably coupled to a lower portion of the bag member **110** by a coupling device **122**. In a preferred embodiment, the changing mat **120** has no pockets or storage compartments for carrying supplies. In one particular embodiment, the coupling device **122** may be a zipper. Alternately, however, the coupling device **122** may be one or more snaps, buttons, hook-and-loop fasteners (e.g. VELCRO®), or any other suitable coupling device. In further embodiments, the changing mat **120** may be permanently coupled (e.g. integrally formed, sewn, glued, heat bonded, etc.) to the bag member **110**.

[**0017**] In the embodiment shown in **FIG. 1**, the changing mat **120** is a tri-panel, foldable changing mat, and includes a padded portion **124** for cushioning a baby's head during use. Attachment members **126** are coupled to the changing mat **120** in a manner that allows engagement with corresponding receiving members **118** formed on the bag member **110**, as described more fully below. In a particular embodiment, the changing mat **120** includes one or more inner layers of padding material (not visible), such as quilted fiberfill, foam rubber, or the like, covered by an outer shell of durable covering material. A variety of covering materials may be used for the durable outer shell, including, for example, nylons, polyesters, any type of washable plastic materials, or any other suitable polymeric or non-polymeric materials. In a presently preferred embodiment, the changing mat **120** (and bag member **110**) is constructed of durable, washable materials such that if it becomes soiled, it may be removed from the bag member **110**, washed and dried in conventional washing and drying appliances, and easily reattached to the bag member **110**.

[**0018**] **FIGS. 2 and 3** are front perspective and side elevational views, respectively, of the diaper changing assembly **100** of **FIG. 1** in a closed position **104**. Similarly, **FIG. 4** is a rear elevational view of the diaper changing assembly **100** of **FIG. 2**. As best shown in **FIG. 3**, in the closed position **104**, the changing mat **120** is folded up and engaged with a side panel of the bag member **110**. The attachment members **126** on the changing mat **120** may be firmly secured with the receiving members **118** on the bag member **110** to hold the changing mat **120** in the closed position **104**. If desired, a secondary securing member **130**, such as a strap with snaps or hook and loop securing devices, may be used to further secure the changing mat **120** in the closed position **104** (shown in phantom lies in **FIG. 2**), and may extend entirely across the opening of the bag member **110** (**FIG. 3**) to permit the bag member **110** to be closed for transport. Alternately, a zipper or other closing mechanism **132** (**FIG. 4**) may be added along the upper edges of the side panels of the bag member **110** to allow the bag member **110** to be closed. As further shown in **FIG. 4**, the rear panel of the bag member **110** may be equipped with one or more additional pockets **132** for convenient access to supplies, changing items, etc.

[**0019**] In operation, the bag member **110** may be placed on a suitable surface, and the changing mat **120** may be deployed (e.g. unfolded) from its stowed position proximate the outer surface of the bag member **110** into the open position **102**. During the deployment of the changing mat **120**, the bag member **110** remains substantially unchanged, and no disassembly or modification of the bag assembly **110** is necessary. Furthermore, prior to and during the deployment of the changing mat **120**, since the changing mat **120** is without storage pockets or compartments, no unloading of any compartments is necessary. Next, a wearer of a diaper may be positioned on the changing mat **120**, preferably with a head of the wearer positioned on the pillow member **124**. A previously installed diaper may then be removed from the wearer (if not already removed), and a diaper may then be installed on the wearer. The wearer may then be removed from the changing mat **120**, and the changing mat may be redeployed into the closed position **104** proximate the outer surface such that the changing mat occupies the stowed position external to the bag member **110** and without modification of the bag member **110**. The changing mat **120** may then be secured to the bag member **110** by securing the first and second attachment devices **118**, **126** so that the changing mat **120** remains in the stowed position **104** until it is needed again.

[**0020**] In one particular embodiment, the first and second attachment devices **118**, **126** may be the corresponding projecting and receiving portions of a snap-type coupling. Alternately, any other suitable attachment devices may be used. For example, **FIG. 5** is an elevational view of an alternate embodiment of first and second coupling members **118**A, **126**A of the diaper changing assembly of **FIG. 2**. In this embodiment, the second attachment device **126**A includes a main hole (or ring) **127**A having slotted extensions **129**A projecting outwardly therefrom, and the first attachment device **118**A comprises a rotatable projection that may be passed through the aperture of the second attachment device **126**A and the rotated (or twisted) (e.g. in the direction of arrows **119**A) to secure the changing mat **120** to the bag member **110**.

[**0021**] Diaper changing apparatus in accordance with the present invention may provide significant advantages over prior art apparatus. First, there is no need for the parent or care-giver to disassemble the bag member **110** in order to form the changing mat **120**. The changing mat **120** is readily accessible, and may be deployed without unloading or modifying the bag member **110**. Supplies that may be needed during the diaper changing process remain located in a readily-accessible position within the bag member **110**. This may improve the efficiency of the diaper changing

process in comparison with alternate prior art devices, and may increase the parent's overall satisfaction with the diaper changing assembly. Furthermore, since the changing mat **120** is coupled to an outer surface of the bag member **110**, it does not occupy precious space within the interior region of the bag member **110**, thereby not diminishing the carrying capacity of the assembly.

[**0022**] Furthermore, since the changing mat **120** preferably does not include storage compartments, there is no need to unload portions of the apparatus in order to perform the diaper changing procedure. There is also no discomfort caused to the infant during the diaper changing procedure due to the presence of storage compartments in the changing mat **120**. In this way, the satisfaction of both the care-giver and the infant may be improved.

[**0023**] It will be appreciated that a variety of alternate embodiments of diaper changing assemblies may be conceived in accordance with the teachings of the present disclosure. For example, the shape and size of the bag member and/or the changing mat may be varied from the particular embodiment described above and shown in the accompanying figures. Additional handles may be added, and the shape or location of such handles may be different from the specific handle design described herein. Of course, various color, patterns, decoration schemes, and other aesthetic details may be conceived.

[**0024**] Thus, while specific embodiments of the invention have been illustrated and described herein, as noted above, many changes can be made without departing from the spirit or scope of the present invention. Accordingly, the scope of the invention should not be limited by the disclosure of the specific embodiments set forth above. Instead, the invention should be determined entirely by reference to the claims that follow.

1. A diaper changing assembly, comprising:

a bag member partially enclosing an interior region and forming an access opening leading thereto, the bag member including an outer surface having at least one first securing member formed thereon and a bottom portion positioned opposite from the access opening; and

a changing mat operatively coupled to the outer surface and having at least one second securing member formed thereon, the changing mat being foldable into a plurality of portions such that in a closed position, the plurality of portions are positionable proximate the outer surface and the first and second securing members are engageable with the changing mat occupying a stowed position external to the bag member, and in an open position the plurality of portions may be unfolded to provide an elongated changing surface, the bag member being adapted such that the bottom portion remains engaged with the support surface, the interior region remains substantially accessible through the access opening, and the bag member remains substantially unchanged during articulation of the changing mat between the open and closed positions.

2. The diaper changing assembly of claim 1, wherein the bag member includes first and second side panels and a handle coupled to at least one of the first and second panels.

3. The diaper changing assembly of claim 1, wherein the bag member includes one or more storage compartments coupled to the outer surface.

4. The diaper changing assembly of claim 1, wherein the bag member includes a substantially rectangular member having first and second side panels, opposing end panels, and a bottom panel coupled to the first and second side panels and the opposing end panels, the bottom panel comprising the bottom portion.

5. The diaper changing assembly of claim 1, wherein the changing mat is removably coupled to the bag member.

6. The diaper changing assembly of claim 5, wherein the changing mat is removably coupled to the bag member using a zipper.

7. The diaper changing assembly of claim 1, wherein the changing mat is a tri-panel member.

8. The diaper changing assembly of claim 1, wherein the changing mat includes a compartmentless exterior surface.

9. The diaper changing assembly of claim 1, wherein the changing mat includes an inner layer of padding material substantially surrounded by an outer, durable layer.

10. The diaper changing assembly of claim 1, wherein the changing mat includes a pillow member disposed therein.

11. A diaper changing assembly, comprising:

a bag member having at least two side panels that substantially enclose an interior region and at least partially form an access opening leading thereto, the bag member including an outer surface having at least one first securing member formed on one of the side panels and a bottom portion positioned opposite from the access opening; and

a changing mat removably coupled to the outer surface of the one of the side panels, the changing mat having a compartmentless exterior surface and having at least one second securing member formed thereon and engageable with the first securing member, the changing mat being foldable into a closed position such that the changing mat is stowed proximate the one of the side panels and the first and second securing members are engageable, the changing mat further being unfoldable into an open position to form an elongated changing surface, the bag member being adapted such that the bottom portion remains engaged with the support surface, the interior region remains substantially accessible through the access opening, and the bag member remains substantially unchanged during articulation of the changing mat between the open and closed positions.

12. The diaper changing assembly of claim 11, wherein the bag member includes one or more storage compartments coupled to the outer surface.

13. The diaper changing assembly of claim 11, wherein the bag member includes a substantially rectangular member having opposing end panels coupled between the first and second side panels, and a bottom panel coupled to the end panels and to the side panels, the bottom panel comprising the bottom portion and substantially enclosing a lower end of the interior region.

14. The diaper changing assembly of claim 11, wherein the changing mat is removably coupled to the bag member using a zipper.

15. The diaper changing assembly of claim 11, wherein the changing mat includes an inner layer of padding material substantially surrounded by an outer, durable layer.

16. The diaper changing assembly of claim 11 wherein the changing mat includes a pillow member disposed therein.

17. A method of changing diapers, comprising:

providing a bag member that partially encloses an interior region and having an access opening leading thereto, the bag member including an outer surface and a bottom portion positioned opposite from the access opening;

engaging the bottom portion with a support surface such that the interior region is substantially accessible through the access opening;

deploying a changing mat operatively coupled to the outer surface into an open position to provide an elongated changing surface without modification of the bag member, the bottom portion remaining engaged with the support surface and the interior region remaining substantially accessible through the access opening;

positioning a wearer of a diaper on the changing surface;

installing a diaper on the wearer; and

redeploying the changing mat into a closed position proximate the outer surface wherein the changing mat occupies a stowed position external to the bag member and without modification of the bag member, the bottom portion remaining engaged with the support surface and the interior region remaining substantially accessible through the access opening.

18. The method of claim 17, further comprising securing a first attachment device on the changing mat with a second attachment device on the outer surface when the changing mat is in the stowed position.

19. The method of claim 17, further comprising removing a previously-installed diaper from the wearer.

20. The method of claim 17, wherein deploying a changing mat includes deploying a changing mat having a compartmentless surface.

* * * * *