THEMED BUILDING TOY

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ABSTRACT

Embodiments of the invention provide both a new type of building set which, while particularly attractive to girls, is suitable for use with a wide variety of themes and is fun for boys as well. A building set teaches engineering and biology concepts. The set comprises interlocking pieces that users can manipulate and use to build structures. In some embodiments, the elements use two different types of connector, one type requiring a specific orientation of the connected elements and a second type allowing the connection to be made in any orientation. In some embodiments, one connection type, preferably the fixed orientation connector, uses one or more springy element that springs out to interlock with a mating component, and the other type of connection uses a friction fit. In one embodiment, the toy components are suited for forming a tree with interlocking branches and leaf-disk. The elements appeal to girls through use of color and story line. Users can build play scenes that are coordinated through plot, and are interchangeable to inspire creativity. The current invention also employs inventive locking techniques and structural elements.
FIG. 23
Dragons / Fire Realm

FIG. 55
Dragons "Fire Realm"

- Coin disks
- Fabric flares
- Cores have coal or lava texture
- Black jewel buttons
- Breast plate opens to reveal cavity inside
- All parts of dragon are interchangeable: scales, horns, tail, etc.

FIG. 56
Sky realm can be built at eye level of child! (any realm can)

extension posts?

extension posts could be sold separately

disks can be locked into center of base
Sky Realm

"Real" hair pegs that are removable
Wings & horn removable
Legs removable but not jointed

FIG. 58
Sky Fairies / Sky Realm

FIG. 59
Mermaid's Coral Realm incorporate Dragon building elements for "Sunken Treasure".

"Red hair" pops on interchangeable heads, not pegs.

Sand dollar disks, polyps, sea fans, sea anemones, coral branches.
Mermaids / Coral Realm

Fins interchangeable with all creatures: mermaids

Baby Seahorses inside belly!

Fabric seaweed

FIG. 61
FIG. 62

Mermaids / Coral Realm

coral builders
outcrop

large coral disk
flat plane

sight cone

bumpy texture

sand / stone color

Barrels

Urn

beads

pearls
Bee's Honey Realm

Top Cap

"Hive" fits onto top cap

1g disk

clips to go on sides of comb to hold whatever

sm disk

queen bee crown

FIG. 63
Butterflies / Flower Realm

FIG. 65
Storage Box / Play Platform

Storage box for each realm has lid that is studded with holes to double as a play platform.

Detail slots on sides of boxes so they connect like a giant puzzle.

Example of how various realms could fit together.

FIG. 66
THEMED BUILDING TOY

RELATED APPLICATIONS

[0001] This Application is a Continuation of U.S. patent application Ser. No. 14/964,184, filed Dec. 9, 2015, which claims priority from U.S. Provisional Application 62/090,292, filed Dec. 10, 2014, which are hereby incorporated by reference.

TECHNICAL FIELD OF THE INVENTION

[0002] The present invention relates to toy construction sets, and in particular, to themed construction sets oriented towards girls and boys.

BACKGROUND OF THE INVENTION

[0003] Over the years, there have been developed a multitude of construction toys. Such systems typically have various elements that users can connect to each other in various ways to form structures.

[0004] For example, U.S. Pat. No. 8,408,962 describes a toy construction system that includes at least one panel member having a multiplicity of female twist-lock connectors formed in a surface thereof. Female socket flexible connectors are included, each having a stem adapted with threads for receipt by the female twist-lock connectors. An equal multiplicity of ball connectors is included wherein each has a stem adapted with threads for receipt by the female twist-lock connectors. Other blocks of various sizes and shapes are included wherein each block has multiple female connectors formed in its surfaces. A structure is built by attaching the blocks to the panel by attaching the ball connectors to the block and the female connectors to the panel and engaging the ball connectors to the female socket flexible connectors.

[0005] U.S. Pat. No. 7,354,330 describes an assembly of two elements including a first element that has a cavity with an external opening connected to a first region defined by a sidewall that is a spherical segment and the diameter of the external opening is smaller than the diameter of the sidewall in the first region. Adjacent to the first region is a second region also defined by a second spherical segment that is separated from the first region by an annular ring extending from the sidewalls towards a central axis of the cavity. The annular ring forms a passage having a diameter approximately the same as the external opening. An extension member on the second element is inserted into the cavity which has a first rod section terminating in a second spherically-shaped section. The spherically-shaped section has a diameter slightly larger than the external opening on the first element and accordingly, the spherical section may be snap-fitted through the external opening to a first position in a first region, and be retained there and, it may be further snap-fitted through the passage to the second region and be retained there. Also disclosed is a flange structure that engages an annular seat when the spherically shaped member is in the second position.

[0006] Another system is described in U.S. Pat. No. 8,087,970, which describes a toy construction system that includes a multiplicity of interconnected members adapted for constructing a variety of projects, a rotator head device including a device housing having a conical-shaped cavity formed therein. The housing includes a plurality of female twist-lock connectors formed on the outer surface thereof, and the female connectors are adapted for attaching a first member of the toy construction system to the rotator head device housing. A conical rotating member, slightly smaller than the cavity formed in the device housing is included. The rotating member is disposed within the cavity and has a male twist-lock connector stem extending from an end thereof for connecting a second member of the toy construction system to the rotating member, whereby the first member is rotatable with respect to the second member.

[0007] U.S. Pat. No. 6,572,429 describes a toy model building set that includes pluralities of generally circular daisy elements, wedge elements, and straight and curved rod elements. The rod elements may be equipped on their ends with various types of connectors, and the rods may be either curved, angled, or straight. The daisy elements can be joined to each other in at least four distinct ways, and can be used as connectors for different elements in a variety of ways. A large plurality of the daisies can be connected together to form a generally planar element. A through hole in the central hub allows the daisy element to receive rod elements in addition to other daisy elements. The edge elements are pie-shaped elements including two adjoining straight sides and a third curved side. One of the straight sides is equipped with a ball connector, and the other straight side is equipped with a compatible socket connector. Using these connectors, multiple wedge elements can be joined to form circular components such as wheels. The edge elements also include interior socket connectors.

[0008] The systems described above are but a small sample of the many systems that have been developed.

[0009] Applicant desired to create a themed construction system to encourage interest of young girls in the fields of science, technology, and engineering (“STEM”). Many more boys than girls go into STEM. It is considered that the inclination against STEM begins early. Construction toys in general appeal more to boys than to girls. Legos has tried to attract girls to its products, for example, by its LEGO Friends line, which includes characters and themed building sets.

[0010] Toys for girls are not keeping up with the rapid shift in women’s roles. Girls need engineering-oriented toys to encourage them to think in ways that will be competitive for today’s job market. Gone are the days that women stayed at home and kept house, while men went out to competitive jobs.

[0011] Walking down a toy aisle one is able to see a clear distinction between boys’ and girls’ toys. Play kitchens, baby dolls, and glamour dolls have their place in girls’ toy collections, but limiting girls’ toy collections to these specific domestic sphere toys is not realistic for today’s girls. Most women in today’s society need jobs. If they are conditioned as children to be pretty, good cooks, and take care of children; then they will be wildly unprepared to take on the challenges of school and competition in the corporate specter.

[0012] Boys’ toys prepare them to be competitive in the corporate job market. These toys train boys to think logically by building, engineering, chemistry, and learning mechanical skills. The training boys offer is incomplete, but it serves as a foundation for boys to turn into successful men. Although, boys’ toys are not focused at being good fathers, beauty, cooking or household duties; men nonetheless figure out these tasks as needed. More important than what they don’t teach is what they do teach. The foundation that is laid...
by these toys enables boys to perform better than girls in the academic arena. The Independent Women’s Forum (http://iwf.org/blog/2789333/) states, “boys . . . [score] 33 points higher than their female counterparts on this year’s SAT tests.” Edutopia (www.edutopia.org/blog/girls-and-scienc...dream-deferred) tells of the struggles to get girls interested in science, technology, engineering and math (STEM) education. “Even though girls and boys sit next to each other in class, only 26 percent of STEM bachelor’s degrees go to women.” These two articles point out how gender-specific toys play out in the academic arena. Toys familiarize girls and boys with academia and future roles.

[0013] Legos has introduced a line called Lego Friends which appears to be aimed at girls. There are currently few toys aimed at girls promoting engineering, logic and science.

SUMMARY OF THE INVENTION

[0014] An object of this invention is to provide a building set using conventional girls’ interests such as folklore and pretty colors to inspire them to think and build.

[0015] Embodiments of the invention provide both a new type of building set which, while particularly attractive to girls, is suitable for use with a wide variety of themes and is fun for boys as well. A building set teaches engineering and biology concepts. The set comprises interlocking pieces that users can manipulate and use to build structures. In some embodiments, the elements use two different types of connector, one type requiring a specific orientation of the connected elements and a second type allowing the connection to be made in any orientation. In some embodiments, one connection type, preferably the fixed orientation connector, uses one or more springy element that spring out to interlock with a mating component, and the other type of connection uses a friction fit. In one embodiment, the toy components are suited for forming a tree with interlocking branches and leaf-disks. The elements appeal to girls through use of color and story line. Users can build play- scapes that are coordinated through plot, and are interchangeable to inspire creativity. The current invention also employs inventive locking techniques and structural elements.

[0016] The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional features and advantages of the invention will be described hereinafter. It should be appreciated by those skilled in the art that the conception and specific embodiments disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] For a more thorough understanding of the present invention, and advantages thereof, reference is now made to the following descriptions taken in conjunction with the accompanying drawings, in which:

[0018] FIG. 1 is an image of an exemplary assembled.

[0019] FIG. 2 is a schematic of two assembled trunks with leaves, leaf discs, flowers and branches attached.

[0020] FIG. 3 is an image of an assembled tree trunk including: leaves, leaf discs, flowers, and branches.

[0021] FIG. 4 shows two leaves connected to a leaf disc using right angle connectors.

[0022] FIG. 5 is an image showing leaves connected at various angles to a leaf disc using right angle connectors.

[0023] FIG. 6A is a top view of a leaf element. FIG. 6B is a side view of the leaf element.

[0024] FIG. 7A is an image of a trunk coupling. FIG. 7B is a top view of a trunk element.

[0025] FIG. 7C is a cross-sectional view of a trunk element. FIG. 7D is a cross section of two connected trunk elements.

[0026] FIG. 8 is a soft insert that is inserted into a hole in an element composed of a harder element, the insert mating with a male connector of another element.

[0027] FIG. 9 is an image of another showing leaf discs, half-discs, trunks and flowers.

[0028] FIG. 10 is an image of a play scape including leaves, trunk elements, branches, leaf discs, and leaf half-discs.

[0029] FIGS. 11A shows an image of a disk leaf; FIG. 11B shows a top view of a disk leaf; FIG. 11C shows a half disk; FIG. 11D is an image of a half disk leaf; FIG. 11E is a cross-sectional view of a disk leaf.

[0030] FIGS. 12A-12E is five views of branch elements of various lengths.

[0031] FIGS. 13A-13C shows various views of a male-female right angle connector.

[0032] FIGS. 14A-14C shows various views of a male-female right angle connector.

[0033] FIGS. 15A-15C shows a male-female coupling connector that displaces the connection point for a male or female connector.

[0034] FIGS. 16A-16D shows a trunk element that accepts a female spring-leaf type connector on one end and provides a pin-type connector on the other end, as well as multiple pin-type connectors around the sides.

[0035] FIGS. 17A-17E shows various views of a flower element.

[0036] FIGS. 18A-18D show various views of a rock element, the rock element having a flat bottom for setting on a flat surface and having multiple pin connectors for connecting other elements.

[0037] FIG. 19 shows a side view of a fairy character.

[0038] FIG. 20 shows a front view of a fairy character.

[0039] FIG. 21 shows a disassembled fairy character, with the elements capable of being exchanged with other characters to mix and match features between characters.

[0040] FIGS. 22 and 23 show front views of a fairy character.

[0041] FIG. 24 shows a back view of fairy character.

[0042] FIG. 25 shows a front view of a butterfly character.

[0043] FIG. 26 shows a side view of a butterfly character.

[0044] FIGS. 27 and 28 show disassembled views of a butterfly character.

[0045] FIG. 29 shows an image of a butterfly character.

[0046] FIG. 30 shows another image of a butterfly character.

[0047] FIG. 31 shows another image of a butterfly character.

[0048] FIG. 32 shows an image of a disassembled view of a butterfly character and a disassembled fairy character.
FIG. 33: An example of an alternative assembly of leaves and sticks. Illustrates the versatility of building options by turning female connectors on male connectors till they meet.

FIG. 34: Example of disks placed on a hexagon base

FIG. 35: Example of interchangeable parts from the fairy figures and butterfly figures

FIG. 36: Example of interchangeable parts from the building set (rock leaves, sticks) and a butterfly figure

FIG. 37: Example of the interchangeable parts, using a butterfly wing, fairy hand in a different construction

FIG. 38: The Wing construction, using the fairy hand as the connector/holder

FIG. 39: Example of interchangeable parts using a butterfly head, fairy body, and butterfly body

FIG. 40: Example of interchangeable parts using a fairy head and butterfly antennae

FIG. 41: Models of the dragon construction set with bones, rocks, coin disks, and Flames

FIG. 42: Examples of dragon figures

FIG. 43: Examples of dragon figures

FIG. 44: Example of Fairy and Butterfly pieces integrated into a dragon

FIG. 45: Example of interchangeable parts, with scale being used as a tongue

FIG. 46: Example of interchangeable parts, with scale being used as a tongue

FIG. 47: Example of interchangeable parts, with flowers being used as a collar

FIG. 48: Backside of Dragon model

FIG. 49: Side view of dragon model

FIG. 50: Example of Fairy hand being used on dragon body

FIG. 51: Example of Butterfly head being used on Dragon body

FIG. 52: Models of Fire Realm components

FIG. 53: Fire Realm Components with Dragon model

FIG. 54: Example of integrating Fire realm components into Woodland Realm

The following figures show examples of different realms using the same construction model as the “Woodland Realm” All can be integrated into each other, and all follow the same basic rules as the “Woodland Realm” i.e. Center post construction, Rotational construction, Disks used as floors, Same male/female post connectors, etc...

FIG. 55A shows various lengths of connectors shaped as bones for a Fire Realm.

FIG. 55B is a front view of a connector shaped as a tooth.

FIG. 55C is a front view of a flame element.

FIG. 55D is a front view of rock-shaped blocks.

FIG. 56A is an example platform for a Fire Realm.

FIG. 56B are fabric fronds.

FIG. 56C are post blocks with a lava texture.

FIG. 56D is a jewel decorative button.

FIG. 56E is an example Fire Realm dragon.

FIG. 56F is an example Fire Realm construction.

FIG. 57 is an example Sky Realm construction.

FIG. 58 is an example Sky Realm unicorn.

FIG. 59A is an example Sky Realm cloud.

FIG. 59B is an example Sky Realm rainbows connectors.

FIG. 59C is an example Sky Realm base and column.

FIG. 59D is an example Sky Realm lightning bolt connector.

FIG. 60A is an example Coral Realm mermaid.

FIG. 60B is an example Coral Realm construction.

FIG. 60C is an example exploded Coral Realm decorative coral element.

FIG. 60D is an example exploded Coral Realm sea fan.

FIG. 60E are example Coral Realm coral branch connectors.

FIG. 61A are example Coral Realm seahorses.

FIG. 61B is an example Coral Realm fish.

FIG. 61C is an example Coral Realm clam.

FIG. 61D is an example Coral Realm fabric seaweed.

FIG. 62A are example Coral Realm element.

FIG. 62B is an example Coral Realm construction.

FIG. 62C is an example Coral Realm coral disk.

FIG. 62D is an example Coral Realm starfish.

FIG. 62E is an example Coral Realm coral disk with bumpy texture.

FIG. 62F is an example Coral Realm barnacle.

FIG. 62G is an example Coral Realm pearl.

FIG. 62H is an example Coral Realm construction.

FIG. 63A is an example Honey Realm base.

FIG. 63B is an example Honey Realm comb clip.

FIG. 63C is an example Honey Realm small disk.

FIG. 63D is an example Honey Realm queen bee crown.

FIG. 63E are example Honey Realm top cap.

FIG. 63F is an example Honey Realm hive.

FIG. 64A is an example Honey Realm construction.

FIG. 64B is an example Honey Realm assembled bee.

FIG. 64C is an exploded example Honey Realm bee.

FIG. 64D is an example Honey Realm honey drip clip.

FIG. 64E are example Honey Realm clip.

FIG. 64F is an example Honey Realm polypropylene fabric flower.

FIG. 64G are example Honey Realm small leaf.

FIG. 64H are example Honey Realm elements.

FIG. 65A is an example Flower Realm butterfly.

FIG. 65B is an example Flower Realm construction.

FIG. 65C is an exploded example Flower Realm flower.

FIG. 65D are example Flower Realm elements.

FIG. 66A is an example storage.

FIG. 66B are interconnected storage boxes for multiple realms.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Different embodiments may include one or more of the features below:

Central Post Construction.

Central post construction provides a scaffolding and stabilizing base for all of the play sets to build off of. In some embodiments, the central posts are designed with 3 prongs that, when compressed into the female connector
hole, spring into place, locking the central post. This provides a framework from which the entire set can be built off of. The male prongs fit into the negative space between the prongs on the female connecting shaft, so a "key" or tab is added to orient the post in the right direction. This also causes the male connector posts on the exterior of the shaft to line up.

[0128] Compression

[0129] Construction sets are preferably made of a polypropylene. This soft but rigid material allows for compression, which keeps the building pieces in place at any angle they are placed. Without some compression, the pieces would slip and not stay in place. Compression is important for the toothed hole vs male peg connection, as well as the "press fit" connection of the butterfly antennae and other holes/pegs in this size. The edges are also rounded for a softer feel than traditional building blocks. In some embodiments, pegs have a diameter slightly larger than a insulated touching the teeth, so that the teeth are compressed by the peg, holding the peg and the attached element in place. In some embodiments, there are 5 soft teeth while provides for 5 points to grip the peg.

[0130] Fabric Elements:

[0131] In addition to plastic pieces, some embodiments include fabric elements such as silk flowers and leaves, that add to the construction of the fairy (skirt) as well as decoration of the play set. They can also be used as construction components. Fabric elements will typically be themed just like the plastic pieces, but may include capses, flames, seaweed, other flowers, etc . . . . to be employed in other themed sets. Fabric elements add to the whole construction experience, and increase the appeal to girls.

[0132] Stackability:

[0133] In some embodiments, the length of the male peg allows for more than one piece to be placed on a single connector peg. This is unique and differs from other building blocks because it gives the user multiple options for construction, rather than one.

[0134] Rotation:

[0135] Rather than stacking bricks or logs, or putting pegs into fixed holes (tinker toys) a preferred peg/hole construction model allows the user to orient the piece in any way they desire. Angles are created that can be expanded or contracted to fit a corresponding connector. Pieces are designed so that any size piece can be replaced without difficulty. This is unique because most building sets rely on a linear method of building, where the user is restricted by the size of the bricks they use. A preferred embodiment allows them to turn a piece in any direction.

[0136] Versatility:

[0137] Rather than searching for the right piece to fit, a child can employ any piece in the place of the missing piece, and expand or contract other angles to make it work.

[0138] Themed Elements:

[0139] Play sets will preferably be comprised of corresponding themed elements. For instance, the fairies have leaves and sticks and flowers to build their play scope. A dragon set would include flames, rocks, cinders, jewels, etc . . . . An underwater set might include sand dollars, corals, shells, etc . . . . This is unique in that it encourages the child to reimagine something natural as a construction element. It encourages abstract thinking. No other play set on the market uses construction pieces that are themed for the characters. While some sets exist that use one or two elements for construction (such as "Connectagons" butterflies or under the sea set), none exist that combine themed elements employed as building materials for an actual play scope for the characters, and employ the center post construction and peg/hole connection. Those sets are building for the sake of building. Embodiments of the invention described in this application give the child a purpose for construction . . . an environment for their characters to play in. Embodiments of the invention are unique in that they offer themed pieces for the characters it comes with. Unlike Playmobil which offers the child a predetermined play scope to assemble one time, embodiments of the invention allows the user to determine WHAT to construct with the pieces offered, and allows for endless editing and rearrangement.

[0140] Platform Construction

[0141] Another unique feature of our sets is the platforms which they come with. These act as stabilizers for the central post, as well as functioning as "floors" which the child can build off of. Embodiments include some variation of this construction to provide the framework for which the entire set is build off of. The platforms may not always be round—they could be oval, or hexagonal, or square, or any other shape or size, as long as they act as a stabilizer and or platform.

[0142] No End Point:

[0143] Preferred embodiments of the construction sets are not puzzles to construct (like Legos)—the construction sets are open-ended models that allow the user to make the decisions for how to employ their themed pieces. Leaves for instance, can be imagined as a table top, a bed, a slide, a roof, or any other infinite possibilities.

[0144] Tactile Quality:

[0145] Preferred construction set pieces are softer to the touch than other construction sets. This is designed to make them appeal more to girls, but also appeal to every child of every gender. The hard and pointy edges are reduced to make it safer and softer. This may also increase the appeal to children with various learning disabilities and physical disabilities.

[0146] Jointed Characters and Rearrangement:

[0147] Other construction sets on the market offer characters, but none of them are jointed at the elbow and knee. Our characters are poseable, unlike playmobil or lego. This ability to be posed is combined with the fact that they can be disassembled and combined with other characters and creatures, allowing for endless "creature" possibilities. For instance, a fairy head can be put on a dragon body, and the tail can be replaced with butterfly antennae, etc . . . . Dragon scales could be used as hats for fairies, butterfly antennae could be remained as skis for the butterfly. All of our characters and their respective elements are capable of being combined with each other, as well as the play set.

[0148] Expandability:

[0149] Preferred construction sets are designed to coordinate with each other. Each realm can be connected to the previous one, and all of the pieces can be integrated into any themed realm. For example, coral pieces can be used to make a roof for the fairies . . . Flames can be used to make a tunnel from the bee’s play scope to the sky play scope, etc . . . . Each themed realm can provide a common platform, such as a hexagonal platform, that can also act as a lid to the
storage box. The platforms can be connected or placed side by side, to provide a Neverland like play scape for all of the realms and characters.

[0150] Scaffolding Concept:

[0151] No other construction set employs the use of a “scaffolding” for the child to build off of. This is unique in that it allows the child more freedom in construction and pretend play. Less time is devoted to following instructions, and more is given to imagining and engineering the desired outcome.

[0152] Below are detailed descriptions of some embodiments.

[0153] FIG. 1 shows an assembled 100. Play scape 100 is only one possible combination of elements. 100 includes full disks 102, half disks 104, trunk sections 1702 and 1602, branches 1208, leaves 610, rocks 1802 and flowers 112. Each of these components and the connectors between them are shown in more detail in other figures.

[0154] Components of the 100 use two different types of connectors, spring connectors and pin connectors. Both types of connectors are illustrated, for example, on a trunk element 702 shown in FIGS. 7A-7C. Trunk element 702 includes a base portion 704 having a tapered bore 706 and a central axis 708. Extending from the end of base portion 704 that includes the narrower end of the tapered bore are three spring connector arms 710. The three spring connector arms 710 are inclined toward the central axis 708. An alignment key 724 is positioned on the top of base portion 704 between two of the spring connector arms 710. Alignment key 724 rotationally aligned the stacked components. Spring connector arms 710 are slightly longer than the base portion 704 from which they extend. Each spring connector arm terminates at its distal end in a lip 726. Pin connectors 730 extend radially from the base portion 704, evenly spaced at ninety degrees intervals around the circumference.

[0155] Multiple trunk elements 702 can be stacked to make a vertical pole as shown in FIG. 1. FIG. 7D shows a cross section of two mated trunk elements, 702A and 702B. Elements of the trunk elements 702A and 702B are given the same reference numbers as in FIG. 7A-7C, with an “A” or “B” following the reference number to indicate that the elements belong to trunk element 702A or trunk element 702B. The spring connector arms 710A extend into tapered shaft 706B, and the lips 726 extend past the end of tapered shaft 710. The springiness in the material of spring connector arms 710A cause the spring connector arms to move outward against the walls of tapered shaft 706B, so that lip 726B as it passes out of shaft 706B moves outward, locking trunk element 702A to trunk element 702B. Although the spring force of spring arm 710A is sufficient to hold the trunk elements firmly together, the radius on the lip allows the compact element to be pulled apart to disassemble the trunk without damaging the connected elements.

[0156] Pin connectors 730 allow components such as branches or leaves to be attached. The components attached to the pin connectors 730 preferably are made from a softer material and have teeth to facilitate connection to the pin connectors. FIG. 8 shows an insert 802 that is inserted into a hole in a connecting component to mate with a pin connector 230. The insert includes an outer ring 802 of a hard material and an inner ring 804 that includes multiple teeth 806. The inner ring 804 and teeth 806 are composed of a softer material, elastically deformable material. The outer ring can be secured to the connecting element, for example, by gluing or welding. The pin connector that is received into ring 804 and gripped by teeth 806 is typically composed of an inflexible harder material than the material composing teeth 806.

[0157] FIGS. 6A and 6B show leaf elements 610. Leaf element 610 includes at least one hole 602 having internal teeth 604 for mating with a pin connector, such as a pin connector 730 from a trunk element 702. Leaf 610 includes a leaf design 612 and male pin connectors 606.

[0158] FIG. 11A and 11B show a full disk 102, with FIG. 11A being an image and FIG. 11B being a top view. FIGS. 11C-11E showing a half disk being a cross-sectional view. Full disk 102 includes a center post 1104 from which three spring arm connectors 1106 extend for connecting to other elements of the and a taper hole 1107 for accepting spring arm connectors from other components. Spring arm connectors 1106 are similar to spring arm connectors 710 of FIGS. 7A-7C and tapered hole 1104 is similar to tapered hole 706, so full disk 102 can be used in a stack interchangeably with a trunk element 702 and other components that use the spring arm connectors. Key 1108 orients full disk 102 relative to connecting components. Pin connectors 1110 allow connection of mating parts. Mating holes 1112 include internal teeth 1114 to contact pin connectors from other components to be mated with the half disk 102. Internal teeth 1114 can be formed directly in full disk 102 or a larger hole can be formed in full disk 102 and then an insert such as shown in FIG. 3 can be secured within the hole and used for mating with pin connectors.

[0159] FIGS. 12A, 12B, and 12C shows a branch element 1202, an elongated element having male pin connectors 1204 and female connectors 1206 with internal teeth 1208 for connecting with male pin connectors from other elements. Branch elements can be provided in various lengths, with different numbers of pin connectors. While FIGS. 12A-12C show connectors with 5 male and two female connectors, FIGS. 12D and 12E show branch elements having 2 female pin connectors and, respectively, 2 male pin connectors and 7 male pin connectors.

[0160] FIG. 13A to 13C show a right angle female-to-male adaptor connector 1302 that is used to connect elements of a play scape and rotate the angle of connection ninety degrees. Female-to-male adaptor connector includes a male pin 1304 adapter end, a female pin adapter portion 1306 having a hole and internal teeth 1306 for receiving a male pin adapter.

[0161] FIG. 14A to 14C show a right angle male-to-male adaptor connector 1402 that is used to connect elements and to rotate the angle of connection ninety degrees. Male-to-male adaptor connector 1402 includes a first male pin adapter 1404 and a second male pin adapter 730 oriented at right angle to first male pin adapter 1404.

[0162] FIGS. 15A-15C show a pin connector adapter 1502 that essentially displaces the position of the pin connector for making a connection. Pin connector adapter 1502 includes a male pin connector 1506 and a female pin connector 1504, having internal teeth 1508.

[0163] FIGS. 16A-16D show a spring arm connector to pin connector adapter 1602. Spring arm connector to pin connector adapter 1602 includes a body 1603 having a tapered hole 1304 for receiving a spring arm connector (not shown) from another component of the. A cavity 1606 at the narrow end tapered hole 1604 and wider than the tapered hole at that end allows spring arm connectors to expand
when fully inserted into the adapter 1602, thereby holding the adapter 1602 to the component that includes the spring arms. In FIG. 16A-16D, four radial male pin connectors 1630 and one axial male pin connector 1632 extend from the body 1603 for connecting to other components.

[0164] FIG. 17A-17E show a flower button 112 having a female pin connector receptacle 1704 for attaching the flower button to another component having a male pin connector. FIGS. 18A-18D show a rock component 1802 that is shaped like a rock having multiple male pin connectors 1804. Rock 1802 can be used as a base of a structure, for example, as a free standing feature of the play scape. Silk flower skirts can be attached to posts on the play scape and can also be attached to the character.

[0165] The invention is not limited to any particular component set, and various embodiments will use different components.

[0166] The invention is also not limited to any particular theme. Some example themes can include fairies, pirates, and natural elements.

[0167] A kit also includes characters that inhabit the. In some embodiments, the characters are associated with a theme, such as fairies or pirates. FIGS. 18 to 32 show example of various characters that are used in some embodiments. Characters may be constructed of components that can be disassembled and exchanged between characters. Such components may include body, head, hair, and wings. Interchangeable elements can be of different colors, so that when the components are interchanged between characters, different color combinations can be created.

[0168] In some embodiment, instead of the wings being “C shaped clips” that are already attached to the torso, they are holes in the torso that allow for the hands to be used for a dual purpose . . . hands and wing clips. The wings are opened at the opening and closing it. It also allows for other things besides wings to be attached to the doll’s torso.

[0169] FIGS. 19 and 20 shows fairy characters that are assembled from multiple components. FIGS. 21 shows a disassembled fairy that includes a head, an upper torso, a lower torso, a ring positioned between the upper torso and the lower torso, jointed arms, jointed legs, feet/shoes on the bottom of the jointed legs, upper wings and lower wings. The various parts from the various characters can be exchanged to create new characters by mixing and matching the features from various characters.

[0170] FIGS. 22 and 23 show front views of a fairy character.

[0171] FIG. 24 shows a back view of fairy character.

[0172] FIGS. 25 and FIG. 26 shows a butterfly character, and FIGS. 27 and 28 show disassembled views of a butterfly character. The components of the butterfly include a head, two antennae, an abdomen, upper wing sections, and lower ring sections.

[0173] FIGS. 29, 30, and 31 show images of a butterfly character.

[0174] FIG. 32 shows an image of a disassembled view of a butterfly character and a disassembled fairy character.

[0175] Fairies and other characters can be assembled in the same way. Mating parts are made of softer material so contraction friction keeps together. The lower diameter hardness of plastic keeps the parts together. Teeth inside softer stays put where put it. This design also makes for more lenient manufacturing tolerances, so that parts can be assembled more economically. A play set can be associated with a story or narrative. The narrative can be described in a booklet that comes with the set or with electronic media content that comes with the equipment or that is downloadable. The narrative includes the play scape and the characters, and the use can build the structure and inhabit it with the characters.

[0176] In some embodiments, parts that are shown in the drawings are featureless on the sides that are not visible, and a design for the parts are shown by the available drawings.

[0177] A preferred method or apparatus of the present invention has many novel aspects, and because the invention can be embodied in different methods or apparatuses for different purposes, not every aspect need be present in every embodiment. Moreover, many of the aspects of the described embodiments may be separately patentable. The invention has broad applicability and can provide many benefits as described and shown in the examples above. The embodiments will vary greatly depending upon the specific application, and not every embodiment will provide all of the benefits and meet all of the objectives that are achievable by the invention.

[0178] In the following discussion and in the claims, the terms “including” and “comprising” are used in an open-ended fashion, and thus should be interpreted to mean “including, but not limited to . . . .” To the extent that any term is not specially defined in this specification, the intent is that the term is to be given its plain and ordinary meaning. The accompanying drawings are intended to aid in understanding the present invention and, unless otherwise indicated, are not drawn to scale.

[0179] Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made to the embodiments described herein without departing from the spirit and scope of the invention as defined by the appended claims. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the disclosure of the present invention, processes, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present invention. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, compositions of matter, means, methods, or steps.
a hole for accepting the pin connector, the hole interior having a portion composed of a material softer than the pin for gripping the pin.

2. The toy construction set of claim 1 in which the female connector includes a tapered shaft having a shaft length such that the springs arms from a connecting element extend through the shaft, the tips of the spring arms extending out of the shaft and moving outward to secure the two elements to each other.

3. The toy construction set of claim 1 in which the at least one trunk element is stackable with additional trunk elements.

4. The toy construction set of claim 1 in which the inner diameter of the female connector of the second type comprises a material softer than the material of the mating pin.

5. The toy construction set of claim 3 in which the inner diameter of the female connector of the second type comprises teeth composed of the material softer than the pin for gripping the pin.

6. The toy construction set of claim 1 further comprising at least one leaf element, the leaf element including a connector of the second type.

7. The toy construction set of claim 1 further comprising at least one ornamental element including a mating connector of the second type for attaching to a mating connector of the second type on the trunk element or on the branch elements.

8. The toy construction set of claim 1 in which the toy construction set is tree-themed and in which at least one trunk element appears to be a portion of a tree truck and the branch element appears to be a tree branch.

9. The toy construction set of claim 1 further comprising at least two character figures, each character figure composed of multiple parts, the parts of each character figure being capable of being disassembled and exchanged between the figures.

10. The toy construction set of claim 1 in which the elements of the play simple follow a theme and in which the character figures dressed in accordance with the theme of the structure.

11. The toy construction set of claim 1 in which the trunk element is cylindrically shaped.

12. The toy construction set of claim 1 in which the pin on the connectors of the second type is at least twice as long and the depth of the connectors of the female type, allowing more than one element to be positioned on each pin.

13. The toy construction set of claim 1 in which the elements connected by connectors of the second type are rotatable without detaching.

14. The toy construction set of claim 1 further comprising adaptor pieces that can re-orient the direction of a connection.

15. The toy construction set of claim 1 further a book including themed designs.

16. A construction constructed from elements of the toy construction set of claim 1 comprising multiple trunk elements stacked to provide a central stacked structure and multiple branch elements extending from the central structure.

17. The construction of claim 16 further including a second a second stack of trunk elements to produce a second central structure, the second central structure connected to the first central structure by one or more branch elements.

18. The construction of claim 16 in which the construction is tree-themed and the at least one branch element comprise a tree portion and a tree branch trunk element.

19. The invention as described in the application above.

20. The designs of the elements of the construction set as described in the accompanying drawings.

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