RECONFIGURABLE SEATING AND SLEEPING APPARATUS

Inventor: Stephen R. Flanagan, Atlanta, GA (US)

Correspondence Address:
PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100 (US)

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ABSTRACT

A reconfigurable seating and sleeping apparatus having an elongated body. The reconfigurable seating and sleeping apparatus is readily reconfigurable between a chair configuration, a sleeping configuration and a storage configuration by bending the elongated body. The invention thereby provides a highly useful product for people who have children.
RECONFIGURABLE SEATING AND SLEEPING APPARATUS

REFERENCE TO RELATED APPLICATION

[0001] The present application claims priority to U.S. Provisional Application No. 60/567,665, filed May 3, 2004, the entirety of which is incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to portable infant seats carriers and infant mats. In particular, the present invention relates to portable infant care arrangement that is configurable as an infant seat and as a tote mat for use in changing the infant.

BACKGROUND OF THE INVENTION

[0003] Infant chairs and carriers with multiple compartments for storing and carrying infant items are well known in the art. However, most of these articles are heavy, bulky and are not easily transportable from one location to another. Conversely, multi-purpose tote bags combined with chairs, or with cushions have also been known in the art that were designed to provide comfort to the user but do not address the problem of providing an infant chair with toting capabilities that meets all of the needs and functions described herein.

[0004] The prior art discloses a number of chairs, lounges, recliners, mats, submersible floatation devices, inflatable and non-inflatable floatation devices, and numerous combination tote bags with seats, tote bags with mats, and tote bags with chairs. Although portability is inherent in these designs, none of these configurations is truly suitable for infant use, especially when a parent needs to change their infant’s diapers in public areas or provide the parent with a means for easily feeding the infant in the upright position.

[0005] Therefore, there is a need for an apparatus that facilitates childcare while enhancing portability and reduction in space requirements.

SUMMARY OF THE INVENTION

[0006] The present invention relates to an infant seating apparatus and system that in its most simple embodiment provides a seating configuration that is collapsible for ease of transportability into a portable mat. Particularly, the invention is a reconfigurable apparatus adapted for infant seating and sleeping with integrated storage compartments that is easily collapsible for ease of portability and storage. In a related embodiment, the infant seating and storage apparatus includes additional compartments for storage and portability of infant items. In yet another related embodiment, the infant seating and storage apparatus is configurable to form a changing pad as well as a mini-crib or bassinet for infant napping.

[0007] The above summary of the present invention is not intended to describe each illustrated embodiment or every implementation of the present invention. The figures in the detailed description that follow more particularly exemplify these embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The invention may be more completely understood in consideration of the following detailed description of various embodiments of the invention in connection with the accompanying drawings, in which:

[0009] FIG. 1. is a side view of a reconfigurable seating and sleeping apparatus according to an embodiment of the present invention in a chair configuration.

[0010] FIG. 2. is a front view of the reconfigurable seating and sleeping apparatus in the chair configuration.

[0011] FIG. 3. is a back view of the reconfigurable seating and sleeping apparatus in the chair configuration.

[0012] FIG. 4. is a top view of the reconfigurable seating and sleeping apparatus in the chair configuration.

[0013] FIG. 5. is an enlarged side view showing interconnection of the elements of the reconfigurable seating and sleeping apparatus in the chair configuration.

[0014] FIG. 6. is a perspective view of the reconfigurable seating and sleeping apparatus in a sleeping configuration.

[0015] FIG. 7. is a side view of the reconfigurable seating and sleeping apparatus in the sleeping configuration.

[0016] FIG. 8. is a perspective view of the reconfigurable seating and sleeping apparatus in a utility configuration.

[0017] FIG. 9. is a side view of the reconfigurable seating and sleeping apparatus in a first intermediate position between the chair configuration and the sleeping configuration.

[0018] FIG. 10. is a side view of the reconfigurable seating and sleeping apparatus in a second intermediate position between the chair configuration and the sleeping configuration.

[0019] FIG. 11. is a perspective view of the reconfigurable seating and sleeping apparatus in a storage configuration.

[0020] While the invention is amenable to various modifications and alternative forms, specifics thereof have been shown by way of example in the drawings and will be described in detail. It should be understood, however, that the intention is not to limit the invention to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION OF THE DRAWINGS

[0021] The invention is generally directed to an apparatus and a system for facilitating the care of an infant or child by providing a sturdy seating arrangement in a collapsible and portable form factor. While the invention is not necessarily limited to such an application, the invention will be better appreciated using a discussion of example embodiments in such a specific context.

[0022] A reconfigurable seating and sleeping apparatus 10 provides a simple, easy to use and contemporary design that is highly durable. The reconfigurable seating and sleeping apparatus 10 drastically reduces the total amount, size, weight and space requirements compared to typical infant equipment.

[0023] The reconfigurable seating and sleeping apparatus 10 is generally defined by an elongated body 12, as illustrated in the Figures. The reconfigurable seating and sleep-
The elongated body 12 preferably has a generally rectangular shape that is defined by sides 20, a first end 22 and a second end 24 as most clearly illustrated in FIG. 6. The elongated body 12 is formed with a length and width based upon the size of the anticipated user. For many applications, the elongated body 12 has a length of about 7 feet and a width of about 1.5 feet. While the reconfigurable seating and sleeping apparatus 10 is typically used by a single person, it is possible to adapt the concepts of the present invention for use by multiple persons.

The elongated body 12 may be fabricated from an expanded foam material 25 that provides the reconfigurable seating and sleeping apparatus 10 with structural rigidity while providing comfort to a user that is sitting or laying on the reconfigurable seating and sleeping apparatus 10. For many applications, the elongated body 12 may have a thickness of up to about 3 inches and preferably about 1.5 inches. Alternatively, the elongated body 12 may be fabricated using the concepts of the present invention from other materials such as metal or plastic sheets.

To enhance the comfort and/or durability of the reconfigurable seating and sleeping apparatus 10, the elongated body 12 may be covered with a fabric layer. A person of ordinary skill in the art will appreciate that a variety of fabrics or other materials may be selected to provide selected functional characteristics such as stain resistance.

To enhance the ability of the reconfigurable seating and sleeping apparatus 10 to maintain a desired configuration such as the chair configuration (FIGS. 1-4), one or more deformable rods 26 or sheets may be mounted in the elongated body 12. When deformable rods 26 are used, the deformable rods 26 are placed along the sides 20 of the elongated body 12. The deformable rods may extend through sleeves (not shown) that are attached to or formed in the sides 20. When deformable sheets are used, the deformable sheets are placed beneath or at an intermediate location in the foam material.

The deformable rods 26 or sheets may have a deformability that varies at different locations of the deformable rods 26 such that the deformable rods 26 would permit more deformation at different locations of the elongated body 12. The varying deformability may be attained by one or more of the following aspects: rod overall thickness, rod wall thickness and rod fabrication material.

Alternatively, resilient springs may be used to control the configuration of the reconfigurable seating and sleeping apparatus 10. It is also possible to control the deformability of the elongated sheet by varying the thickness of the elongated body 12.

In another configuration, an at least partially rigid cap (not shown) may be placed over at least a portion of the side 20 to retain the elongated body 12 in a desired configuration such as the chair configuration. The rigid cap may have a U-shaped recess that is adapted to receive the side 20.

A releasable fastener may be used to retain the reconfigurable seating and sleeping apparatus 10 in the chair configuration. One such suitable releasable fastener is a hook and loop fastener such as is marketed under the designation VELCRO. The releasable fastener may include at least two fastening surfaces that are capable of releasably engaging each other.

A first fastening band 30 extends from the first end 22, as most clearly illustrated in FIGS. 5-6. The first fastening band 30 has a first fastening surface 32 and a second fastening surface 34 on opposite sides thereof. A second fastening band 40 is attached to the second end 24. The second fastening band 40 has a third fastening surface 42. A third fastening band 50 is attached to the elongated body 12 intermediate the first end 22 and the second end 24. The third fastening band 50 has a fourth fastening surface 52.

The reconfigurable seating and sleeping apparatus 10 is initially in the sleeping configuration, as illustrated in FIGS. 6-7. The first and second ends 22, 24 are both rotated towards the third fastening band 50 as indicated by arrows 60, 62 in FIGS. 9-10. The central region proximate the third fastening band 50 is urged upwards as indicated by arrow 64 in FIGS. 9-10.

These movements continue until the first fastening surface 32 releasably engages the third fastening surface 42 and the second fastening surface 34 releasably engages the fourth fastening surface 52 to form the chair configuration, as most clearly illustrated in FIGS. 1 and 5. The reconfigurable seating and sleeping apparatus 10 can thereby be readily moved to the chair configuration, such transformation typically taking less than ten seconds.

When the reconfigurable seating and sleeping apparatus 10 is in the chair configuration, a seat region 70 and a back region 72 are thereby defined. At least one of the seat region 70 and the back region 72 preferably include a convex surface that assists in maintaining the user at a desired location on the reconfigurable seating and sleeping apparatus 10, as most clearly illustrated in FIGS. 2 and 4.

Depending on the age and/or size of the user, the reconfigurable seating and sleeping apparatus 10 may include a safety belt 74, as most clearly illustrated in FIGS. 2 and 4. A person of ordinary skill in the art will appreciate that the safety belt 74 may have a variety of configurations such as a three point or five point configuration and may use a variety of fastening mechanisms such as snaps 75.

The reconfigurable seating and sleeping apparatus 10 may include one or more storage compartments 76 attached to a rear surface 78 of the back region 72 as most clearly illustrated in FIG. 3. The storage compartments 76 enable frequently used objects such as diapers, wipes and burp rags to be stored for readily accessibility while being out of sight and/or out of reach of the user. The storage compartments 76 may be fabricated from a variety of materials to provide or restrict visibility to objects placed in the storage compartments 76 such as a mesh material. The storage compartments 76 may also include a closure device 79 such as a releasable fastener to retain objects in the storage compartments 76. The reconfigurable seating and sleeping apparatus 10 may also include one or more holders for pacifiers, baby bottles or wipes.

To increase the functionality of the reconfigurable seating and sleeping apparatus 10, the elongated body 12
may areas that may be used when performing activities relating to infants or children. These areas are readily accessible when the reconfigurable seating and sleeping apparatus 10 is in the sleeping/utility configuration (FIGS. 6-8) but are on the inside when the reconfigurable seating and sleeping apparatus 10 is in the chair configuration (FIGS. 1-4).

[0040] Proximate the first end 22, a first panel 80 may fold outward to provide a substantially flat surface that may be used for changing an infant’s diaper or clothes, as most clearly illustrated in FIG. 8. Providing the panel 80 increases the surface area that may be used for these activities. An inner surface in this area may have waterproof characteristics that resist soiling.

[0041] Proximate the second end 24, a series of second panels 82 fold to an upward configuration to define an enclosed region 84 that restricts movement of the infant. At least one of the second panels 82 may have a mesh configuration that enhances the ability to see person(s) or objects in the enclosed region 84. It will be appreciated that the enclosed region 84 may be used for allowing an infant to take a nap.

[0042] At an intermediate location on the elongated body 12, at least one interior storage pocket 86 is provided. The interior storage pocket 86 can be used to store items that may be needed when changing a baby’s diaper such as diapers, wipes and extra clothing. The increase in the amount of items that may be stored in the at least one storage pocket 86, at least one panel 88 may also be used. The at least one panel 88 preferably pivots to an open position to enable objects to be stored therein. Similar to the other storage areas discussed herein, the pockets may include a closure mechanism.

[0043] When it is not desired to use the reconfigurable seating and sleeping apparatus 10, the elongated body 12 may be rolled, as illustrated in FIG. 11, to reduce the size of the reconfigurable seating and sleeping apparatus 10 for storage or transportation to a desired use location.

[0044] The reconfigurable seating and sleeping apparatus 10 may include at least one strap 90 that extends around the roll to maintain the roll in the storage configuration. The reconfigurable seating and sleeping apparatus 10 may also include a handle 92 or shoulder strap (not shown) to facilitate carrying the reconfigurable seating and sleeping apparatus 10.

[0045] The present invention may be embodied in other specific forms without departing from the essential attributes thereof; therefore, the illustrated embodiments should be considered in all respects as illustrative and not restrictive, reference being made to the appended claims rather than to the foregoing description to indicate the scope of the invention.

1. A reconfigurable seating and sleeping apparatus comprising:

an elongated body that is defined by a first end, a second end and a pair of sides that extend between the first end and the second end;

a first fastening surface attached to the elongated body proximate the first end; and

a second fastening surface attached to the elongated body proximate the second end; and

a third fastening surface attached to the elongated body intermediate the first end and the second end, wherein the first fastening surface is capable of releasably engaging the third fastening to retain the first end in a stationary relationship with respect to an intermediate position on the elongated body to which the third fastening surface is attached and thereby define a seat region, and wherein the second fastening surface is capable of releasably engaging the third fastening to retain the second end in a stationary relationship with respect to an intermediate position on the elongated body to which the third fastening surface is attached and thereby define a back region.

2. The reconfigurable seating and sleeping apparatus of claim 1, wherein the elongated body comprises:

a foam core;

a cover layer than substantially encompasses the foam core; and

at least one deformable rod attached to the cover layer along one of the sides.

3. The reconfigurable seating and sleeping apparatus of claim 1, wherein the elongated body comprises:

a foam core;

a cover layer that substantially encompasses the foam core; and

at least one deformable sheet that at least partially extends through the foam core.

4. The reconfigurable seating and sleeping apparatus of claim 1, and further comprising a safety belt attached to the seat region proximate the back region.

5. The reconfigurable seating and sleeping apparatus of claim 1, and further comprising at least one storage compartment attached to the back region.

6. The reconfigurable seating and sleeping apparatus of claim 1, wherein the elongated body has a first panel pivotally attached thereto that opens to reveal a waterproof diaper changing region.

7. The reconfigurable seating and sleeping apparatus of claim 1, wherein the elongated body has a series of second panels pivotally attached thereto, wherein the series of second panels pivot away from the elongated body to define an enclosed region.

8. A reconfigurable seating and sleeping apparatus comprising:

an elongated body that is defined by a first end, a second end and a pair of sides that extend between the first end and the second end;

a first fastening band extending from the first end, wherein the first fastening band comprising a first fastening surface extending from a first side thereof and a second fastening surface extending from a second side thereof that is opposite the first side;

a third fastening surface attached to the elongated body proximate the second end; and

a fourth fastening surface attached to the elongated body intermediate the first end and the second end, wherein the first fastening surface is capable of releasably
9. The reconfigurable seating and sleeping apparatus of claim 8, wherein the elongated body comprises:

- a foam core;

- a cover layer than substantially encompasses the foam core; and

- at least one deformable rod attached to the cover layer along one of the sides.

10. The reconfigurable seating and sleeping apparatus of claim 8, wherein the elongated body comprises:

- a foam core;

- a cover layer than substantially encompasses the foam core; and

- at least one deformable sheet that at least partially extends through the foam core.

11. The reconfigurable seating and sleeping apparatus of claim 8, wherein the elongated body has a first panel pivotally attached thereto that opens to reveal a waterproof diaper changing region.

12. The reconfigurable seating and sleeping apparatus of claim 8, wherein the elongated body has a series of second panels pivotally attached thereto, wherein the series of second panels pivot away from the elongated body to define an enclosed region.

13. A method of operating a reconfigurable seating and sleeping apparatus, the method comprising:

- providing an elongated body in a rolled storage configuration by extending at least one strap around the elongated body, wherein the elongated body is defined by a first end, a second end and a pair of sides that extend between the first end and the second end;

- unrolling the elongated body to a sleeping configuration where the elongated body is substantially flat;

- curving the first end to an intermediate position to define a seat region;

- engaging the first end to the intermediate location with a first removable fastening device;

- curving the second end to the intermediate position to define a back region; and

- engaging the first end to the intermediate location with a second removable fastening device.

14. The method of claim 13, and further comprising urging the intermediate position to a location that is elevated with respect to a lower surface of the seat region.

15. The method of claim 13, and further comprising mounting at least one of a deformable rod, a deformable sheet and a spring with respect to the elongated body.

16. The method of claim 13, and further comprising pivoting a first panel away from the elongated body to reveal a waterproof diaper changing surface.

17. The method of claim 13, and further comprising pivoting a series of second panels away from the elongated body to define an enclosed region.

18. The method of claim 13, wherein the elongated body comprises a foam core and a cover layer than substantially encompasses the foam core.