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(54) **MULTI-FUNCTIONAL INFANT GYM**

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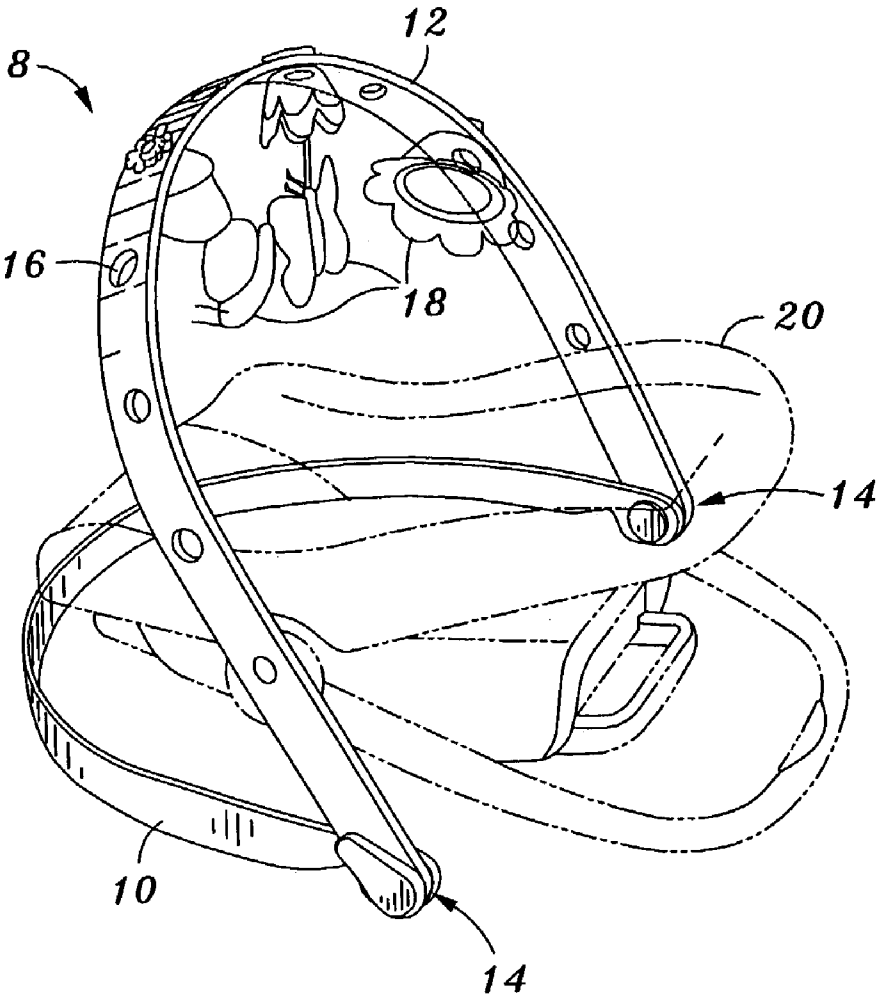
(57) **ABSTRACT**

A multi-functional infant gym is provided that is readily configurable into different useful forms. First and second arch members are pivotally connected to each other, allowing the gym to be positioned as desired. Lockable hinges can facilitate the pivoting of the gym. In a fully extended position, the gym can be used as an activity arch. Toys can be releaseably engaged with the activity arch, allowing for infant interaction with the toys. The gym can also be pivoted to a partially retracted position providing an infant sleep surface or changing mat. A pad member can be releaseably engaged with the gym. In a collapsed position, the arch members are nested in relation to each other allowing for compact storage and transport of the gym. A cover can be installed to protect the gym while in the collapsed position.



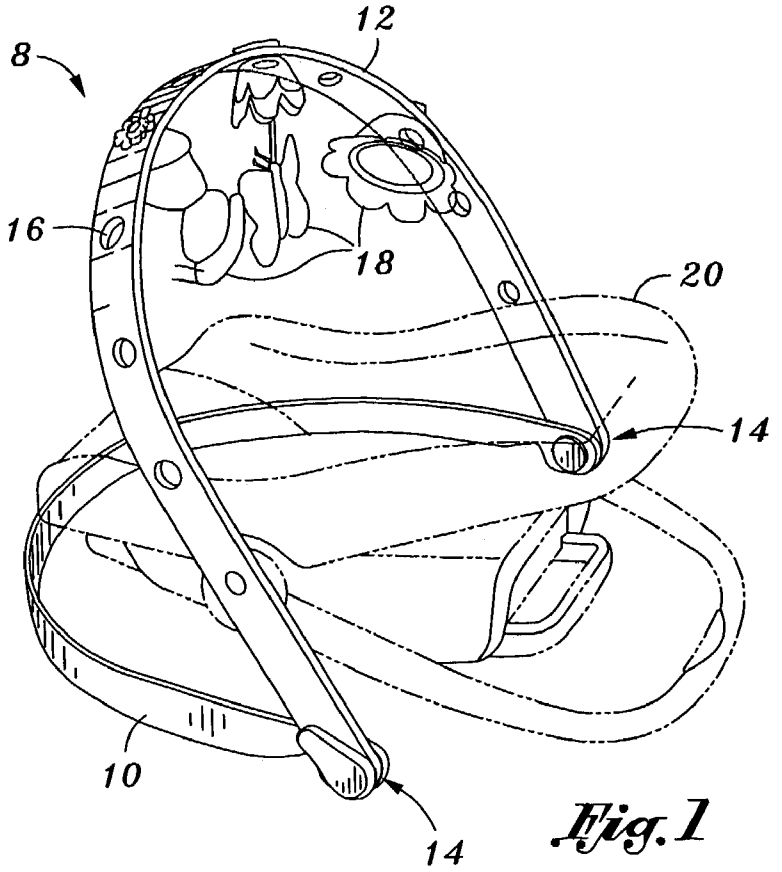


Fig. 1

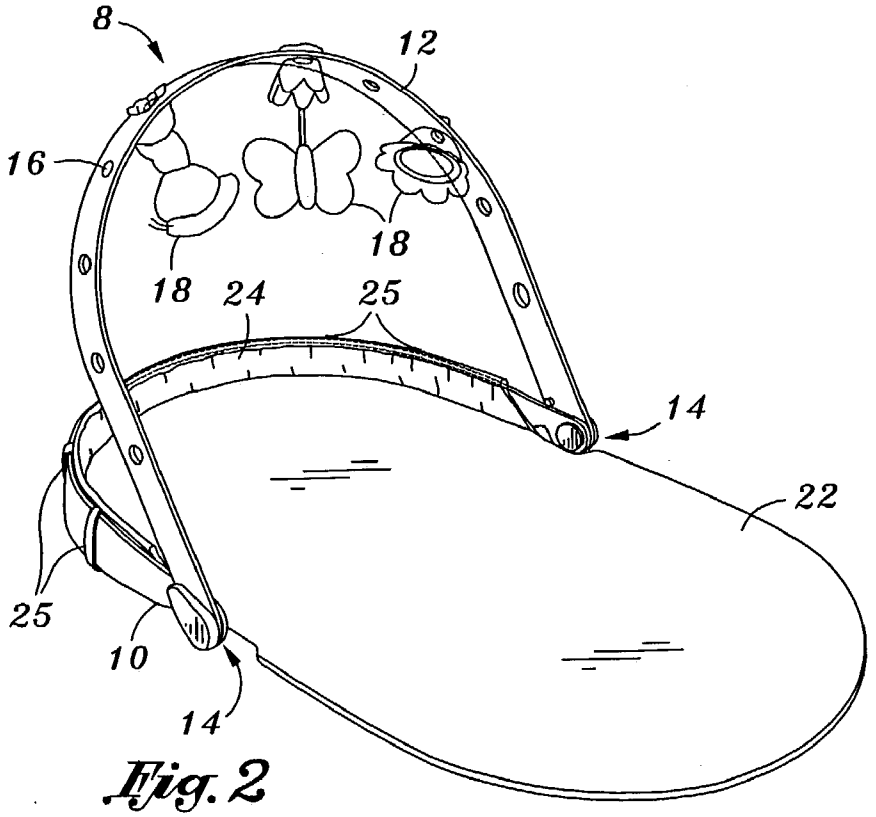


Fig. 2

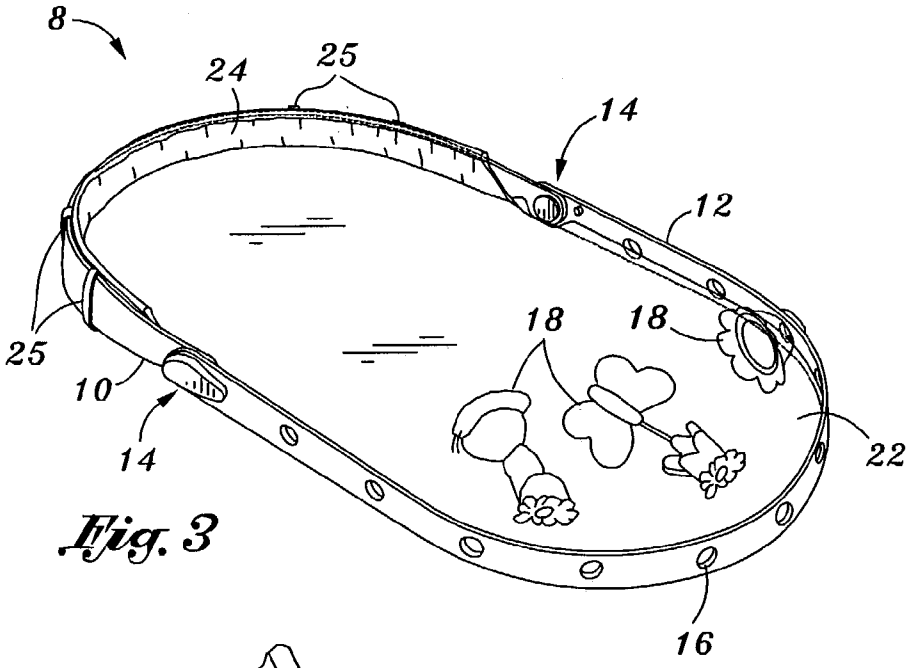

8
24
25
14
12
18
18
25
10
14
22
16

Fig. 3

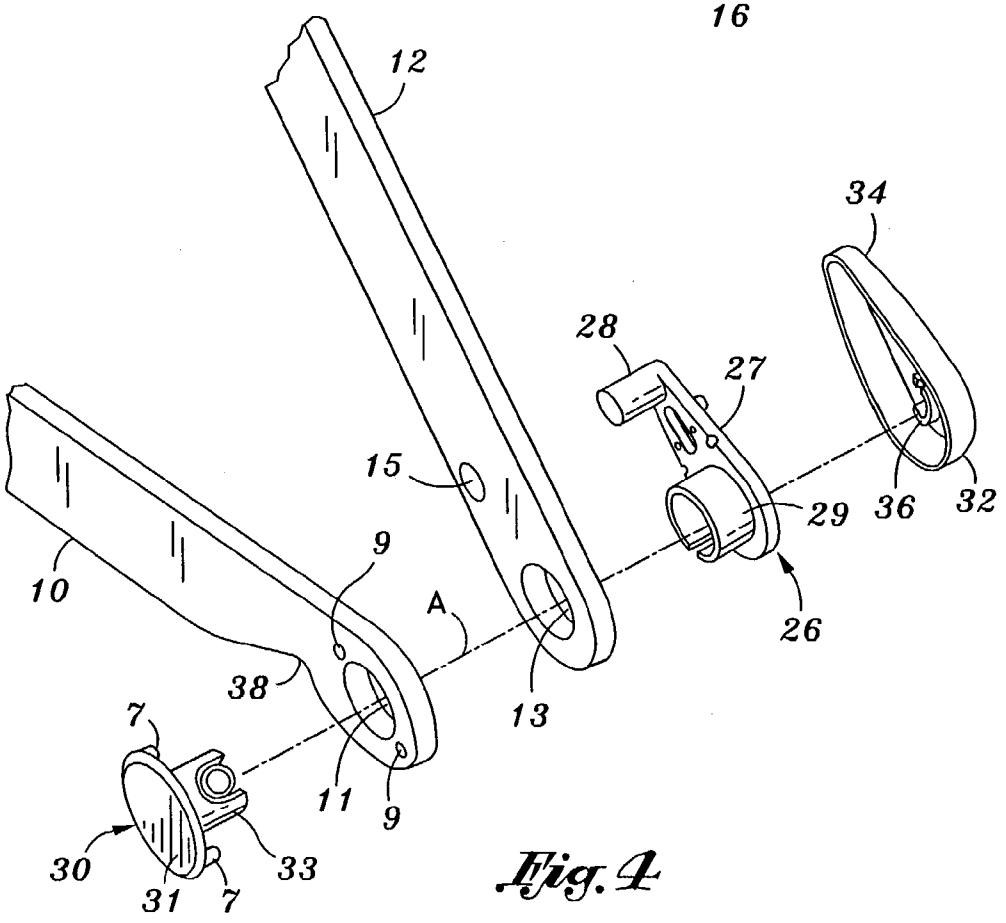

12
34
28
27
15
29
36
32
9
10
A
26
38
13
7
11
9
30
33
31
7

Fig. 4

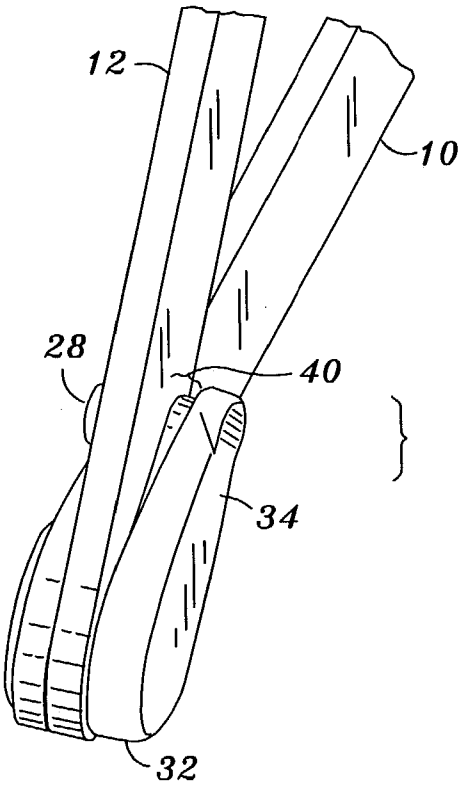


Fig. 5A

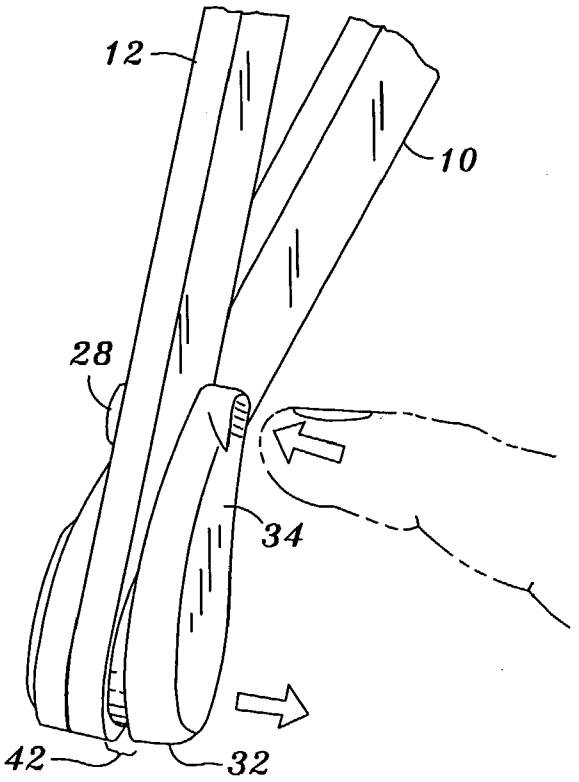


Fig. 5B

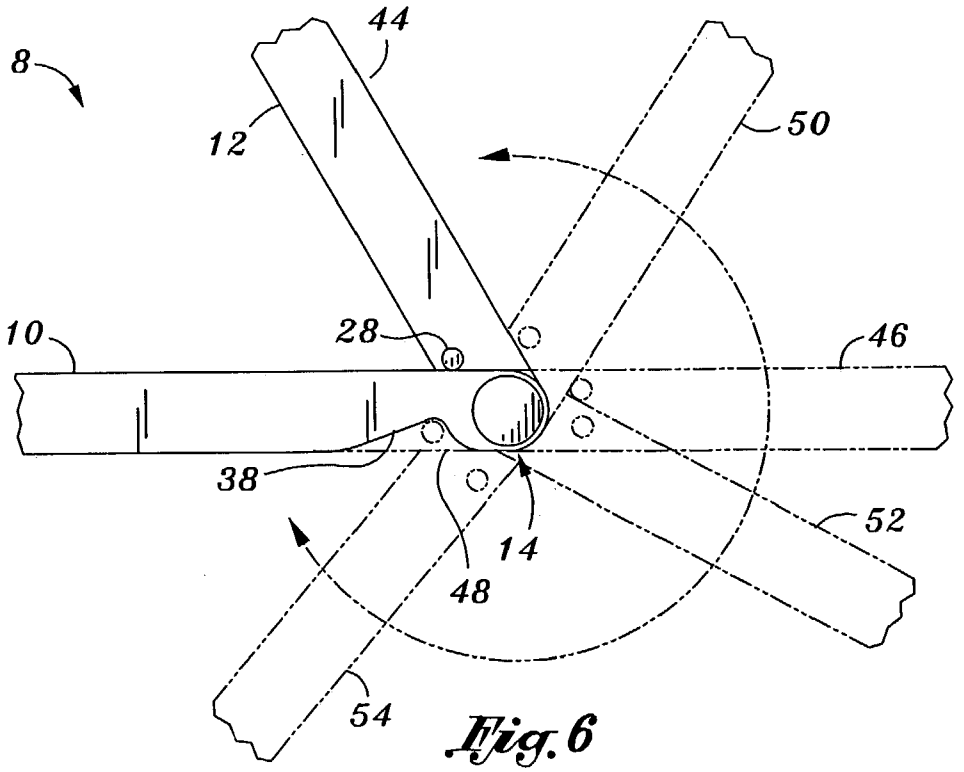


Fig. 6

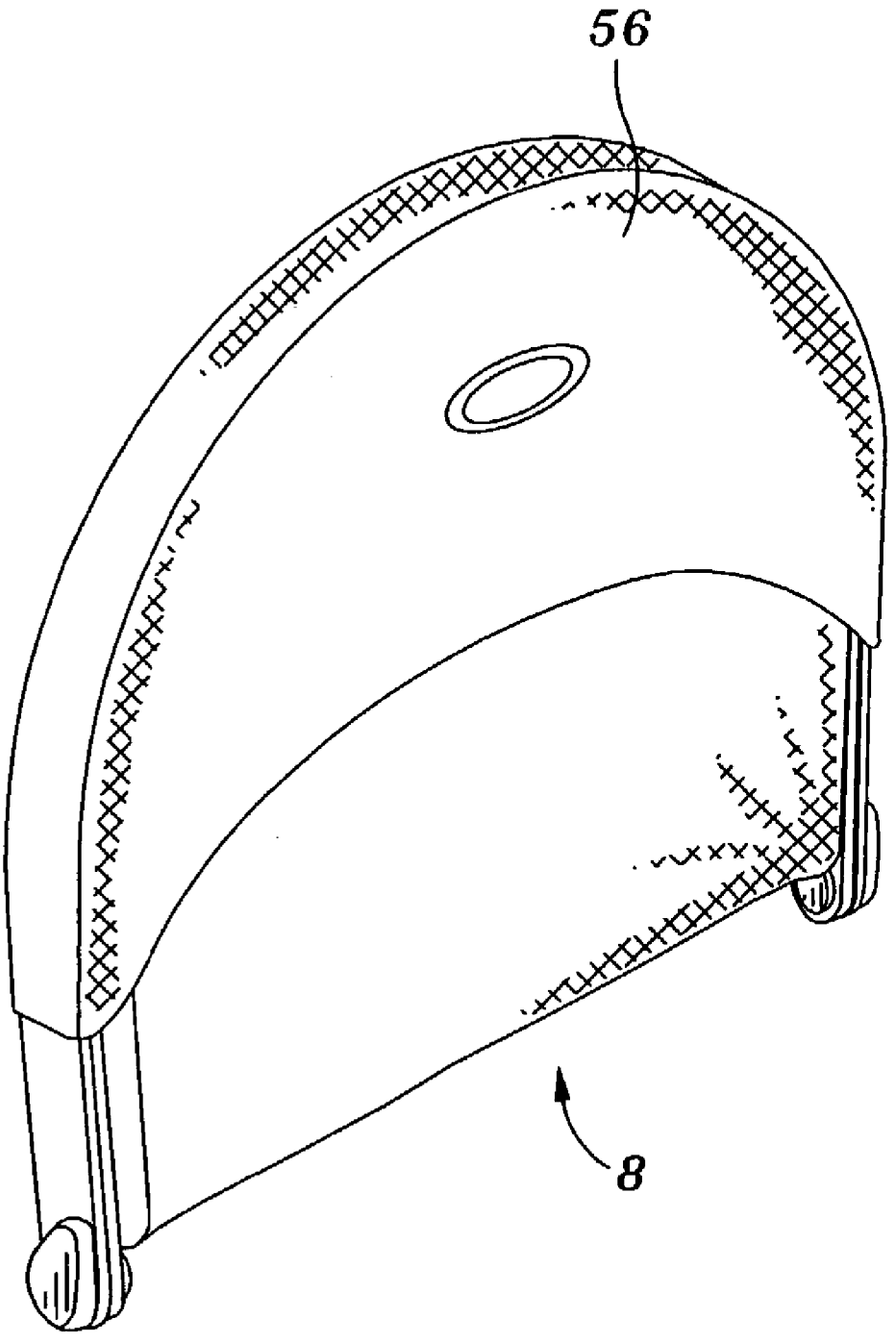


Fig. 7

MULTI-FUNCTIONAL INFANT GYM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable

STATEMENT RE: FEDERALLY SPONSORED RESEARCH/DEVELOPMENT

[0002] Not Applicable

BACKGROUND OF THE INVENTION

[0003] The present invention relates generally to toys for children, and more particularly to a multi-functional apparatus that can be quickly and easily converted from an infant activity arch to a changing mat or sleep surface, and also collapsed for transport and/or storage.

[0004] As is well known to parents, the marketplace is filled with products designed to meet the various needs of children. However, many such products have limited functionality and can only be used for a particular purpose. As a result, parents are often forced to purchase multiple products to address each of the many different needs of their children.

[0005] For example, to entertain an infant, parents may provide the child with an activity arch. Conventional activity arches may include detachable toys that suspend over an infant car seat or stroller, allowing the infant to interact with the toys. While the activity arch may satisfy the child's need for entertainment, infants have other needs which also must be met. Specifically, infants can require frequent naps and diaper changes at various times of the day. If a family is away from home, parents must provide an appropriate resting surface for the infant, such as a portable crib or changing table.

[0006] Unfortunately, it can be inconvenient and expensive for parents to purchase and transport separate products to meet each of the needs outlined above. In some cases, such an approach can even become cost-prohibitive.

[0007] The present invention addresses these problems by providing a multi-functional infant gym which can be easily reconfigured to provide desired functionality. For example, in various embodiments the infant gym can be configured as an activity arch as well as a changing mat or sleep surface, and can be further collapsed for storage and/or transport. Thus, the present invention can provide the attributes of both an activity arch, a changing table, and a bed within a single product in an economical and compact manner.

BRIEF SUMMARY OF THE INVENTION

[0008] The present invention is directed to a multi-functional infant gym that is readily configurable into different useful forms. In various embodiments, the gym comprises first and second arch members pivotally connected to each other. The gym can be pivoted to a fully extended position wherein the second arch member is substantially above the first arch member, thereby providing an infant activity arch. Toys can be releaseably engaged with the activity arch, allowing for infant interaction with the toys.

[0009] The gym can also be pivoted to a partially retracted position wherein the second arch member is substantially opposed to and coplanar with the first arch member. In this configuration, a pad member preferably engaged to the gym can be used as either a changing mat or sleep surface for an infant.

[0010] In another embodiment, the gym can be pivoted to a collapsed position wherein the arch members are nested in relation to each other. This allows for compact storage and transport of the gym. A user-installable cover can also be provided to at least partially enclose the gym while in the collapsed position.

[0011] In various embodiments, the first and second arch members can be pivotally connected by lockable hinges. Each hinge can comprise male and female hinge members, and a user-operable cap engaging the male hinge member. The hinge members can be cooperatively engaged whereby the female hinge member is capable of selectively rotating relative to the male hinge member. The cap is capable of selectively disengaging from the male hinge member in response to user-applied force, thereby permitting the hinge to be unlocked. These and other embodiments of the present invention are discussed in more detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] **FIG. 1** is a perspective view of a multi-functional infant gym configured as an infant activity arch;

[0013] **FIG. 2** is a perspective view of the infant gym with an additional pad member operatively engaged thereto;

[0014] **FIG. 3** is a perspective view of the gym configured as a sleep surface or changing mat;

[0015] **FIG. 4** is an exploded view of a hinge mechanism of the infant gym;

[0016] **FIG. 5A** is a perspective view of the hinge mechanism in a locked position;

[0017] **FIG. 5B** is a perspective view of the hinge mechanism in an unlocked position;

[0018] **FIG. 6** is a side view of the infant gym illustrating the pivoting of an arch member to multiple positions; and

[0019] **FIG. 7** is a perspective view of the infant gym in a collapsed configuration partially enclosed by a cover.

[0020] Common reference numerals are used throughout the drawings and detailed description to indicate like elements.

DETAILED DESCRIPTION OF THE INVENTION

[0021] **FIG. 1** is a perspective view of a multi-functional infant gym **8** in accordance with an embodiment of the present invention. The gym **8** comprises a first arch member **10** having opposed first and second ends, and a second arch member **12** also having opposed first and second ends. Arch members **10** and **12** can be comprised of wood or any other appropriate material. The first and second ends of arch members **10** and **12** are pivotally connected to each other by hinges **14** as illustrated in **FIG. 1**.

[0022] Toys **18** are also provided which can be releaseably engaged to the second arch member **12** through apertures **16**. In one embodiment, the toys **18** are frictionally engageable within the apertures **16**. Although three toys **18** and eleven

apertures **16** are illustrated, other numbers of toys **18** and apertures **16** can also be provided.

[**0023**] When unlocked, hinges **14** permit second arch member **12** to rotate relative to first arch member **10**. Second arch member **12** can be pivoted between various positions, including a fully extended position, partially retracted position, collapsed position, and other intermediate positions. Once a desired position is achieved, the hinges **14** can be locked in place to prevent inadvertent rotation of the second arch member **12**.

[**0024**] In **FIG. 1**, second arch member **12** is illustrated in a fully extended position. In this position, second arch member **12** is substantially above the first arch member **10**, thereby providing an infant activity arch. In use, an optional car seat **20** or other appropriate apparatus can be provided to comfortably position an infant under the activity arch. While the infant is so positioned, the infant can interact with toys **18** suspended from the second arch member **12**.

[**0025**] **FIG. 2** is a perspective view of the infant gym **8** of **FIG. 1** with an optional pad member **22** of the infant gym **8** operatively engaged to the first arch member **10**. Pad member **22** provides a substantially planar padded surface for an infant to sit or lie upon while interacting with toys **18** of gym **8**. A liner portion **24** of the pad member **22** overlaps an interior portion of the first arch member **10** to provide further padding for the infant. As a result, an infant can lie on the pad **22** without the infant directly contacting portions of the first arch member **10**. As illustrated in **FIG. 2**, pad member **22** is releaseably engageable with first arch member **10** by straps **25** connected to pad member **22**.

[**0026**] **FIG. 3** is a perspective view of the infant gym **8** configured as an infant sleep surface or changing mat. Second arch member **12** is illustrated in a partially retracted position wherein it is substantially opposed to and coplanar with the first arch member **10**. As illustrated in **FIG. 3**, arch members **10** and **12** enclose or circumvent the periphery of pad member **22**, thus providing an annular enclosure around an infant placed on pad member **22**. In addition, toys **18** can be selectively disengaged from second arch member **12** and placed on pad member **22**, allowing an infant to interact with the toys **18** while second arch member **12** is in the partially retracted position.

[**0027**] Referring now to **FIG. 4**, there is shown an exploded view of one of the identically configured hinges **14** of the infant gym **8**. The hinge **14** comprises a female hinge member **26**, a male hinge member **30**, and a user-operable cap **32**. The female hinge member **26** itself comprises a base portion **27** having a post **28** projecting perpendicularly therefrom. In addition to the post **28**, also projecting perpendicularly from the base portion **27** is an annular, circularly configured sleeve **29**. The sleeve **29** defines a bore which extends completely through the female hinge member **26** along the axis A shown in **FIG. 4**. In the infant gym **8**, the female hinge member **26** is cooperatively engaged to the second arch member **12** via the advancement of the sleeve **29** into a complimentary opening **13** disposed within the second arch member **12** in close proximity to the distal end thereof. Additionally, the post **28** of the female hinge member **26** is advanced into and through a complimentary aperture **15** disposed within the second arch member **12** in spaced relation to the opening **13**.

[**0028**] The male hinge member **30** itself comprises a circularly configured end portion **31** having an engagement member **33** extending axially therefrom. The male hinge member **30** is cooperatively engaged to the first arch member **10** via the advancement of the engagement member **33** into and through a complimentary opening **11** formed within the first arch member **10** in close proximity to the distal end thereof. Disposed adjacent to the opening **11** is a pair of small apertures **9** which are adapted to receive respective ones of a pair of protuberances **7** projecting perpendicularly from the periphery of the end portion **31** of the male hinge member **30**. When the engagement member **33** is advanced through the opening **11**, the protuberances **7** are received into respective ones of the apertures **9**, thus effectively preventing the rotation of the male hinge member **30** relative to the first arch member **10**.

[**0029**] In each hinge **14**, the engagement member **33** of the male hinge member **30** is advanced into the bore of the sleeve **29** of the female hinge member **26**. The cap **32** is engaged to the base portion **27** of the female hinge member **26** and selectively coupled to the engagement member **33** of the male hinge member **30**. More particularly, the cap **32** includes a lock member **36** which projects from the inner surface thereof, and is selectively engageable to the engagement member **33** of the male hinge member **30**.

[**0030**] Referring now to **FIGS. 5A and 5B**, the cap **32** is selectively movable between locked and unlocked positions as a result of the selective application of a compressive force thereto by the hand of a user. When the cap **12** is in the locked position (shown in **FIG. 5A**), the lock member **36** of the cap **32** is engaged to the engagement member **33** of the male hinge member **30**, thus effectively preventing any rotation of the female hinge member **26** relative to the male hinge member **30**. As a result, the first and second arch members **10**, **12** are likewise prevented from being pivoted relative to each other. When the cap **32** is in the locked position, a gap **40** is defined between the cap **32** and the second arch member **12**.

[**0031**] The application of a compressive force to a portion of the top surface **34** of the cap **32** in the manner shown in **FIG. 5B** facilitates the actuation of the cap **32** from its locked position to its unlocked position. In the unlocked position, the lock member **36** of the cap **32** is caused to disengage the engagement member **33** of the male hinge member **30**. The movement of the cap **32** also results in the closure of the gap **40**, and formation of a gap **42** between the cap **32** and the second arch member **12**. The disengagement of the lock member **36** from the engagement member **33** allows for the rotation of the female hinge member **26** relative to the male hinge member **30**. Thus, as a result of the movement of both of the hinges **14** of the infant gym **8** to the unlocked position, the second arch member **12** can be selectively pivoted relative to the first arch member **10**. The removal of the user-applied force to the cap **32** facilitates the return thereof to the locked position, thus preventing any pivotal movement of the first and second arch members **10**, **12** relative to each other. As will be recognized, the first and second arch members **10**, **12** will be maintained in orientations relative to each other which exist at the time the caps **32** of the hinges **14** are returned to their locked positions. Thus, an adult or user can unlock the hinges **14**, pivot the second arch member **12** to a desired position relative to the first arch member **10**, and re-lock the hinges **14** to secure the second arch member **12** in a prescribed position.

[0032] Referring now to **FIG. 6**, the fully extended position of the second arch member **12** relative to the first arch member **10** is labeled with the reference numeral **44**. The collapsed position of the second arch member **12** is labeled with the reference numeral **48**, with the partially retracted position being labeled with the reference numeral **46**. A position intermediate the fully extended position **44** and partially retracted position **46** is labeled with the reference numeral **50**, with positions intermediate the collapsed position **48** and partially retracted position **46** being labeled with the reference numerals **50**, **52**. In the collapsed position **48**, those portions of the posts **28** protruding from the second arch member **12** are engaged to respective ones of a pair of detents **38** formed within the first arch member **10** in close proximity to respective ones of the opposed distal ends thereof. The receipt of the posts **28** into respective ones of the detents **38** prevents the second arch member **12** from pivoting any further in the clockwise direction as viewed from the perspective shown in **FIG. 6**. When the second arch member **12** is in its collapsed position **48**, the first arch member **10** is nested within the second arch member **12**. As will be recognized, the collapsed position **48** is used to allow the infant gym **8** to be stored and/or transported in a compact form.

[0033] The transition from the collapsed position **48** to the partially retracted position **46** involves pivotal movement of the second arch member **12** approximately 180 degrees. When the second arch member **12** is in the partially retracted position **46**, first and second arch members **10**, **12** are caused to assume the orientation shown and described above in relation to **FIG. 3**. The movement of the second arch member **12** to the fully extended position **44** viewed from the perspective shown in **FIG. 6** includes total rotation of about 315 degrees from the collapsed position **48**. When the second arch member **12** is in the fully extended position **44**, the first and second arch members **10**, **12** assume the relative orientations shown and described above in relation to **FIGS. 1 and 2**. Although particular positions **44**, **46**, **48**, **50**, **52**, and **54** have been illustrated in **FIG. 6**, those of ordinary skill in the art will recognize that the second arch member **12** can be pivoted to any desired position between the fully extended position **44** and collapsed position **48**.

[0034] **FIG. 7** is a perspective view of the infant gym **8** in a collapsed configuration with a user-installable cover **56**. Cover **56** can at least partially enclose the gym **8** while in the collapsed configuration in order to protect the gym during storage and/or transport.

[0035] It will be appreciated that the scope of the present invention is not limited by the particular embodiments set forth herein. Other appropriate variations, whether explicitly provided for or implied, are contemplated by the present disclosure.

1. A multi-functional infant gym comprising:

a first arch member having opposed first and second ends;

a second arch member having opposed first and second ends, the second arch member being pivotally connected to the first arch member and selectively movable between a fully extended position wherein the second arch member is substantially above the first arch member, and a partially retracted position wherein the second arch member is substantially opposed to and coplanar with the first arch member, the second arch member further being capable of pivoting to a collapsed position wherein the second arch member is nested within and extends along the first arch member; and

a pad member releaseably engageable with the first arch member.

2. (Cancelled)

3. A multi-functional infant gym comprising:

a first arch member having opposed first and second ends;

a second arch member having opposed first and second ends, the second arch member being pivotally connected to the first arch member and selectively movable between a fully extended position wherein the second arch member is substantially above the first arch member, and a partially retracted position wherein the second arch member is substantially opposed to and coplanar with the first arch member, the second arch member further being capable of pivoting to a collapsed position wherein the second arch member is nested within and extends along the first arch member; and

a cover at least partially covering the first and second arch members when the second arch member is pivoted to the collapsed position.

4. (Cancelled)

5. The gym of claim 1, wherein the first arch member defines an interior surface and the pad member includes a liner portion which overlaps and extends along the interior surface of the first arch member.

6. The gym of claim 1, wherein the first and second arch members at least partially circumvent the pad member when the second arch member is pivoted to the partially retracted position.

7. The gym of claim 1, wherein the second arch member spans over at least a portion of the pad member when the second arch member is pivoted to the fully extended position.

8. The gym of claim 1, further comprising:

a plurality of toys releaseably engageable to the second arch member.

9. A multi-functional infant gym comprising:

a first arch member having opposed first and second ends;

a second arch member having opposed first and second ends, the second arch member being pivotally connected to the first arch member and selectively movable between a fully extended position wherein the second arch member is substantially above the first arch member, and a partially retracted position wherein the second arch member is substantially opposed to and coplanar with the first arch member, the second arch member further being capable of pivoting to a collapsed position wherein the second arch member is nested within and extends along the first arch member;

a plurality of toys releaseably engageable to the second arch member; and

apertures in the second arch member, the toys being frictionally engageable with the apertures.

10. The gym of claim 1, further comprising:

a first hinge pivotally connecting the first ends of the arch members to each other; and

a second hinge pivotally connecting the second ends of the arch members to each other.

11. The gym of claim 10, wherein each of the hinges comprises:

a female hinge member operatively coupled to one of the arch members; and

a male hinge member operatively coupled to the remaining one of the arch members and cooperatively engaged to the female hinge member such that one of the male and female hinge members is capable of selectively rotating relative to the other; and

a cap mechanically coupled to one of the male and female hinge members and selectively movable between a locked position preventing rotation of the male and female hinge members relative to each other, and an unlocked position wherein at least one of the male and female hinge members is capable of rotating relative to the other.

12. A multi-functional infant gym comprising:

a first arch member having opposed first and second ends;

a second arch member having opposed first and second ends, the second arch member being pivotally connected to the first arch member and selectively movable between a fully extended position wherein the second arch member is substantially above the first arch member, and a partially retracted position wherein the second arch member is substantially opposed to and coplanar with the first arch member the second arch member further being capable of pivoting to a collapsed position wherein the second arch member is nested within and extends along the first arch member;

a first hinge pivotally connecting the first ends of the arch members to each other; and

a second hinge pivotally connecting the second ends of the arch members to each other, wherein each of the hinges comprises:

a female hinge member operatively coupled to the second arch member;

a male hinge member operatively coupled to the first arch member and cooperatively engaged to the female hinge member such that one of the male and female hinge members is capable of selectively rotating relative to the other; and

a cap mechanically coupled to one of the male and female hinge members and selectively movable between a locked position preventing rotation of the male and female hinge members relative to each other, and an unlocked position wherein at least one of the male and female hinge members is capable of rotating relative to the other.

13. The gym of claim 12, wherein:

the female hinge member of each of the hinges includes a post which projects from the second arch member; and

the first arch member includes a pair of detents formed therein which are adapted to receive respective ones of the posts in a manner preventing pivotal movement of the second arch member beyond the collapsed position relative to the first arch member.

14. The gym of claim 1, wherein the arch members are comprised substantially of wood.

15. A multi-functional infant gym comprising:

a first arch member having opposed first and second ends; and

a second arch member having opposed first and second ends, pivotally connected to the first arch member, the second arch member being continuously and selectively movable and lockable to any position between and including, a fully extended position wherein the second arch member is substantially above the first arch member, and a partially retracted position wherein the second arch member is substantially opposed to and coplanar with the first arch member.

16. The gym of claim 15, wherein:

the second arch member is further capable of pivoting to a collapsed position wherein the second arch member is nested within and extends along the first arch member.

17. The gym of claim 16, further comprising:

a pad member releaseably engageable with the first arch member.

* * * * *