STRUCTURE BUILDING TOY

A structure building toy is disclosed. The structure building toy is formed of one or more panels having interlocking panel connectors and a unique design. A plurality of panels may be connected to form a structure or wall system. The interlocking panel connectors form hinges between adjacent panels, allowing for swivel of adjacent attached panels. Panel sections are interchangeable, providing for various configurations, different designs, and the ability to continuously change the structure. A kit is also disclosed.
STRUCTURE BUILDING TOY
CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of and priority to U.S. Provisional Patent Application Ser. No. 61/767,466 entitled “Structure Building Toy” filed Feb. 21, 2013, the entire contents of which is hereby incorporated by reference herein in its entirety.

FIELD

[0002] The present inventions relate to the field of toys, and more specifically structure building toys, including but not limited to buildable toy battle structures.

BACKGROUND

[0003] A well known activity of children (and adults) is “fort building.” The traditional method of fort building involves the use of materials accessible to the child, most commonly furniture, blankets, pillows, cardboard boxes, and the like. These materials are assembled into a structure in which the child plays.

[0004] In addition to household items, currently available building toys, or buildable structures are designed for young children, usually themed like a castle or a kitchen or a tent, and formed of soft, easy to assemble bricks or panels, or stackable blocks, or in some instances a play set, usually made of thick hollow plastic.

[0005] To date, however, products have not been developed which are constructed for the sole purpose of providing cover or protection for use during a foam dart gun battle, or bean bags, dusty balls, marshmallows, snowballs, and the like which are propelled at the user and structure.

SUMMARY

[0006] Accordingly, a structure building toy is provided. The structure building toy includes a light-weight panel having a design arranged for play having first and second non-opposing faces and a thickness providing rigidity to the panel so as to resist bending. The panel also has a play feature arranged on at least one of the first and second non-opposing faces. A panel connector is joined to a surface of the panel for removably coupling to an adjacent panel. The panel connector has a cross section permitting free rotation about an axis.

[0007] A foam shield panel for building a fort structure is also provided. The foam shield structure includes a high density cell foam structure having a design arranged for play with first and second non-opposing faces and a thickness providing rigidity to the panel so as to resist bending. The panel has a play feature arranged on at least one of the first and second non-opposing faces. A panel connector is joined to a surface of the panel for removable coupling to an adjacent panel. The panel connector has a cross section permitting free rotation about an axis.

[0008] A kit for building a toy structure is provided. The kit includes a plurality of light-weight panels comprising closed cell foam structure having a design arranged for play with first and second non-opposing faces and a thickness providing rigidity to the panel so as to resist bending. The panels have a play feature arranged on at least one of the first and second non-opposing faces and a panel connector joined to a surface of each panel which removably couples to a second panel in the kit in an interlocking, but removable manner. The panel connector has a cross section permitting free rotation about an axis. One or more panels in the kit are interchangeable.

[0009] Accordingly, a structure building toy is provided. The structure building toy is formed of one or more panels having interlocking panel connectors and a unique design. A plurality of panels may be connected to form a structure or wall system. The interlocking panel connectors form hinges between adjacent panels, allowing for swivel of adjacent attached panels. Panel sections are interchangeable, providing for various configurations, different designs, and the ability to continuously change the structure.

[0010] These and other features and advantages of devices, systems, and methods according to this invention are described in, or are apparent from, the following detailed descriptions of various examples of embodiments.

BRIEF DESCRIPTION OF DRAWINGS

[0011] Various examples of embodiments of the systems, devices, and methods according to this invention will be described in detail, with reference to the following figures, wherein:

[0012] FIG. 1 is an elevation view of one or more examples of embodiments of a wall or panel for a structure building toy as described herein.

[0013] FIG. 2 is a side elevation view of the wall or panel shown in FIG. 1, taken from line 2-2 of FIG. 1.

[0014] FIG. 3 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as described herein.

[0015] FIG. 4 is a side elevation view of the wall or panel shown in FIG. 3, taken from line 4-4 of FIG. 3.

[0016] FIG. 5 is a bottom plan view of the wall or panel shown in FIG. 3, taken from line 5-5 of FIG. 3.

[0017] FIG. 6 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as shown in FIG. 1, including a plurality of windows.

[0018] FIG. 7 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as shown in FIG. 1, including a plurality of windows.

[0019] FIG. 8 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as shown in FIG. 3, including a firing port or opening or window.

[0020] FIG. 9 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as shown in FIG. 3, including a sliding hatch to form an opening or window.

[0021] FIG. 10 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as shown in FIG. 3, including a transparent or semi-transparent window material.

[0022] FIG. 11 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as shown in FIG. 3, including a large portal or opening.

[0023] FIG. 12 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as shown in FIG. 3, including a crumbling wall.
FIG. 13 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as shown in FIG. 1, including prison bars to replicate a prison wall.

FIG. 14 is an elevation view of one or more alternative examples of embodiments of a wall or panel for a structure building toy as shown in FIG. 1, including a grate or plurality of small openings.

FIG. 15 is an elevation view of one or more alternative examples of embodiments of a wall or panel for use in the structure building toy described herein. In one or more examples of embodiments, the panel 102 includes a first face 106 and a second face 108, atop surface 110, first and second side surfaces 112, 114, and a bottom surface 116. Preferably, the structure building toy includes a light-weight panel 102 having a design arranged for play and first and second non-opposing faces 106, 108. The first and/or second faces 106, 108 may include variations in depth or texture on the surface. At least one of the faces or surfaces described, such as but not limited to side surfaces 112, 114, may include a portion of a panel connector 120 (panel connectors 120 are shown in FIG. 1, as well as FIGS. 9-10). In the illustrated example shown in FIG. 3, the first side surface 112 and the second side surface 114 may each include a plurality of panel connector segments 122, 124 that collectively may form a panel connector 120 and which are spaced apart along the surface. The surface, such as the first or second side surface 112, 114 as shown in FIGS. 1, 3 may also include one or more recessed areas 126. The top of the panel 102 may also include a raised segment 128, such as illustrated approximately off center in FIG. 1 and centrally in the panel 102 shown in FIG. 3, such as may be used by a user to permit the user to stand behind the wall or panel 102 and have a degree of protection for the head.

The panel 102 may be formed of any suitable size or dimension for the intended purposes. As an illustrative example, the panel 102 may be formed large enough (e.g., in the vertical (v) and horizontal (h) directions (FIGS. 1, 3) for a user to stand behind it, or in the alternative, may be formed to permit a user to crouch or lay down behind the panel 102. According to one or more examples of embodiments, a panel 102 or wall for use with the structure building toy as described herein may be formed a material which is sturdy, light weight, and easily transportable. Preferably, the wall or panel 102 has a thickness and/or width providing rigidity to the panel 102 so as to resist bending. The panel(s) 102 may include a high degree of rigidity, but also may include a degree of resilience to prevent damage to the panel 102 and harm to the person during play. One or more suitable examples include a panel 102 made of high density foam, formed according to now known or future developed methods of preparing a foam material. In one or more further examples of embodiments, the panel 102 is made of a closed cell foam structure. The panel 102 may be formed of a material that glows, or for example, may include one or more lights. The panel 102 may also include a device for creating sound. The panel 102 may be formed according to a mold, or according to now known or future developed means of forming a foam. In the alternative, the panel 102 may be formed as a single sheet of predetermined dimension and subsequently shaped, such as by cutting, press, heat, and the like, to a desired wall shape having one or more of the properties described herein. While specific examples are provided, it is also contemplated that a panel 102 may be formed of a plastic material according to now known or future developed plastic forming methods, or other materials having the properties described herein without departing from the overall scope of the present invention.

As can be seen in FIGS. 3-5, in one or more examples of embodiments, a panel 102 or wall is formed having a larger and/or wider base 130. That is, the panel 102 has a base 130 including a width (w1) and/or thickness greater than a width (w2) and/or thickness of the panel 102. The wider base 130 may be sized such that the panel 102 may stand alone, that is, independently without connection to another wall or panel and without support by another means. Accord-

FIG. 16 is a perspective view of one or more examples of a structure including a plurality of walls or panels as shown in FIG. 1.

FIG. 17 is a partial, cut-away elevation view of one or more examples of embodiments of a panel connector for use with the wall or panel shown in FIG. 1 to form a structure as shown in FIG. 15, showing a separated panel connector from adjacent panels.

FIG. 18 is a partial, cut-away elevation view of one or more examples of embodiments of a panel connector for use with the wall or panel shown in FIG. 3 to form a structure as shown in FIGS. 15, showing a combined panel connector from adjacent panels.

FIG. 19 is a partial, cut-away elevation view of one or more alternative examples of embodiments of a panel connector for use with the wall or panel shown in FIGS. 1 and 3, showing a separated panel connector from adjacent panels.

FIG. 20 is a partial, cut-away elevation view of one or more examples of embodiments of a panel connector for use with the wall or panel shown in FIG. 1, showing the panel connector of adjacent panels combined.

FIG. 21 is a side elevation view of one or more alternative examples of embodiments of the structure building toy and wall or panel, including a camera, camera screen, and joystick for operation of the camera coupled to the panel.

FIG. 22 is a side elevation view of one or more alternative examples of embodiments of the structure building toy and wall or panel, including a shelf. FIG. 23 is an elevation view of one or more alternative examples of embodiments of the structure building toy and wall or panel, showing a hand-held wall or shield including one or more windows and handles for holding the shield.

It should be understood that the drawings are not necessarily to scale. In certain instances, details that are not necessary to the understanding of the invention or render other details difficult to perceive may have been omitted. It should be understood, of course, that the invention is not necessarily limited to the particular embodiments illustrated herein.

DETAILED DESCRIPTION

A structure building toy is provided. The structure building toy is generally formed of one or more panels having interlocking panel connectors and a unique design. A plurality of panels may be connected to form a structure or wall system. The interlocking panel connectors form hinges between adjacent panels, allowing for swivel of adjacent attached panels. Panel sections are interchangeable, providing for various configurations, different designs, and the ability to continuously change the structure.
ing to one or more examples of embodiments, the wider base 130 provides sufficient support for the panel 102 to stand upright, but will allow the wall to tip in the event a user crashes against the wall, so as to reduce injury. In one or more alternative examples of embodiments, the panel 102 may be formed having a weighted base. That is, the panel 102 has a weight at one end which is greater than the weight of the panel at a second end. The increased weight at one end provides stability for standing the panel 102 on its bottom surface or base 116.

[0039] As can be seen in FIG. 5, in one or more examples of embodiments, the base 130 or bottom of the panel 102 may have rounded edges or ends. The rounded edges or ends permit the panel(s) 102 to pivot while connected together. While rounded edges are specifically illustrated, alternative means of permitting pivotal movement of two joined walls or panels may be provided, such as for example, recesses, grooves, cut outs, and the like.

[0040] The panel 102 also has a play feature arranged on at least one of the first and second non-opposing faces 106, 108. The Figures illustrate one or more alternative examples of embodiments of a panel 102 or wall as described herein including a play feature. For instance, FIGS. 6-7 illustrate a plurality of windows 132 or ports formed by opening(s) in the panel 102. FIG. 8 similarly shows a panel 102 or wall, including a firing port 132. As can be seen in FIG. 8, the firing port 132 is formed in a partial opening in an approximate center location of the panel 102. FIG. 8 also illustrates one or more alternative examples of a top wall 118 for the panel 102 including a larger polygonal shaped raised segment, and an alternative variation in depth or texture in the surface of the panel face 106, 108. FIG. 9 shows a panel 102 including a sliding hatch 134 which forms an opening 132. Alternatively, the hatch 134 may include a handle or the like for opening and closing the hatch. In one or more examples of embodiments, the sliding hatch 134 may slide into a pocket within the interior of the panel 102 or wall, or in the alternative, may be carried by and movable on a bracket (e.g., a rack and pinion or tracks) mounted on a side or surface. FIG. 9 also illustrates one or more alternative examples of a top wall 118 for the panel 102 including a curved raised segment, and an alternative variation in depth or texture in the surface of the panel face. FIG. 10 shows a panel 102 including a semi-transparent or transparent window 136. Preferably, the window 136 is formed of a transparent material, such as a plastic material, which permits viewing through the panel 102, but does not allow the passage of an object. The windows and openings and one or more features described herein, e.g., windows 132, 136, may be formed of any suitable size or shape. FIG. 11 also illustrates one or more alternative examples of an alternative variation in depth or texture in the surface of the panel face 112, 114. FIG. 11 shows a wall or panel 102 having a large portal or opening 138. The opening 138 may be of any suitable shape or size. For example, the portal 138 may be sized to permit a person to pass through the opening, or may be small enough to permit passage of objects. FIG. 11 also illustrates one or more alternative examples of a top wall 118 for the panel 102 without a raised segment, and an alternative variation in depth or texture in the surface of the panel face. FIG. 12 shows a panel 102 including a crumbling wall 140, or including elements or wall pieces 142 which may break away or fall away from the wall. It is understood that the pieces may be reassembled to reform the wall or panel. FIG. 13 illustrates one or more examples of embodiments of a prison wall, including prison bars 164 and corresponding openings. FIG. 14 illustrates one or more examples of embodiments of a panel having a grate 166 or plurality of small openings.

[0041] While specific examples are described, one of skill in the art would understand that any suitable play feature may be substituted in place of the illustrated embodiments. To this end, some panels 102 or walls may have a plastic window, a portal entry hole, a firing window slot, a turret wall, swinging gate walls (e.g., including one or more doors), speaker panels, sliding hatch wall (which may include, for example, a handle), camera with remote control & screen wall, a wall that pieces fall off of when hit, and so forth. For example, a panel 102 having a camera system including a camera 144, viewing screen 146, and joystick 148 for control of the camera is shown in FIG. 21. In another example, a panel 102 having a shelf 180 is shown in FIG. 22.

[0042] Each panel 102 may also feature a certain “look.” For example, the panel 102 may be shaped, have a certain depth or a certain coloring to create a particular appearance (e.g., a metal fortress, a green camouflage hideout, a forest fort with vines, a desert storm look, a sand bag appearance, rock walls, snow camouflage, snow caps, a bullet-riddled wall, and the like).

[0043] Additionally, as indicated the panel(s) 102 or walls described herein may be provided with additional features, such as one or more lights or lighted panels, or glow in the dark panels. In one or more examples of embodiments, the panel 102 may include a light and a sensor, or for example, a sound generator and a sensor, which light or sound generator is activated in response to contact with the wall 102 (e.g., a “hit” from a foam dart). In other words, an alert or communication devices is provided which alerts the user to panel or wall contact.

[0044] According to one or more examples of embodiments, a plurality (e.g., more than one) of the above-described walls or panels may be connected to form a structure or wall system 152 (FIGS. 15-16). Different designs may be provided for each panel 102, which, when combined, offer different looks, designs, functions, and roles within, for example, a foam dart gun battle, creating an amazing looking battle fort from which to defend or attack your opponent in a play battle scenario.

[0045] In one or more examples of embodiments, the structure or a wall system 152 described herein is formed of a plurality of interlocking panels 102, 104 or walls. FIGS. 15-16 illustrate two interconnected/interlocked panels 102, 104 according to one or more examples of embodiments. As indicated panel connector 120 is joined to or carried by a surface 112, 114 of the panel 102 for removably coupling to an adjacent panel 104. The panel connector 120 has a cross section permitting free rotation about an axis (a) (e.g., see FIG. 15). In one example, the cross-section may be circular or cylindrical. In alternative examples, the cross-section is polygonal but includes edges which do not interfere with the connected panel. As can be seen in FIG. 15, and as described above, each panel 102, 104 may have a portion 122, 124 of a panel connector 120 on a surface of the panel or wall. In the example shown in FIG. 15, a first panel 102 has a male panel connector 122, and more specifically, a plurality of male panel connectors; and the second panel 104 a female panel connector 124, and more specifically, a plurality of female panel connectors. The male and female panel connectors 122, 124 are interconnected to form a swivel mechanism or hinge or panel connector 120 pivotable about pivot axis (a) formed
by interconnected panel connectors and form the fort, wall, building, or structure 152. In FIG. 15, the male panel connectors 122 are also received within the recesses 126 in the second panel 104. As can be seen in FIG. 16, panel connectors 120 on adjacent panels 102, 104 are aligned with a recess 126 on the adjacent panel. Accordingly, the panel connectors 120 are engaged by inserting the connector 120 into the recess. The panel connectors 120 on the male and female panel connectors 122, 124 may be sized such that there is little to no gap formed between adjacent interconnected panels 102, 104 (FIG. 16), or may provide a gap 154, such as shown in FIGS. 15. However, it is also contemplated that the connectors 120 may be carried on an outer surface, edge, or face without such recesses 126.

[0046] As shown in FIG. 15, each panel 102, 104 may include both male and female panel connectors 122,124. In the alternative, each panel 102, 104 may be provided with predetermined and opposite or mating patterns of panel connectors 120/recesses 126. To this end, each panel 102, 104 may be connected to more than one adjacent panel 102 and/or 104 in the manner described. Moreover, each panel 102, 104, regardless of shape and features, is provided with the same sized and positioned panel connectors 120. Accordingly, a pair of panel connectors 120 may be provided where, for example, a second panel connector 124 which interlocks with the first panel connector 122 is provided such that the panels 102, 104 can be interchangeable with and removable from other panels. As a result of panel sections being interchangeable, various configurations, different designs, and the ability to continuously change the structure is provided.

[0047] While the disclosure herein describes the various “panels” as one or more “walls,” it is contemplated that a panel may also be provided as a ceiling or other covering for an assembled structure.

[0048] As indicated and shown in FIGS. 15-16, a plurality of panels 102, 104 may be interlocked or connected with one or more panel connectors 120. Referring to FIGS. 17-20, the panel connectors 120 are adapted to allow each panel to easily lock together, while also giving them the freedom to swivel between two maximum extremes, for example from 0 degrees up to and including 180 degrees. In some instances, the panel 102 and/or 104 may swivel or pivot to an angle greater than 180 degrees. As described herein, to facilitate the swivel of connected panels 102, 104, the panel connectors 120 may have a cross section which permits free rotation. Furthermore, the panels 102, 104 may be provided with one or more rounded edges.

[0049] As described herein, the panel connector 120 assembly shown in FIGS. 17-19 is formed of a male panel connector 122 and a female panel connector 124. In the alternative shown in FIG. 20, the panel connector 120 is mated with a recess 126 and as a result, the panel connector 120 may be considered the male panel connector 122 while the recess 126 may be considered the female panel connector 124. In one or more examples of embodiments, the male and female panel connectors 122, 124 are formed of a plastic material, or may be formed integrally with the foam material of the panel, although alternative materials may also be acceptable for the purposes of the present invention.

[0050] Referring to FIG. 17, the male panel connector 122 has a base 156 and a tip 158. In the illustrated example, the base 156 and tip 158 are each formed having a circular cross section permitting the free rotation about the axis (a). The base 156 may be tapered, conical or partially conical as shown in FIG. 17. Alternatively, the base 156 may be cylindrical. The tip 158, which is shown integrally connected to the base 156, is cylindrical in FIG. 17, however variations thereof, including, for example spherical, conical, tapered, and the like, may be acceptable. An insertion element (not shown) may also be provided for securing the male panel connector 122 to the panel 102, 104. For example, the male panel connector 122 may have an extension which is insertable into a foam material and is adapted to retain the connector in place in the material. In the alternative, an adhesive may be used to secure the connector to the panel 102, 104.

[0051] FIG. 17, also illustrates a female panel connector 124. The female panel connector 124 may be correspondingly shaped to mate with the male panel connector 122 as shown in FIG. 18. For example, the female panel connector 124 shown in FIG. 11, has an aperture, which may be a tapered aperture 160, connected to a cylindrical aperture 162; however, varying shapes which are capable of being used with the male panel connector 122 are acceptable for the purposes provided. The female panel connector 124 may be inserted into the panel 102, 104 (see FIG. 18). In one or more examples of embodiments, the female panel connector 124 is inserted directly into a foam panel 102, 104. In an alternative example, a recess 126 is formed in the panel 102, 104 which is sized and shaped to receive the connector 124.

[0052] As can be seen in FIGS. 18 and 20, the male panel connector 122 is received by and fits securely within the female panel connector 124. The connectors 122, 124 may be interlocked, such as by friction fit, or other engagement device, or the male connector 122 may rest within the female connector 124. The connectors 122, 124 are pivotable in position. In this arrangement, a first panel 102 is coupled to a second panel 104, and the panels may swivel relative to one another. That is, the first panel 102 is pivotable in relation to the second panel 104, such that the angle formed between the two interlocked or connected panels may be changed or varied. Advantageously, because the panel connector design allows for each panel 102, 104 to pivot over 180 degrees overall, this permits the user to build around most obstacles and can create a maze of protection and fun, individualized designs. Additionally, the interlocking hinges or panel connectors 120 have a breakaway design, such that the hinges 120 will separate without breaking if someone crashes into the panel or combined panels and the panels come apart. In this regard, and in the illustrated examples, the panel connector or connectors 120 may have a breakaway mechanism which is a result of the respective shapes which permit the connector to slide apart, and are arranged to separate or slide apart upon the application of a load against one of the panels 102, 104 or one of the panel connectors.

[0053] While specific examples are provided, variations on panel connectors 120 are contemplated, such as connecting two or more panels with VELCRO® or with a snap system, or connecting two or more panels with drop down, interlocking/ mating fit pieces. An alternative example connector 120 with a snap-type system is shown in FIG. 19.

[0054] In one or more alternative examples of embodiments, the panel 102 is formed of a size or dimension or weight such that it may be moved or carried by a user. An example panel 102 is shown in FIG. 23. For example, the panel 102 shown in FIG. 23 may be used as a hand shield, such as when moving or running. To facilitate the same, the panel 102 has one or more windows or slots or openings 132 and one or more handles 168. As shown in the illustrated embodiment,
A kit having the structure building toy may also be provided. The kit may include components for building a structure and/or for additional play. For example, a play set containing one, two, or more panels 102, 104 may be provided. The panels 102, 104 may be the same type of panel, or may be a themed form of panel, or may be a variety of different types of panels, examples of which are described above. Additional accessories and/or attachments may be provided in the kit, such as shelves, wall attachments, hangers, camera mounts, and the like. Additionally, the kit may include, for example, foam dart guns, bean bags, cusky balls, marshmallows, snowball making equipment, helmets, matching costumes, protection goggles and the like, which can be used with the structure.

A preferred example of embodiments, the kit includes a plurality of lightweight panels 102, 104 comprising a high density (or alternatively, for example, closed cell) foam structure having a design arranged for play with first and second non-opposing faces 106, 108 and a thickness providing rigidity to the panel 102, 104 so as to resist bending. The panel(s) 102, 104 have a play feature arranged on at least one of the first and second non-opposing faces 106, 108 and a panel connector 120 joined to a surface of each panel 102 which removably couples to a second panel 104 in the kit in an interlocking, but removable manner. The panel connector 120 cross section permits free rotation about the axis. One or more panels in the kit are interchangeable.

Many advantages are gained by the structure building toy described herein. For example, a toy structure usable by youth, teens, and adults is provided. Moreover, these structures no longer include furniture, sheets, and other items in the home, reducing the likelihood of damage to such items.

Various panel designs are also provided, offering different looks, designs, functions, and roles. The panels are formed of a sturdy, light weight material, which is easy to assembly and easily transportable. Panel sections are interchangeable, providing for various configurations, different designs, and the ability to continuously change the structure. When combined in a structure, the panels create a unique, individualized structure or “fort” for play.

Furthermore, the panels described herein use a uniform interlocking panel connector. The panel connectors allow for a quick and easy assembly and pivot over 180 degrees, allowing the user to build around most obstacles and even create a maze of protection and fun, individualized structure designs.

The combination of interchangeable sections and pivotable interlocking wall or panel sections, allows new and different designs of various structures, fitting both needs of the particular event for which it is used, as well as the arena in which it is used (e.g., a rec room, hallway, living room, basement, garage, yard, etc.).

As utilized herein, the terms “approximately,” “about,” “substantially”, and similar terms are intended to have a broad meaning in harmony with the common and accepted usage by those of ordinary skill in the art to which the subject matter of this disclosure pertains. It should be understood by those of skill in the art who review this disclosure that these terms are intended to allow a description of certain features described and claimed without restricting the scope of these features to the precise numerical ranges provided. Accordingly, these terms should be interpreted as indicating that insubstantial or inconsequential modifications or alterations of the subject matter described and claimed are considered to be within the scope of the invention as recited in the appended claims.

It should be noted that references to relative positions (e.g., “top” and “bottom”) in this description are merely used to identify various elements as are oriented in the Figures. It should be recognized that the orientation of particular components may vary greatly depending on the application in which they are used.

For the purpose of this disclosure, the term “coupled” means the joining of two members directly or indirectly to one another. Such joining may be stationary in nature or moveable in nature. Such joining may be achieved with the two members or the two members and any additional intermediate members being integrally formed as a single unitary body with one another or with the two members or the two members and any additional intermediate members being attached to one another. Such joining may be permanent in nature or may be removable or releasable in nature.

It is also important to note that the construction and arrangement of the system, methods, and devices as shown in the various examples of embodiments is illustrative only. Although only a few embodiments have been described in detail in this disclosure, those skilled in the art who review this disclosure will readily appreciate that many modifications are possible (e.g., variations in sizes, dimensions, structures, shapes and proportions of the various elements, values of parameters, mounting arrangements, use of materials, colors, orientations, etc.) without materially departing from the novel teachings and advantages of the subject matter recited. For example, elements shown as integrally formed may be
constructed of multiple parts or elements show as multiple parts may be integrally formed, the operation of the interfaces may be reversed or otherwise varied, the length or width of the structures and/or members or connector or other elements of the system may be varied, the nature or number of adjustment positions provided between the elements may be varied (e.g. by variations in the number of engagement slots or size of the engagement slots or type of engagement). The order or sequence of any process or method steps may be varied or re-sequenced according to alternative embodiments. Other substitutions, modifications, changes and omissions may be made in the design, operating conditions and arrangement of the various examples of embodiments without departing from the spirit or scope of the present inventions.

While this invention has been described in conjunction with the examples of embodiments outlined above, various alternatives, modifications, variations, improvements and/or substantial equivalents, whether known or that are or may be presently foreseen, may become apparent to those having at least ordinary skill in the art. Accordingly, the examples of embodiments of the invention, as set forth above, are intended to be illustrative, not limiting. Various changes may be made without departing from the spirit or scope of the invention. Therefore, the invention is intended to embrace all known or later developed alternatives, modifications, variations, improvements and/or substantial equivalents.

The technical effects and technical problems in the specification are exemplary and are not limiting. It should be noted that the embodiments described in the specification may have other technical effects and can solve other technical problems.

1. A structure building toy comprising:
   a light-weight panel having a design arranged for play
   having first and second non-opposing faces and a thickness providing rigidity to the panel so as to resist bending, the panel having a play feature arranged on at least one of the first and second non-opposing faces;
   a panel connector joined to a surface of the panel for removably coupling to an adjacent panel, the panel connector having a cross section permitting free rotation about an axis.

2. The structure building toy of claim 1, wherein the light-weight panel is a first panel and the panel connector is a first panel connector, further comprising a second panel, the second panel having a unique panel design and a second panel connector which interlocks with the first panel connector such that the panel can be interchangeable with and removable from the first panel.

3. The structure building toy of claim 2, wherein the first panel connector and second panel connector have a breakaway mechanism arranged to separate upon the application of a load against one of the panels or one of the panel connectors.

4. The structure building toy of claim 2, wherein the interlocking panel connectors form a hinge allowing for swivel and angle variation of connected panels.

5. The structure building toy of claim 4, wherein the angle can be varied in a range from 0 degrees to 180 degrees.

6. The structure building toy of claim 2, wherein the first and second panel connectors are male and female panel connectors.

7. The structure building toy of claim 1, wherein a plurality of panels are provided in a kit.

8. The structure building toy of claim 1, wherein the panel has a base including a width greater than a width of the panel.

9. The structure building toy of claim 1, wherein the panel has a weighted base.

10. The structure building toy of claim 1, wherein the panel includes a play feature from the group consisting of a port, a portal, an opening, a hatch, a sliding hatch, and a window.

11. The structure building toy of claim 1, wherein the panel includes a handle.

12. The structure building toy of claim 1, wherein the panel is formed of a material that glows.

13. The structure building toy of claim 1, wherein the panel includes a light.

14. The structure building toy of claim 1, wherein the panel includes a device for creating sound.

15. The structure building toy of claim 1, wherein the panel has a rounded edge which permits pivoting of an adjacent panel.

16. The structure building toy of claim 1, wherein the panel connector comprises a base and a tip, the base having a tapered shape.

17. The structure building toy of claim 1, wherein the panel connector comprises an aperture.

18. The structure building toy of claim 17, wherein the panel connector is a tapered aperture.

19. A foam shield panel for building a fort structure comprising:
   a high density foam structure having a design arranged for play with first and second non-opposing faces and a thickness providing rigidity to the panel so as to resist bending, the panel having a play feature arranged on at least one of the first and second non-opposing faces;
   a panel connector joined to a surface of the panel for removably coupling to an adjacent panel, the panel connector having a cross section permitting free rotation about an axis.

20. A kit for building a toy structure comprising:
   a plurality of light-weight panels comprising closed cell foam structure having a design arranged for play with first and second non-opposing faces and a thickness providing rigidity to the panel so as to resist bending, the panels having a play feature arranged on at least one of the first and second non-opposing faces and a panel connector joined to a surface of each panel which removably couples to a second panel in the kit in an interlocking, but removable manner, the panel connector having a cross section permitting free rotation about an axis, wherein one or more panels in the kit are interchangeable.