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(54) PARTIAL MESH TOY APPARATUS

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(57) ABSTRACT

A toy apparatus includes a first component having a mesh structure and a second non-mesh component. The mesh structure includes a plurality of connected loop structures. The first component and the second component are configured to attach to one another to form a toy apparatus. The mesh component and the non-mesh component may have differing colors and/or tactile characteristics to provide an appealing and interesting toy.

















PARTIAL MESH TOY APPARATUS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application Ser. No. 62/190,888, filed Jul. 10, 2015, the entirety of which is hereby incorporated by reference herein in its entirety for all purposes.

BACKGROUND

[0002] For small children who are developing motor control or have limited manual dexterity, it may be frustrating to play with many traditional toys that are not easy to grasp and handle. Such toys may have a surface configuration and/or be formed of materials that make them difficult or even painful to pick up, manipulate, hold, or catch. For example, some toys include sharp, uncomfortable corners or edges. Many traditional toys do not include gripping openings, handles, or other components that are appropriately sized to receive the fingers of a child using such a toy.

[0003] Some traditional toys may also be aesthetically unappealing and/or lacking in tactile interest to children. For example, many toys share a similar appearance or feel, being molded of solid pieces of hard plastic in their entireties. When repeatedly presented with toys of substantially the same or similar structure and format, children may lose interest in those toys more quickly.

SUMMARY

[0004] The present invention provides toys having a new and interesting appearance and feel. According to an illustrative embodiment, a toy apparatus includes a first component including a mesh formed of a plurality of connected loop structures configured to allow for ease of gripping and manipulation by a child, and a second non-mesh component configured to attach to the first mesh component.

[0005] According to another illustrative embodiment, a toy apparatus includes a first component including a mesh formed from a plurality of connected loop structures. The toy apparatus also includes a second non-mesh component configured to attach to the first component, and in combination with the mesh component at least partially enclose a void or contained space into which a child can grasp or reach their fingers through or around the mesh structure.

[0006] In another aspect, the invention relates to a toy apparatus including a first component comprising a mesh formed of a plurality of loop structures, and a second non-mesh component, wherein the first and second components combine to at least partially enclose a void.

[0007] In another aspect, the invention relates to a toy apparatus including a first component comprising a mesh having a plurality of loop structures, and a second non-mesh component attached to the first component, wherein a space is formed between the first and second components into which a child's fingers may grasp.

[0008] In yet another aspect, the invention relates to a toy apparatus including a combined structure formed of a mesh portion and a non-mesh portion. The mesh portion includes a plurality of interconnected loops, and the non-mesh portion differs in appearance and tactile feel from the mesh portion. A child's finger can grasp into a void at least partially bounded by the combined structure of the mesh and

non-mesh portions through a space between the mesh and non-mesh portions or through the interconnected loops of the mesh portion.

[0009] These and other aspects, features and advantages of the invention will be understood with reference to the drawing figures and detailed description herein, and will be realized by means of the various elements and combinations particularly pointed out in the appended claims. It is to be understood that both the foregoing general description and the following brief description of the drawings and detailed description of the invention are exemplary and explanatory of preferred embodiments of the invention, and are not restrictive of the invention, as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 illustrates a children's toy apparatus, according to a first example embodiment.

[0011] FIG. **2** illustrates a children's toy apparatus, according to another example embodiment.

[0012] FIG. **3** illustrates a children's toy apparatus, according to another example embodiment.

[0013] FIG. **4** illustrates a children's toy apparatus, according to another example embodiment.

[0014] FIG. **5** illustrates a children's toy apparatus, according to another example embodiment.

[0015] FIG. **6** illustrates a children's toy apparatus, according to another example embodiment.

DETAILED DESCRIPTION OF EXAMPLE EMBODIMENTS

[0016] The present invention may be understood more readily by reference to the following detailed description of the invention taken in connection with the accompanying drawing figures, which form a part of this disclosure. It is to be understood that this invention is not limited to the specific devices, methods, conditions or parameters described and/or shown herein, and that the terminology used herein is for the purpose of describing particular embodiments by way of example only and is not intended to be limiting of the claimed invention. Any and all patents and other publications identified in this specification are incorporated by reference as though fully set forth herein.

[0017] Also, as used in the specification including the appended claims, the singular forms "a," "an," and "the" include the plural, and reference to a particular numerical value includes at least that particular value, unless the context clearly dictates otherwise.

[0018] According to illustrative embodiments, a children's toy apparatus includes a first mesh component and a second non-mesh component. The first and second components are connected or configured to be connected to each other to form a toy which a small child is able to grasp with ease and that may be made in color and tactile combinations that are aesthetically pleasing and interesting. The mesh and non-mesh components optionally combine to at least partially enclose or surround a void or open space into which a child may grasp for play.

[0019] With reference now to the drawing figures, wherein like reference numbers represent corresponding parts throughout the several views, FIGS. **1-4** illustrate example embodiments of a children's toy apparatus wherein one or more mesh components and one or more non-mesh components are joined or combined to enclose or partially enclose

a void or contained space, and FIGS. **5** and **6** illustrate example embodiments of a children's toy apparatus including mesh and non-mesh components not enclosing or only partially bounding a void or contained space.

[0020] With reference to the example embodiments shown in FIGS. 1-4 and described in more detail below, a toy apparatus includes a first component thaivet cooperates with a second component to enclose or partially enclose a void. The first component is a mesh including a plurality of loop structures coupled together. The loop structures can have a smoothly curved or polygonal inside perimeter. Some example embodiments of the loop structures can include cooperative mating surfaces disposed at least partially around an outer perimeter. The cooperative mating surfaces of adjacent loop structures/loop structure assemblies can be configured to couple together for a distance along their lengths. Example embodiments of the mesh can be formed from a substantially pliable or resilient material. The second component can be formed as a non-mesh structure and can be coupled to the first component. The second component can be formed from a substantially rigid material or a substantially pliable material, for example a molded plastic. According to example embodiments, when the first component is coupled to the second component, the first and second components cooperate to enclose or partially enclose a void or space, into which a child can grasp their fingers through the mesh openings and/or through a space between the mesh and non-mesh components.

[0021] Referring specifically now to FIG. 1, a toy apparatus 100A is shown that includes a mesh component 10A and a non-mesh component 20A. The mesh component 10A may be formed of a substantially pliable material and may include a plurality of loop structures 12A. The loop structures 12A may include individual loop structures and/or assemblies of interconnected loop structures. Some or all of the loop structures 12A may form substantially circular finger-receiving open spaces which may be used to grip, stretch, throw or catch the toy 100A. Also, some or all of the loop structures 12A and/or assemblies of loop structures are of a size and configuration that allow a child's finger to at least partially extend within the void 30A so that the child is able to grasp the toy apparatus 100A.

[0022] The loop structures 12A (and/or loop structure assemblies) may include mating surfaces, at least on an outside perimeter. These surfaces may be arranged around the perimeter of at least some of the loop structures/loop structure assemblies to facilitate coupling of the loop structures/loop structure assemblies. The cooperative mating surfaces of adjacent loop structures/;loop structure assemblies may be configured to couple together for a distance along their lengths. The loop structures can have curved inside perimeter surfaces. Although not shown, some loop structure assemblies may include interior loop structures that do not have cooperative mating surfaces. Further details of example mesh structures adaptable for use in connection with the toy apparatus disclosed herein may be found in U.S. Pat. No. 6,729,984 and U.S. Pat. No. 8,282,518, which are incorporated herein by reference.

[0023] In addition to having curved inside perimeters, some of the loop structures (and/or loop structure assemblies) may have an inner perimeter defined by one or more geometrically shaped openings, such as a circle, square, and

polygon (e.g., rectangle, pentagon, hexagon, etc.). These geometrically shaped openings include no sharp corners, to avoid injury to a child.

[0024] The loop structures 12A form a surface of at least a portion of the toy apparatus 100A when the loop structures are coupled together. In some aspects, the mesh component 10A may be formed in the shape of a generally or partially spherical, hemispherical or ovoid configuration or other three-dimensional shape such that, when coupled to the component 20A, the components substantially enclose a void 30A.

[0025] The non-mesh component 20A may be formed of one or more substantially pliable or substantially rigid materials. For example, the non-mesh component 20A may include a structure including subcomponents, such as wheels 22A connected via a chassis 24A formed, for example of one or more hard or soft plastic moldings. The non-mesh component(s) 20A may be formed separately from the mesh component 10A, or can be co-molded or otherwise integrally formed therewith. Within the wheels, small balls 26A or similar toy accessories may be contained. Instead of wheels 22A, other components, tracks, rollers, or other suitable components may be used which would make the toy 100A rollable or otherwise mobile.

[0026] As shown in FIG. 1, the mesh component 10A and the non-mesh component 20A are connected to form a toy having the appearance of a vehicle, e.g., a toy car. The mesh component 10A may be connected to the non-mesh component 20A via any suitable connection, e.g., couplings which may allow disconnection and reconnection of the components 10A and 20A to each other or to other similarly configured components (such as the components 10B and 20B shown and described with reference to FIG. 2). Alternatively, the components 10A and 20A may be substantially permanently connected via, e.g., an adhesive, screws, etc. Each of the components 10A and 20A, and/or one or more of the subcomponents 22A, 24A and 26A may have different colors so that the toy is aesthetically pleasing, and/or can be formed of different materials having differing tactile feels (e.g., hard and soft, smooth and rough, rigid and flexible) so that the toy has tactile interest to a child.

[0027] FIG. 2 illustrates another example embodiment of a children's toy apparatus 100B. The children's toy apparatus 100B is similar to the apparatus 100A shown in FIG. 1. For example, the toy apparatus 100B includes a mesh component 10B formed of loop structures 12B and/or assemblies of loop structures configured in a manner described above with reference to FIG. 1. The toy apparatus 100B also includes a component 20B formed of a non-mesh structure. The non-mesh structure includes subcomponents, for example, wheels 22B connected via a chassis 24B to the mesh component 10B. In addition, balls 26B or similar objects may be contained within the wheels 22B. Instead of wheels 22B, other components, e.g., tracks, rollers, or other suitable components may be used which would make the toy 1008 rollable or otherwise mobile.

[0028] Similar to the toy apparatus 100A, the toy apparatus 100B includes a void 30B. However, in contrast to the toy apparatus 100A, in which the void 30A is substantially enclosed by the connection of the components 10A and 20A, in the toy apparatus 100B, the void 30B is only partially enclosed by the connection of the components 10B and 20B. This allows a child to more easily extend a finger or hand 3

inside the void **30**B between the mesh and non-mesh components and grasp the toy **100**B.

[0029] As shown in FIG. 2, the mesh component 10B and the non-mesh component 20B are connected to form a toy, e.g., a toy car. The portion of the void 30B which is not enclosed may form windows or doors of the toy car. Similar to the components 10A and 20A described above with reference to FIG. 1, the mesh component 10B may be connected to the non-mesh component 20B via any suitable connection, e.g., couplings which may allow disconnection and reconnection of the components 10B and 20B to each other or to other similarly configured components (such as the components 10A and 20A shown and described with reference to FIG. 1). Alternatively, the components 10B and 20B may be substantially permanently connected via, e.g., an adhesive, screws, etc. Each of the components 10B and 20B, and the subcomponents 22B, 24B and 26B may have different colors, so that the toy is aesthetically pleasing.

[0030] Although FIGS. **1** and **2** depict toy cars, it should be appreciated that the non-mesh component described with respect to these figures may include any desired components to form other types of vehicle toys, e.g., trucks, airplanes, etc.

[0031] Referring now to FIGS. 3 and 4, further example embodiments of toy apparatuses are shown. In FIG. 3, a toy apparatus 200A includes a mesh component 40A and a non-mesh component 50A. The mesh component 40A includes loop structures 42A and/or assemblies of loop structures, similar to those described above with reference to [0032] FIG. 1. The non-mesh component 50A may be configured to be attached to the component 40A to substantially enclose a void 60A. The non-mesh component 50A may be formed of one more substantially rigid and/or substantially pliable materials. For example, the non-mesh component 50A may include subcomponents, such as a character face 52A, e.g., a lion's face, and a base structure 54A. The base structure 54A may have a continuously flat surface or include a plurality of flat surfaces or legs that are arranged such that the base structure 54A, when placed on a substantially level surface (whether horizontal or with a slight incline or decline) lies flat with respect to the surface and does not roll.

[0033] As shown in FIG. 3, the mesh component 40A and the non-mesh component 50A are connected to form a toy resembling an animal, e.g., a toy lion. The mesh component 40A may be connected to the non-mesh component 50A via any suitable connection, e.g., couplings which may allow disconnection and reconnection of the components 40A and 50A to each other or to other similarly configured components (such as the components 40B and 50B shown and described with reference to FIG. 4). Alternatively, the components 40A and 50A may be substantially permanently connected via, e.g., an adhesive, screws, etc.

[0034] Each of the components 40A and 50A, and the subcomponents 52A and 54B may have different colors, so that the toy is aesthetically pleasing. Also, the character face 52A may include different components (e.g., ears and eyes) having different colors, to better define the features and make the face more appealing.

[0035] FIG. 4 illustrates a children's toy apparatus 200B. The children's toy apparatus 200B is similar to the apparatus 200A shown in FIG. 3. For example, the toy apparatus 200B includes a mesh component 40B formed of loop structures 42B and/or /assemblies of loop structures. The mesh component 40B may be configured in a manner similar to that described above with reference to FIG. 1. The toy apparatus 200B also includes a component 50B formed of a non-mesh structure. The non mesh structure includes subcomponents, such as a character face 52B, e.g., an elephant's face, and a base structure 54B. The base structure 54B may have a continuously flat surface or include a plurality of flat surfaces that are arranged such that the base structure 54B, when placed on a level surface (whether horizontal or with a slight incline or decline) lies flat with respect to the surface and does not roll.

[0036] As shown in FIG. 4, the mesh component 40B and the non-mesh component 50B are connected to form a toy, e.g., a toy elephant. Similar to the components 40A and 50A described above with reference to FIG. 3, the mesh component 40B may be connected to the non-mesh component 50B via any suitable connection, e.g., couplings which may allow disconnection and reconnection of the components 40B and 50B to each other or to other similarly configured components (such as the components 40A and 50A shown and described with reference to FIG. 3). Alternatively, the components 40B and 50B may be substantially permanently connected via, e.g., an adhesive, screws, etc.

[0037] Each of the components 40B and 50B, and the subcomponents 52BA and 54B may have different colors, so that the toy is aesthetically pleasing. Also, the character face 52B may include different components (e.g., ears and eyes) having different colors, to better define the features and make the face more appealing.

[0038] As shown in FIGS. 3 and 4, small toys 62A and 62B may be enclosed within the voids 60A and 60B, respectively. These toys may include a rattle, a ball, etc. Similarly, although not show in FIG. 1, a small toy may be included within the substantially enclosed void 30A. In addition, although not shown, small toys and/or toy accessories may be attached to the toy apparatuses shown in FIGS. 1-4, e.g., via coupling to one or more loop structures. [0039] Although FIGS. 3 and 4 depict a toy lion and a toy elephant, respectively, it should be appreciated that the non-mesh component described with respect to the these figures may include any desired character face and corresponding base structure to form other types of character toys, e.g., other animal toys, insect toys, monster toys, etc. [0040] In addition, it should be appreciated that the toy apparatuses shown in FIGS. 1-4 are examples and that the invention is not limited to toys including cars and characters. The connection of a mesh component and a non-mesh component, as described herein, may form any desired format or configuration of toy apparatus.

[0041] In the embodiments described above, first and second components of a toy apparatus are configured to connect to each other to at least partially enclose a void. According to alternate embodiments, a toy apparatus includes one or more mesh components and one or more non-mesh components, which may be similar to those described above, but that when coupled together the components do not enclose a void.

[0042] Referring to FIG. **5**, a toy apparatus includes mesh components **70**A and **70**B and a non-mesh component **75**. The mesh components **70**A and **70**B include loop structures such as those described above with reference to FIGS. **1-4**. Although two mesh components **70**A and **70**B are shown, it should be appreciated that the toy **300** may include one mesh component or any number of mesh components. Similarly,

the toy may include any number of non-mesh components. The mesh components **70**A and **70**B may be formed of a substantially rigid material and/or a semi-rigid or pliable material. The mesh components **70**A and **70**B include loop structures **72**A and **72**B, respectively. As can be seen from FIG. **5**, the size of the loop structures facilitates grasping of the toy **300** by a child's hand or fingers. The non-mesh component **75** may include a substantially rigid material or a substantially pliable material. For example, as shown in FIG. **5**, the non-mesh component **70**A and **70**B are connected. The non-mesh component **75** may include, e.g., smaller balls or toys encased within it.

[0043] The mesh components 70A and 70B and the nonmesh component 75 may be attached via a permanent connection, e.g., via an adhesive or by being molded together. Various accessories, e.g., teether rings 74A and 74B may be attached to the mesh components 70A and 70B. Each of the components 70B, 70B, and 75 and the accessories 74A and 74B may have different colors and/or different tactile feels, so that the toy is aesthetically pleasing and interesting.

[0044] Referring to FIG. 6, a toy bar or arch apparatus 400 includes a mesh component 80 and non-mesh components 90A and 90B. The mesh component 80 includes loop structures/loop structure assemblies 82 configured in a manner similar to those described above with reference to FIG. 1. The non-mesh components include components 90A and 90B shaped in the form of handles which may be easily grasped by a child's hands and fingers. Although two non-mesh components 90A and 90B are shown, it should be appreciated that the toy 400 may include one non-mesh components. Similarly, the toy may include any number of mesh components.

[0045] The mesh component 80 may be connected to the non-mesh components via, e.g., a coupling which may be semi-permanent or disconnectable. The mesh component 80 may be formed of a pliable material, and the non-mesh components 90A and 90B may be formed of rigid, semirigid, or pliable materials, such that a child may grasp the components 90A and 90B and cause accessories 84A, 84B, and 84C attached to the mesh component 80 to move as the mesh bends and moves. The toy 400 can take the form of an arch or toy bar, having opposed base portions or feet for supporting an elevated structure. Various toy accessories (e.g., slider beads, hang toys, rattles, teethers, etc.) can optionally be coupled to the toy apparatus, e.g., via the mesh component 80, for example suspended from the arch or toy bar. Each of the components 80, 90A, and 90B, and the accessories 84A, 84B and 84C may have different colors and/or tactile feels, so that the toy is aesthetically pleasing and interesting.

[0046] Various changes and modifications to such a children's toy apparatus, beyond those explicitly mentioned herein, are contemplated as being within the scope of the present invention. Moreover, the particular configurations, materials, and objectives described herein are merely exemplary and are in no way limiting.

[0047] While the invention has been described with reference to preferred and example embodiments, it will be understood by those skilled in the art that a variety of modifications, additions and deletions are within the scope of the invention, as defined by the following claims.

what is claimed is:

1. A toy apparatus comprising:

a first component comprising a mesh formed of a plurality of loop structures; and

a second non-mesh component;

wherein the first and second components combine to at least partially enclose a void.

2. The toy apparatus of claim **1**, wherein the loop structures of the mesh component have a curved inside perimeter.

3. The toy apparatus of claim **1**, wherein the mesh is formed of one or more loop structure assemblies, each loop structure assembly comprising a plurality of loop structures, the loop structure assemblies having cooperative mating surfaces disposed at least partially around an outer perimeter.

4. The toy apparatus of claim **3**, wherein at least two of the loop structure assemblies have differing colors.

5. The toy apparatus of claim **3**, wherein the cooperative mating surfaces of adjacent loop structure assemblies are coupled together for a distance along their lengths.

6. The toy apparatus of claim **1**, wherein the mesh component is formed of a substantially pliable material.

7. The toy apparatus of claim 1, wherein the second component is formed of a substantially rigid material.

8. The toy apparatus of claim **1**, wherein the second component is formed of a substantially pliable material.

9. The toy apparatus of claim **1**, further comprising a toy accessory contained within the at least partially enclosed void.

10. The toy apparatus of claim **1**, further comprising a toy accessory attached to the toy apparatus.

11. The toy apparatus of claim **1**, further comprising a toy accessory contained within the second component.

12. The toy apparatus of claim **1**, wherein the first component defines a three-dimensional curved structure selected from at least partially spherical, hemispherical, and ovoid configurations.

13. The toy apparatus of claim **1**, wherein the first and second components have differing colors.

14. The toy apparatus of claim 1, wherein the first and second components have differing tactile characteristics.

15. The toy apparatus of claim **1**, having the form of at least one of a vehicle and an animal.

16. The toy apparatus of claim **1**, wherein at least some of the loop structures have an inner perimeter defined by a geometrical shape including at least one of a circle, square, and polygon.

17. The toy apparatus of claim 15, wherein the geometrical shape forms an opening with no sharp corners.

18. A toy apparatus comprising:

- a first component comprising a mesh having a plurality of loop structures; and
- a second non-mesh component attached to the first component;
- wherein a space is formed between the first and second components into which a child's fingers may be inserted.

19. The toy apparatus of claim **17**, wherein the loop structures of the mesh have a curved inside perimeter.

20. The toy apparatus of claim **17**, wherein the mesh is formed of one or more loop structure assemblies, each loop structure assembly comprising a plurality of loop structures,

the loop structure assemblies having cooperative mating surfaces disposed at least partially around an outer perimeter.

21. The toy apparatus of claim **20**, wherein at least two of the loop structure assemblies have differing colors.

22. The toy apparatus of claim 19, wherein the cooperative mating surfaces of adjacent loop structure assemblies are coupled together for a distance along their lengths.

23. The toy apparatus of claim **17**, wherein the mesh is formed of a substantially pliable material.

24. The toy apparatus of claim **17**, wherein the second component is formed of a substantially rigid material.

25. The toy apparatus of claim **17**, wherein the second component is formed of a substantially pliable material.

26. The toy apparatus of claim **17**, further comprising a toy accessory connected to at least one of the first component and the second component.

27. The toy apparatus of claim **17**, further comprising a toy accessory contained within the second component.

28. The toy apparatus of claim **17**, further comprising a toy contained within the space that is formed between the first and second components.

29. The toy apparatus of claim **17**, wherein the first and second components have differing colors.

30. The toy apparatus of claim **17**, wherein the first and second components have differing tactile characteristics.

31. The toy apparatus of claim **17**, having the form of at least one of a vehicle and .an animal.

32. The toy apparatus of claim **17**, wherein at least some of the loop structures have an inner perimeter defined by a geometrical shape including at least one of a circle, square, and polygon.

33. The toy apparatus of claim **29**, wherein the geometrical shape forms an opening with no sharp corners.

34. A toy apparatus comprising a combined structure formed of a mesh portion and a non-mesh portion, the mesh portion comprising a plurality of interconnected loops, and the non-mesh portion differing in appearance and tactile feel from the mesh portion, wherein a child's finger can be inserted into a void at least partially bounded by the combined structure of the mesh and non-mesh portions through a space between the mesh and non-mesh portion.

35. The toy apparatus of claim **31**, having the form of at least one of a vehicle and an animal.

36. The toy apparatus of claim **31**, wherein at least some of the loop structures have an inner perimeter defined by a geometrical shape including at least one of a circle, square, and polygon.

37. The toy apparatus of claim **33**, wherein the geometrical shape forms an opening with no sharp corners.

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