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### **KIT OF PARTS TO FORM CONNECTOR FOR AN ASSEMBLY TOY AND CONNECTOR FORMED THEREFROM**

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#### **Abstract**

In an aspect, a kit of parts includes a first and second connector portions and a decorative element. Each connector portion has a connector-to-building-element projection and at least one intra-connector projection. A second end of the second connector portion is releasably engageable with the at least one intra-connector projection on the first connector portion to releasably connect the first and second connector portions together with decorative element retaining surfaces of the first and second connector portions facing one another, and spaced apart. The decorative element is positionable between the retaining surfaces of the first and second connector portions. The decorative element includes at least one intra-connector pass-through aperture to permit the at least one intra-connector to pass therethrough to connect with the second connector portion.

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## Background/Summary

### CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. patent application Ser. No. 18/441,880 filed Feb. 14, 2024, the contents of which are incorporated herein by reference in their entirety, where permitted.

### FIELD OF THE DISCLOSURE

[0002] The present disclosure generally relates to building elements for assembly toys. More particularly, the present disclosure relates to improved connectors for coupling various building elements, such as blocks, to form a figurine, a vehicle, or other plaything. Assembly toys are assembled by combining various building elements of a set of compatible toy building elements.

### DESCRIPTION OF THE RELATED ART

[0003] Building block toys have been a staple in the toy boxes of children for generations. These toys not only provide hours of entertainment, but they also play a crucial role in a child's development. Building block toys help children develop a wide range of skills, including fine motor skills, spatial awareness, creativity, and problem-solving abilities.

[0004] When children play with building blocks, they use their hands and fingers to grasp, stack, and manipulate the blocks, which helps to develop their fine motor skills. Additionally, building blocks offer children the opportunity to explore concepts such as balance, symmetry and proportion, leading to the development of spatial awareness and mathematical thinking. Moreover, building block toys encourage creativity and imagination as children construct their own unique creations, and they also foster problem-solving abilities as children figure out how to build structures that will not collapse.

[0005] Incorporating felt and other soft fabrics in building blocks for child development can have a positive impact on a child's cognitive and sensory development. Felt is a soft and tactile material that provides a unique sensory experience for young children. By integrating felt into building blocks and other similar toys, children can engage in sensory exploration and tactile play, which can enhance their fine motor skills and hand-eye coordination.

[0006] Additionally, felt can be a versatile material for building blocks, allowing children to practice creative thinking and problem-solving as they construct and manipulate the blocks. The soft nature of felt also makes it safe for young children to handle and play with, reducing the risk of injury compared to traditional hard building materials.

[0007] Toys that are assembled from various components may include connector pieces that removably couple the components together to form recognizable objects, such as animal figurines and vehicles. Known connector pieces may include portions adapted to engage with portions of the building components. It would be an improvement over known connector pieces to include decorative and/or tactile elements as part of the connector pieces.

### SUMMARY

[0008] The present disclosure provides embodiments of kits of parts which can be used to form connectors.

[0009] In an aspect, a kit of parts is provided and includes a first connector portion, a second connector portion and a decorative element. The first connector portion has a first end with a connector-to-building-element projection and a second end at least one intra-connector projection. The connector-to-building-element projection of the first connector portion is engageable with a building element aperture on a first building element to connect the first connector portion thereto. The first connector portion further includes a decorative element retaining surface of the first

connector portion. The second connector portion has a first end with a connector-to-building-element projection, and a second end. The second connector portion further includes a decorative element retaining surface of the second connector portion. The connector-to-building-element projection of the second connector portion is engageable with a building element aperture on a second building element to connect the second connector portion thereto. The second end of the second connector portion is releasably engageable with the at least one intra-connector projection on the first connector portion to releasably connect the first and second connector portions together with the decorative element retaining surface of the first connector portion and the decorative element retaining surface of the second connector portion facing one another, and spaced apart from one another. The decorative element is positionable between the decorative element retaining surfaces of the first and second connector portions. The decorative element includes at least one intra-connector pass-through aperture to permit the at least one intra-connector to pass therethrough to connect with the second connector portion.

[0010] In another aspect, a kit of parts is provided and includes a first connector portion, a second connector portion, and a third connector portion. The first connector portion has a first end with a connector-to-building-element projection and a second end having at least one intra-connector projection. The connector-to-building-element projection of the first connector portion is engageable with an aperture on a first building element to connect the first connector portion thereto. The first connector portion further includes a decorative element retaining surface of the first connector portion. The second connector portion has a first end with a connector-to-building-element projection, and a second end. The connector-to-building-element projection of the second connector portion is engageable with an aperture on a second building element to connect the second connector portion thereto. The second end of the second connector portion is releasably engageable with the at least one intra-connector projection on the first connector portion to releasably connect the first and second connector portions together. The third connector portion has a first end with a functional element that is one of a connector-to-movable-element projection or a connector-to-movable-element aperture, and further has a second end. The functional element of the third connector portion is engageable with another functional element on a movable element (such as a vehicle trailer). The second end of the third connector portion is releasably engageable with the at least one intra-connector projection on the first connector portion to releasably connect the first and third connector portions together.

[0011] In yet another aspect, a kit of parts is provided, and includes a single connector portion and a decorative element. The single connector portion includes a first flange having a first side with a first connector-to-building-element projection extending therefrom and a second side having a first decorative element retaining surface thereon. The single connector portion includes a second flange having a first side with a second connector-to-building-element projection extending therefrom and a second side having a second decorative element retaining surface thereon that faces the first decorative element retaining surface and an intermediate member connecting the second side of the first flange with the second side of the second flange. The first flange has a first flange cross-sectional dimension, and the second flange has a second flange cross-sectional dimension. The decorative element has an intra-connector pass-through aperture therethrough to fit around the intermediate member. The intra-connector pass-through aperture has an aperture cross-sectional dimension that is smaller than both the first flange cross-sectional dimension and the second flange cross-sectional dimension. The decorative element is flexible to permit the intra-connector pass-through aperture to enlarge to fit over at least one of the first and second flanges for positioning between the first and second flanges around the intermediate member.

[0012] In yet another aspect, the connector includes two connector portions. Each connector portion has a flange having a first side and a second side. The first side of the flange includes a connector-to-building-element projection extending therefrom. In one embodiment, the connector-to-building-element projection includes a plurality of resilient arms having an engagement member

on the end of the corresponding extension. In another embodiment, connector-to-building-element projection may be a connector-to-movable-element projection such as a rotatable connectable portion. The second side of the flange has at least one protrusion and at least one opening therethrough. According to one embodiment, the opening includes a spacer that extends from the second side of the flange such that the corresponding opening is lengthened. According to one embodiment, the protrusion and openings are shaped so that when the two connector portions are pressed together, the openings and protrusions form an interference fit to form the connector.

[0013] In an embodiment, the connector includes a decorative element. The decorative element includes at least one through hole. The hole is sized and positioned to accommodate the protrusion and/or the spacer to extend through the decorative element and join with the corresponding openings and protrusions of the opposite connector portion such that the decorative element is captured between the two connector portions.

[0014] In an embodiment, the connector includes two retaining elements, a decorative element captured therebetween and a connector portion that rotatably connects with the retaining elements and decorative element. Each retaining element includes a body having a first side and a second side. The second side of the body includes at least one protrusion, at least one opening therethrough and at least one central opening therethrough. The connector portion includes a flange. The first side of the flange includes a connector-to-building-element projection extending therefrom and the second side of the flange includes a connector-to-movable-element projection extending therefrom. The decorative element includes at least one hole therethrough and a central opening. The protrusions of the retaining elements are extended through the respective holes in the decorative element and corresponding hole in the opposing retaining element such that the decorative element is secured therebetween. The connector-to-movable-element projection of the connector portion extends through the central opening of the retaining elements and the decorative element thereby rotatably coupling the retaining elements and the decorative element to the connector portion.

[0015] In an embodiment, the connector includes two connector portions and a decorative element. The first connector portion has a flange having a first side and a second side. The first side of the flange includes a connector-to-building-element projection extending therefrom. In one embodiment, the connector-to-building-element projection includes a plurality of resilient arms having an engagement member on the end of the corresponding extension. The second side of the flange includes a connector-to-movable-element projection extending therefrom. The second connector portion includes a connector-to-building-element projection and a connector-to-movable-element projection extending opposite from the connector-to-building-element projection. The decorative element is disposed between the two connector portions and includes a central opening therethrough. At least a portion of the connector-to-movable-element projection of the first connector portion and/or second connector portion extends through the central opening of the decorative element and rotatably couples with the opposing connector-to-movable-element projection of opposite connector portion.

[0016] According to another embodiment, the connector includes a connector portion and a decorative element. The connector portion includes a first portion and a second portion. The first portion of the connector portion has a flange with a connector-to-building-element projection extending from a first side of the flange and a plurality of protrusions extending from the second side of the flange. The second portion of the connector portion includes a flange with a connector-to-building-element projection extending from the first side of the flange. The decorative element includes a plurality of holes and is disposed between the first and second connector-to-building-element projections. The protrusions of the first portion extend through the corresponding holes of the decorative element. The second side of the flange of the second portion is pressed against the second side of the flange of the first portion such that the protrusions engage with the perimeter of the flange of the second portion thereby capturing the decorative element between the first and second portions of the connector portion.

[0017] The present disclosure provides embodiments of assembly toys. In an exemplary embodiment, the assembly toy includes at least one building element and at least one connector that releasably couples the building element to each other to form a figurine. Each building element includes at least one aperture that engages the connector such that the building elements are releasably coupled together. In an exemplary embodiment, the assembly toy has three building elements: a first building element (e.g., a first block), a second building element (e.g., a second block), and a third building element (e.g., a third block).

[0018] The first block may be releasably attached to the second block via two connectors. In an exemplary embodiment, the connectors used to join the first block to the second block are composed of two connector portions joined together without a decorative element. In another embodiment, the connectors used to join the first block to the second block include at least one decorative element. The second block is releasably coupled to the third block via a single connector having a decorative element.

[0019] The present disclosure provides embodiments of assembly toys. In an exemplary embodiment, the assembly toy includes at least one building element and at least one connector that releasably couples the building element to each other to form a vehicle. Each building element includes at least one aperture that engages the connector such that the building elements are releasably coupled together. In one exemplary embodiment, the assembly toy has seven building elements: main block, two front wheels, two rear wheels, a figurine, and a windshield. The two front wheels of this embodiment are releasably coupled to the main block via a connector made up of two different connector portions that form an axle. The two rear wheels are releasably coupled to the main block via a rear axle element. The rear axle element includes a first and second side flange and a body that connects the first and second side flange. The first and second side flanges include connector-to-building-element projections that extend away from the first and second side flanges. The body of the rear axle element has a top surface and a bottom surface. The top surface includes a connector-to-building-element projection extending therefrom. Similarly, the bottom surface includes a connector-to-building-element projection therefrom.

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## Description

### BRIEF DESCRIPTION OF THE DRAWINGS

[0020] A more complete appreciation of the present disclosure and many of the attendant advantages thereof will be readily obtained as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

[0021] FIG. 1 is a front perspective view illustrating a connector attaching two building elements together according to an embodiment of the disclosure;

[0022] FIG. 2A is perspective view of a kit of parts that can be used to form the connector of FIG. 1 according to an embodiment of the disclosure;

[0023] FIG. 2B is a cross-sectional view of the connector of FIG. 1;

[0024] FIG. 3A is a front perspective view of a first connector portion forming a component of the connector of FIG. 1;

[0025] FIG. 3B is a rear perspective view of the first connector portion of FIG. 3A;

[0026] FIG. 4A illustrates other exemplary embodiments of connector portion elements according to embodiments of the disclosure;

[0027] FIG. 4B illustrates the assembly of one of the connector portion elements of FIG. 4A being formed by two connector portion elements according to an embodiment of the disclosure;

[0028] FIG. 4C illustrates the assembly of another one of the connector portion elements of FIG. 4A being formed by two connector portion elements according to an embodiment of the disclosure;

[0029] FIG. 5 is a front perspective view of the decorative element shown in FIG. 2;  
[0030] FIG. 6 is an exploded view of a kit of parts according to another embodiment of the disclosure;  
[0031] FIG. 7 is a perspective view of the connector of FIG. 6;  
[0032] FIG. 8 is an exploded view of a connector according to another embodiment of the disclosure;  
[0033] FIG. 9 perspective view of the connector of FIG. 8;  
[0034] FIG. 10 is a side elevation view of a kit of parts according to another embodiment of the disclosure;  
[0035] FIG. 11 is a side elevation view of a connector according to another embodiment of the disclosure;  
[0036] FIG. 12 is perspective view of a kit of parts according to another embodiment of the disclosure;  
[0037] FIG. 13 is a side perspective view of the connector of FIG. 12  
[0038] FIG. 14 is a side elevation view of a toy assembly according to an embodiment of the present disclosure;  
[0039] FIG. 15 is a front elevation view of the toy assembly of FIG. 14  
[0040] FIG. 16 is an exploded view of the toy assembly of FIG. 14;  
[0041] FIG. 17 is a perspective view of another toy assembly according to an embodiment of the present disclosure;  
[0042] FIG. 18 is a partial exploded view of the toy assembly of FIG. 17;  
[0043] FIG. 19 is a partial exploded view of the toy assembly of FIG. 17;  
[0044] FIG. 20 is a front elevation view of a rear axle element of the toy assembly of FIG. 17; and  
[0045] FIG. 21 is a top plan view of a vehicle and trailer that can be formed with building elements and which are connected to one another movably, with the connectors shown in FIG. 4A.

#### DETAILED DESCRIPTION

[0046] For simplicity and clarity of illustration, where considered appropriate, reference numerals may be repeated among the Figures to indicate corresponding or analogous elements. In addition, numerous specific details are set forth in order to provide a thorough understanding of the embodiment or embodiments described herein. However, it will be understood by those of ordinary skill in the art that the embodiments described herein may be practiced without these specific details. In other instances, well-known methods, procedures and components have not been described in detail so as not to obscure the embodiments described herein. It should be understood at the outset that, although exemplary embodiments are illustrated in the figures and described below, the principles of the present disclosure may be implemented using any number of techniques, whether currently known or not. The present disclosure should in no way be limited to the exemplary implementations and techniques illustrated in the drawings and described below.

[0047] The terms ‘comprising’ and ‘including’ and their various conjugations (e.g., ‘comprises’) will be understood to be inclusive and open-ended, and not exclusive. This means that if an element A includes or comprises an element B, it will be understood that element A could include or comprise other elements in addition to including or comprising element B. The term ‘having’ and its various conjugations are also to be understood as being open-ended in the same way as ‘comprising’ and ‘including’. These terms are not to be interpreted to exclude the presence of other features, steps or components.

[0048] As used herein, the terms “about” and “approximately” are meant to cover variations that may exist in the upper and lower limits of the ranges of values, such as variations in properties, parameters, and dimensions.

[0049] Various terms used throughout the present description may be read and understood as follows, unless the context indicates otherwise: “or” as used throughout is inclusive, as though written “and/or”; singular articles and pronouns as used throughout include their plural forms, and

vice versa; similarly, gendered pronouns include their counterpart pronouns such that pronouns should not be understood as limiting anything described herein to use, implementation, performance, etc. by a single gender; “exemplary” should be understood as “illustrative” or “exemplifying” and not necessarily as “preferred” over other embodiments. Further definitions for terms may be set out herein; these may apply to prior and subsequent instances of those terms, as will be understood from a reading of the present description. It will also be noted that the use of the term “a” or “an” will be understood to denote “at least one” in all instances unless explicitly stated otherwise or unless it would be understood to be obvious that it must mean “one”.

[0050] Modifications, additions, or omissions may be made to the systems, apparatuses, and methods described herein without departing from the scope of the disclosure. For example, the components of the systems and apparatuses may be integrated or separated. Moreover, the operations of the systems and apparatuses disclosed herein may be performed by more, fewer, or other components and the methods described may include more, fewer, or other steps. Additionally, steps may be performed in any suitable order. As used in this document, “each” refers to each member of a set or each member of a subset of a set.

[0051] As used in this document, “attached” in describing the relationship between two connected parts includes the case in which the two connected parts are “directly attached” with the two connected parts being in contact with each other, and the case in which the connected parts are “indirectly attached” and not in contact with each other, but connected by one or more intervening other part(s) between.

[0052] As used in this document, terms describing relative positions of elements such as ‘top’, ‘upper’, ‘bottom’, ‘lower’, or other analogous terms will be understood to refer to the placement of the described element during use of the apparatus of which it is a part unless the context would make it clear that it is otherwise. It will be understood that the aforementioned placement of an element, for example, can still be considered its placement even when the object that it is a part of is lying in some position other than the position in which it will be used. As an example, if reference is made to a device having an upper member, it will be understood that the upper member is being described as having an upper position when the device that it is a part of is in use or is in position for use, unless the context would make it clear that it is otherwise. Further to this example, it will be understood that the aforementioned upper member of the object can still be considered its upper member even when the object is lying on its side, for storage, or for transport, or for some other reason.

[0053] The embodiments of the disclosures described herein are exemplary (e.g., in terms of materials, shapes, dimensions, and constructional details) and do not limit by the claims appended hereto and any amendments made thereto. Persons skilled in the art will appreciate that there are yet more alternative implementations and modifications possible, and that the following examples are only illustrations of one or more implementations. The scope of the disclosure, therefore, is only to be limited by the claims appended hereto and any amendments made thereto.

[0054] Referring to FIG. 1, an exemplary embodiment of a coupling element **10** (also referred to as connector **10**) according to the present disclosure is shown. In an embodiment, connector **10** includes decorative element **40** disposed between a first coupler **220a** (also referred to as a first connector portion **220a**), and a second coupler **220b** (also referred to as a second connector portion **220b**), as shown in FIG. 2A. The decorative element **40** may be composed of any suitable material, such as, for example, plastic, wood, ceramic, cloth material, or any combination thereof. According to a preferred embodiment, decorative element **40** is formed from a soft fabric, such as felt.

[0055] As shown in FIG. 1, connector **10** may be used to releasably connect two building elements **12**. Alternatively, connector **10** may join building element **12** with other structures, as will be discussed below. According to one embodiment building elements **12** are shaped as rectangular prisms. The shape of building element **12** is not limited to a rectangular prism and could be flat rectangular, flat triangular, triangular prismic, pyramidal, spherical, or any other shape polyhedron,

non-polyhedron, or a combination of polygonal and curved surfaces or any other suitable shape. Building element **12** has one or more exterior surfaces **13**. According to one embodiment, building element aperture **14** is centrally located on at least one exterior surface **13** as is shown in FIG. **1**, although the build element aperture need not be (also as shown in FIG. **1**). The building elements **12** can be coloured by silk screen printing, heat transfer printing, painting, engraving, or any other suitable coloration technique.

[0056] Referring now to FIGS. **3A** and **3B**, the first and second connector portions **220a** and **220b** each have a body **223**, and have a first end **223a** and a second end **223b**. At the first end **223a** may be a coupling portion **24** (also referred to as a connector-to-building-element projection **24**), which permits the first or second connector portion **220a** or **220b** as the case may be, to connect to a building element **12**. At the second end **223b** is an intra-connector structure **221** that permits each of the first and second connector portions **220a** and **220b** to connect to each other. An example of a suitable intra-connector structure **221** is shown in FIGS. **3A** and **3B**.

[0057] The body **223** may optionally have a flange **22** thereon, having a first side **22a** and a second side **22b**. In embodiments in which the flange **22** is provided, the connector-to-building-element projection **24** may extend from the first side **22a** of the flange **22**, and the intra-connector structure **221** may extend from the second side **22b** of the flange **22**.

[0058] The connector-to-building-element projection **24** includes a plurality of flexible extensions **25** (also referred to as resilient arms **25**). In the example shown, the resilient arms **25** extend from the first side **22a** of the flange **22**. In the exemplary embodiment shown, the connector-to-building-element projection **24** includes three resilient arms **25** extending from the first side **22a** of the flange **22**. However, it is contemplated that more or fewer resilient arms **25** may be used. The resilient arms **25** are insertable into the building element aperture **14** and resiliently flex so as to releasably secure the intra-connector structure **221** to the building element **12** by press-fit.

Alternatively, the resilient arms **25** may each include a locking projection **26** (FIG. **6**) at their free ends, which engages a shoulder (not shown) in the building element aperture **14** in order to releasably secure the first connector portion **220** to the building element **12** by a snap fit. Any other suitable way of connecting the first connector portion **220** to the building element **12** may alternatively be used.

[0059] It is advantageous that the connectors **10** employ connector-to-building-element projection **24** and the building elements employ building element apertures **14** so that the surface of the building elements **12** or more specifically, of a construction that is formed with the building elements **12** does not have connector projections extending from it, which can detract from the appearance and realism of the construction. An example of a construction formed using the building elements is shown as an assembly toy **1000** in FIGS. **14-16**.

[0060] With reference to FIGS. **3A** and **3B**, the second side **22b** of the flange **22** of at least one of the first and second connector portions **220a** and **220b** includes at least one protrusion **28**. The protrusion **28** may also be referred to as an intra-connector projection **28**. The intra-connector projection **28** is sized to engage the other of the first and second connector portions **220a** and **220b**, so as to connect the first connector portion **220a** and the second connector portion **220b** together.

[0061] In an embodiment, the second side **22b** of the flange **22** of the other of the first and second connector portions **220a** and **220b** may optionally include at least one aperture **27** for receiving the intra-connector projection **28**. The opening **27** may be referred to as an intra-connector aperture **27**. The intra-connector projection **28** is sized to fit in the intra-connector aperture **27** so as to connect the first connector portion **220a** and the second connector portion **220b** together. The intra-connector projection **28** may fit in the intra-connector aperture **27** in any suitable way, e.g., by a press-fit or by incorporating a plurality of resilient arms into the intra-connector projection **28** with projections at their free ends, and a shoulder on the intra-connector aperture **27** so as to provide a snap fit. Embodiments shown in FIGS. **6** and **7**, and in FIGS. **8** and **9**, show a snap fit, in which each intra-connector projection **28** itself comprises a plurality of resilient arms **290** each with a



locking projection **291** thereon at the free end of the resilient arm **290**, and in which each intra-connector aperture **27** has a locking shoulder **292** that the locking projections **291** engage after passing through the intra-connector aperture **27**.

[0062] In the exemplary embodiment shown in FIG. 3B, the second side **22b** of the flange **22** of each of the first and second connector portions **220a** and **220b** includes two intra-connector projections **28** and two intra-connector apertures **27** thereon.

[0063] Optionally, at least one spacer **29** is provided on the second side **22b** of the flange **22** of at least one of the first and second connector portions **220a** and **220b**, in order to provide at least a selected spacing between the second sides **22b** of the flanges **22** of the first and second connector portions **220a** and **220b** when the first and second connector portions **220a** and **220b** are connected together. In the embodiment shown, the at least one spacer **29** extends from the second side **22b** of the flange **22** and surrounds the intra-connector apertures **27** of each of the first and second connector portions **220a** and **220b**. The spacer **29** may be monolithically formed with the flange **22** or may be welded or otherwise fixed to the second side **22b** of the flange **22**. The selected spacing provided between the second sides **22b** of the flanges **22** of the first and second connector portions **220a** and **220b** may be sized to receive the decorative element **40**. It is alternatively possible to provide at least one spacer **29** on the proximal end of one or more of the intra-connector projections **28**. It is alternatively possible to omit the at least one spacer **29** and to connect the first and second connector portions **220a** and **220b** while taking care not to crush the decorative element **40** therebetween.

[0064] The decorative element **40** includes at least one through hole **47** (also referred to as an intra-connector pass-through aperture **47**) therethrough. In the exemplary embodiment shown in FIG. 5, the decorative element includes four intra-connector pass-through apertures **47**. The intra-connector pass-through apertures **47** are sized to accommodate structures that permit the first and second connector portions **220a** and **220b** to be connected to one another with the decorative element captured therebetween, as shown in the cross-sectional view shown in FIG. 2B.

[0065] To assemble the connector **10** shown in FIGS. 1-3B, the first and second connector portions **220a** and **220b** are pressed together such that the intra-connector projections **28** and the spacers **29** on each of the first and second connector portions **220a** and **220b** are pushed through the intra-connector pass-through apertures **47** in the decorative element **40**, such that the intra-connector projections **28** are received in the intra-connector apertures **27** of each of the first and second connector portions **220a** and **220b**.

[0066] In an alternative embodiment, the at least one intra-connector projection **28** may engage a peripheral surface **59** of the second connector portion **220b** so as to connect the first connector portion **220a** and the second connector portion **220b** together, as shown in FIGS. 12 and 13. Optionally, the engagement between the at least one intra-connector projection **28** and the peripheral surface **59** may be by way of a press-fit. Alternatively, each of the at least one intra-connector projection **28** may be resilient and may include a projection at its free end so as to engage a shoulder (e.g., which may be formed by the first side **22a** of the flange **22**) on the second connector portion **220b**.

[0067] In the embodiment shown, the first connector portion **220a** includes four intra-connector projections **28** at the second end **223b** of the first connector portion **220a**. In some embodiments a single intra-connector projection **28** may be provided, which extends around more than 180 degrees of the peripheral surface **59** of the second connector portion **220b**. In other embodiments, two intra-connector projections **28** may be provided, which are opposite one another and which may be arcuately shaped to sufficiently capture the peripheral surface **59** of the second connector portion **220b**. In other embodiments, three or more intra-connector projections **28** may be provided, which, if spaced apart to cover more than 180 degrees of the peripheral surface **59** of the second connector portion **220b**, can capture the intra-connector projections **28**. Any suitable number of intra-connector projections **28** may be used, including more than four. In the embodiment shown, the

first connector portion **220a** includes a flange **22** and the one or more intra-connector projections **28** are provided on the second side **22b** of the flange **22**.

[0068] The one or more intra-connector projections **28** make up a first intra-connector structure shown at **222** at the second end **223b** of the first connector portion **220a**, and the peripheral surface **59** of the second connector portion **220b** may make up a second intra-connector structure shown at **224** at the second end **223b** of the second connector portion **220b**. It will be noted that the flange **22** of the second connector portion **220b** in FIGS. **12** and **13** is smaller than the flange **22** of the first connector portion **220a** in FIGS. **12** and **13**.

[0069] The connector-to-building-element projection **24** may be provided at the first ends **223a** of each of the first and second connector portions **220a** and **220b**, e.g., on the first sides **22a** of the flanges **22** of the first and second connector portions **220a** and **220b**.

[0070] In the embodiment shown in FIGS. **12** and **13**, at least one spacer (not shown) may optionally be provided on the intra-connector projections **28** to maintain at least a selected spacing between the second sides **22b** of the flanges **22** of the first and second connector portions **220a** and **220b**, so as to inhibit crushing of the decorative element **40**.

[0071] To assemble the connector **10** depicted in FIGS. **12** and **13**, the intra-connector projections **28** of the first connector portion **220a** are inserted through the intra-connector pass-through apertures **47** of the decorative element **40** and onto the peripheral surface **59** of the second connector portion **220b**.

[0072] In another exemplary embodiment, the first side **22a** is substantially planar, as can be seen in connector portion **20d** shown in FIGS. **6** and **7**.

[0073] In the embodiment shown in FIGS. **1-3B**, the first and second connector portions **220a** and **220b** are identical to one another, thereby permitting the manufacture of a single type of member, that can be assembled with another one of itself to form a connector **10**, without necessitating the manufacture of two different parts.

[0074] The first and second connector portions **220a** and **220b** shown in FIGS. **1-3B**, and the first and second connector portions **220a** and **220b** shown in FIGS. **12-13**, both include a connector-to-building-element projection **24** at the first ends **223a** of the bodies **223** thereof, so as to be used for connecting first and second building elements **12**, as shown in FIGS. **1**, **14**, and **16**. It will be noted that the connector-to-building-element projections **24** shown at FIGS. **12** and **13** are intended to be simple representations of the connector-to-building-element projections **24** shown in FIGS. **1-9**. In other words, the connector-to-building-element projections **24** shown in FIGS. **12** and **13** may be the same as the connector-to-building-element projection **24** shown in FIGS. **1-9**. Alternatively, however, the first and second connector portions **220a** and **220b** may include some other features at the first ends **223a**. For example, referring to FIGS. **4A-4C**, the connector **10** may include a first connector portion **220a** that is similar to the first connector portion **220a** shown in FIGS. **1-3B**, and a second connector portion **220b** which includes a functional element **230** (for example, a connector-to-movable-element projection **231**) instead of the connector-to-building-element projection **24**, as shown in FIG. **4B**. In yet another embodiment, the connector **10** may include a first connector portion **220a** that is similar to the first connector portion **220a** shown in FIGS. **1-3B**, and a second connector portion **220b** which includes a functional element **230** (for example, a connector-to-movable-element aperture **232**) instead of the connector-to-building-element projection **24**, as shown in FIG. **4C**.

[0075] The connector-to-movable-element projection **230** permits the connector **10** to connect to an element that is intended for movement relative to the building elements **12** to which the connector **10** is connected. For example, in the embodiment shown in FIGS. **4A-4C**, the connector-to-movable-element projection **231** connects to a connector-to-movable-element aperture **232** to form a ball-and-socket joint that can act, for example, as a trailer hitch between a vehicle **296** and a trailer **298** each formed from building elements **12**, shown in FIG. **21**. In such an embodiment, the connector-to-movable-element aperture **232** may be the movable element that the connector-to-

movable-element projection **231** is movably connected to. Similarly, the connector-to-movable-element projection **231** may be the movable element that the connector-to-movable-element aperture **232** is connected to.

[0076] Thus, one of the first and second connector portions **220a** and **220b** may include a connector-to-movable-element projection **231** or a connector-to-movable-element aperture **232** thereon instead of the connector-to-building-element projection **24**. It will further be noted that the first and second connectors **220a** and **220b** in FIGS. 4A-4C could alternatively have the first and second intra-connection structures **222** and **224** shown in FIGS. 12 and 13 instead of the intra-connection structure **221** shown in FIGS. 3A and 3B.

[0077] Referring now to FIGS. 8-9, according to other embodiments, connector **10** includes a decorative element **40** disposed between the first and second connector portions **220a** and **220b**. In this embodiment, the first connector portion **220a** itself includes a first portion **240** and a second portion **242**. The first portion **240** of the first connector portion **220a** includes the flange **22** and the connector-to-building-element projection **24** at the first end **223a** (e.g., on the first side **22a** of the flange **22**). The first portion **240** further includes a shaft **241** that extends from the second side **22b** of the flange **22**. The second portion **242** of the first connector portion **220a** is rotatably mountable onto the shaft **241**. The second portion **242** of the first connector portion **220a** connects with the second connector portion **220b** by way of any suitable intra-connector structure, such as the intra-connector structure **221**, at the second end **223b**. The intra-connector structure **221**, as described above, includes at least one intra-connector projection **28** and at least one intra-connector aperture **27**. Alternatively, the intra-connector structures shown at **222** and **224** shown in FIGS. 12 and 13 may alternatively be used to connect the second portion **242** of the first connector portion **220a** to the second connector portion **220b**.

[0078] In the embodiment shown, the shaft **241** may pass through shaft receiving apertures **246** provided in the second portion **242** of the first connector portion **220a**, and the second connector portion **220b**, and the shaft receiving aperture **248** in the decorative member **40**. The fit of the shaft **241** in the shaft receiving apertures **246** and **248** may be loose so as to permit rotation of the assembly (shown at **250**) formed by the second portion **242** of the first connector portion **220a**, the decorative member **40**, and the second connector portion **220b** on the shaft **241**. The decorative member **40** in this embodiment may be shaped to resemble a propellor on an airplane or a boat, and can rotate about the shaft **241**.

[0079] In order to inhibit the second portion **242** of the first connector portion **220a**, the decorative member **40**, and the second connector portion **220b**, from inadvertently being removed from the shaft **241**, the shaft **241** may optionally include a plurality of resilient arms **252**, each having a locking projection **254** at the free end, which is engageable with a shoulder **256** on the second connector portion **220b**. The shoulder **256** may itself be part of the first side **22a** of the flange **22** of the second connector portion **220b**.

[0080] It will be noted that the second connector portion **220b**, does not have a connector-to-building-element projection, a connector-to-movable-element projection, or a connector-to-movable-element aperture thereon.

[0081] As can be seen in FIG. 8, the at least one spacer **29** may be provided on the intra-connector projections **28** and/or the intra-connector apertures **27** to maintain at least the selected spacing between the second sides **22b** of the flanges **22**.

[0082] It will be noted that it is not strictly necessary for each of the first and second connector portions **220a** and **220b** to include a flange **22**. Where a flange **22** is provided, the second side **22b** of the flange **22** serves as a decorative element retaining surface **258**, to engage the decorative element **40** and thereby prevent the decorative element **40** from being pulled off of the first or second connector portion **220a** or **220b** as the case may be. It is alternatively possible however, to provide either or both of the first or second connector portions **220a** and **220b** without a flange **22** and to instead include the decorative element retaining surface **258** directly on the body **223**, an

example of which is shown in FIG. 10.

[0083] As shown in FIG. 10, a first intra-connector structure **260** may be provided at the second end **223b** of the first connector portion **220a**, and a second intra-connector structure **262** may be provided at a second end **223b** of the body of the second connector portion **264**. The first connector structure **260** may include a single intra-connector-projection **28** extending from the second side **22a** of the flange **22**. The second connector structure **262** includes a single, intra-connector aperture **27**, which extends from the decorative element retaining surface **258** that is on the body **223**, and which is positioned to cooperate with the decorative element retaining surface **258** on the second side **22b** of the flange **22** on the first connector portion **220a**, so as to capture the decorative element **40**.

[0084] The decorative element **40** in the embodiment shown in FIG. 10 includes only a single intra-connector pass-through aperture **47** to permit the pass-through of the intra-connector projection **28** and the intra-connector aperture **27**.

[0085] The first connector portion **220a** may have a connector-to-building-element projection **24**, a connector-to-movable-element projection **230**, or a connector-to-movable-element aperture **232**, at the first end **223a** (e.g., extending from the first side **22a** of the flange **22**). Analogously, the second connector portion **220b** may have a connector-to-building-element projection **24**, a connector-to-movable-element projection **230**, or a connector-to-movable-element aperture **232** at the first end **223a**. It will be noted that the connector-to-building-element projections **24** shown at FIG. 10 are intended to be simple representations of the connector-to-building-element projections **24** shown in FIGS. 1-9. In other words, the connector-to-building-element projections **24** shown in FIG. 10 may be the same as the connector-to-building-element projection **24** shown in FIGS. 1-9.

[0086] To assemble connector **10** as shown in FIG. 10, one of the first and second intra-connector structures **260** and **262** is inserted through the intra-connector pass-through aperture **47** of the decorative element **40** before being to the other of the first and second intra-connector structures **260** and **262** thereby capturing decorative element **40** between the decorative element retaining surfaces **258** on the first and second intra-connector structures **260** and **262**.

[0087] Reference is made to FIG. 11, which shows another embodiment of the connector **10**. The connector **10** in FIG. 11 includes a decorative element **40** and a single connector portion **270** that includes first and second flanges **267** and **269**, which are fixed to the body **223** with a selected spacing from one another, and an intermediate member **271** connecting the second side **267b** of the first flange **267** with the second side **269b** of the second flange **269**. The decorative element **40** may be substantially similar to the decorative element **40** shown in FIG. 10 except that the decorative element **40** in FIG. 11 includes a single intra-connector pass-through aperture **47** and at least one slit **272** extending outward from the edge of the intra-connector pass-through aperture **47**, so as to permit the intra-connector pass-through aperture **47** to be flexible to permit the pass-through of one of the flanges **22** of the single connector portion **270**, so as to permit the decorative element **40** to be positioned in the space between the two flanges **22**. While there are two slits **272** shown in FIG. 11, there could be a single slit **272** or three or more slits **272**. At the two ends of the single connector portion **270** may be connector-to-building-element projections **24**. Alternatively, a connector-to-movable-element projection **231**, or a connector-to-movable-element aperture **232** may be provided instead of one of the connector-to-building-element projections **24**. It is alternatively possible for one of the ends of the single connector portion **270** to be free of any structure to connect to a building element **12** or to a movable element. It will be noted that the connector-to-building-element projections **24** shown at FIG. 11 are intended to be simple representations of the connector-to-building-element projections **24** shown in FIGS. 1-9. In other words, the connector-to-building-element projections **24** shown in FIG. 11 may be the same as the connector-to-building-element projection **24** shown in FIGS. 1-9.

[0088] The present disclosure provides embodiments of assembly toys. Assembly toys are assembled by coupling a variety of building elements, such as blocks, together using a variety of

connectors. The assembly toy may use more or fewer building elements, building elements of different sizes, dimensions, and colors, and different types of connectors to assemble the building elements to form a variety of different toys. For illustrative purposes, the assembly toy shown in FIGS. **14-16** resembles a lion. However, the assembly toy may be assembled into a wide variety of toy types, including but not limited to figurines or vehicles. Non-limiting examples of a figurine may include a monkey, a zebra, an alligator, an elephant, a giraffe, a lion, a person, a dinosaur, a dragon or any other type of character. Non-limiting examples of a vehicle may include a truck, a train, a tractor (FIG. **17**), a sailboat, an airplane, or a car.

[0089] Referring now to FIGS. **14-16**, an exemplary embodiment of an assembly toy **1000** according to the present disclosure is shown. The assembly toy **1000** includes at least one building element **12** and at least one connector **10** that releasably couples the building elements **12** to each other to form a figurine, e.g., a lion. The building elements **12** may be wooden blocks having a variety of shapes. However, a person having ordinary skill in the art will appreciate there are a variety of materials the building elements **12** may be composed of. Each building element **12** includes at least one building element aperture **14** that engages with a connector **10** such that the building elements **12** may be releasably coupled together. In the exemplary embodiment shown in FIGS. **14-15**, the assembly toy **1000** has three building elements **12**: a first block shown at **1010**, a second block shown at **1020**, and a third block shown at **1030**. The three building elements **12** are coupled together by three connectors include a connector **10** between the second block **1020** and the third block **1030**, and two connectors **99** between the first block **1010** and the second block **1020** (FIG. **16**).

[0090] Referring to FIG. **16**, the first block **1010** is releasably attached to the second block **1020** via two connectors **99**. The connectors **99** used to connect the first block **1010** and second block **1020** together may be integral elements that include first and second connector-to-building-element projections **24**, and an optional flange **22**. While it is possible for these connectors **99** to hold a decorative element, one is not shown. It will be appreciated that more or fewer connectors **99** may be used to releasably attach first block **1010** to second block **1020**.

[0091] The second block **1020** is releasably attached to the third block **1030** via a single connector **10** having a decorative element **40**. The connector **10** used to connect the second block **1020** to the third block **1030** is composed of two connector portions **220a** joined together with the decorative element **40** captured between the two connector portions **220a**. The decorative element **40** resembles a lion's mane.

[0092] Referring now to FIGS. **17-20**, an exemplary embodiment of an assembly toy **2000** according to the present disclosure is shown. The assembly toy **2000** includes a plurality of building elements **12** including a block **2010** and an accessory piece **2030**. two connectors **97** releasably couple the building element **1010** to first and second front wheels shown at **2020a**, and a connector **95** connects the building element **1010** to first and second rear wheels shown at **2020b**. A connector **99** connects the block **2010** to the accessory piece **2030**. A connector-accessory piece **2040** connects directly into the block **2010**, so as to form a vehicle, e.g., a tractor. Each building element includes at least one building element aperture **14** that engages with a connector such that the building elements may be releasably coupled together.

[0093] Referring to FIG. **18**, the block **2010** is rectangular-prismic shaped and has a plurality of apertures **14**. In the exemplary embodiment shown, the block **2010** is made of wood or a wood derivative. In other embodiments, the block **2010** may be made of any other suitable material such as plastic, metal, or a combination thereof. In one embodiment, the apertures **14** are all the same size and dimension. In another embodiment, the apertures **14** may vary in size such that there are a plurality of different sized apertures **14**.

[0094] The two connectors **97** each include a connector-to-movable-element projection shown at **280** which forms an axle to releasably and rotatably hold one of the front wheels **2020a**. Similarly, the two rear wheels **2020b** are releasably and rotatably coupled to the main block **2010** via two

connector-to-movable-element projections **2052a** and **2054a** on the connector **95**. As shown in FIG. **20**, the connector **95** includes first and second side flanges **2052** and **2054** and a body **2053** that connects the first and second side flanges **2052**, **2054** together, and to the first and second connector-to-building element projections **24**. In one embodiment, the side flanges **2052**, **2054** may be monolithically formed from the body **2053**. In another embodiment, the side flanges **2052**, **2054** may be coupled to the body **2053** via adhesives or welds. The first and second side flanges **2052**, **2054** each include a connector-to-building-element projection **2052a**, **2054a** that extends away from the first and second side flanges **2052**.

[0095] It will be noted that the connector **10** shown in FIGS. **4B** or **4C** could be inserted into a rear aperture **14** on the block **2010** of the assembly toy **2000** to act as a trailer hitch to connect to the other of the connectors **10** shown in FIGS. **4B** and **4C**, mounted to another wheeled vehicle assembly toy.

[0096] In the embodiment shown in FIGS. **17-20** it will be noted that the connectors **99**, **97** and **95** do not include first and second connector portions **220a** and **220b**. Accordingly, such connectors are not assembled but are instead preformed.

[0097] The elements shown in FIGS. **2A**, **10** and **12** may each be considered to be a kit of parts **300** that can be used to form a connector such as the connector **10**. The kit of parts **300** includes a first connector portion (e.g., the first connector portion **220a**) having a first end **223a** with a connector-to-building-element projection (e.g., connector-to-building-element projection **24**) and a second end **223b** having at least one intra-connector projection (e.g., the at least one intra-connector projection **28**). The connector-to-building-element projection **220a** of the first connector portion **220a** is engageable with a building element aperture **14** on a first building element (e.g., building element **1020** or building element **1030**) to connect the first connector portion **220a** thereto. The kit of parts **300** includes a second connector portion (e.g., the second connector portion **220b**) having a first end **223a** with a connector-to-building-element projection (e.g., connector-to-building-element projection **24**), and a second end **223b**. The connector-to-building-element projection **24** of the second connector portion **220b** is engageable with a building element aperture **14** on a second building element (e.g., building element **1020** or building element **1030**) to connect the second connector portion **220b** thereto. The second end **223b** of the second connector portion **220b** is releasably engageable with the at least one intra-connector projection **28** on the first connector portion **220b** to releasably connect the first and second connector portions **220a** and **220b** together with the decorative element retaining surface **258** of the first connector portion **220a** and the decorative element retaining surface **258** of the second connector portion **220b** facing one another, and spaced apart from one another.

[0098] Optionally, the first connector portion **220a** further includes a decorative element retaining surface **258** of the first connector portion **220a**, and the second connector portion **220b** further includes a decorative element retaining surface **258** of the second connector portion **220b**. The second end **223b** of the second connector portion **220b** is shaped such that releasable engagement with the at least one intra-connector projection **28** on the first connector portion **220b** to releasably connect the first and second connector portions **220a** and **220b** together positions the decorative element retaining surface **258** of the first connector portion **220a** and the decorative element retaining surface **258** of the second connector portion **220b** facing one another, and spaced apart from one another. The kit of parts **300** may further include a decorative element **40** positionable between the decorative element retaining surfaces **258** of the first and second connector portions **220a** and **220b**. The decorative element includes at least one intra-connector pass-through aperture **47** to permit the at least one intra-connector projection **28** to pass therethrough to connect with the second connector portion **220b**.

[0099] Optionally at least one of the first and second connector portions **220a** and **200b** includes a flange **22** separating the first and second ends **223a** and **223b**, and having a first side **22a** that is positioned to engage an exterior surface **13** of an associated one of the first and second building

elements **1020**, **1030**, and having a second side **22b** that is the decorative element retaining surface **258**. This engagement with the exterior face **13** may help to ensure that the at least one of the first and second connector portions **220a** and **220b** is oriented properly in the building element aperture **14**.

[0100] Optionally, the connector-to-building-element projection **24** on the first connector portion **220a** is the same as the connector-to-building-element projection **24** on the second connector portion **220b**. As a first option, the first connector portion **220a** and the second connector portion **220b** may be identical, thereby facilitating manufacture of the first and second connector portions **220a** and **220b**, since a single type of component can act as both the first and second connector portions **220a** and **220b**.

[0101] Optionally, the second end **223b** of the second connector portion **220b** includes at least one intra-connector aperture (e.g., the at least one intra-connector aperture **27**) which is positioned to receive the at least one intra-connector projection **28**. As a further option, the at least one intra-connector projection **28** is at least one intra-connector projection **28** of the first connector portion **220a**, and the at least one intra-connector aperture **27** is at least one intra-connector aperture **27** of the second connector portion **220b**, and the second end **223b** of the second connector portion **220b** further includes at least one intra-connector projection **28** of the second connector portion **220b**, and the second end **223b** of the first connector portion **220a** includes at least one intra-connector aperture **27** of the first connector portion **220a**, positioned to receive the at least one intra-connector projection **28** of the second connector portion **220b**.

[0102] Optionally, the decorative element **40** is made from a material (e.g., felt) that is different than a material of the first and second connector portions **220a** and **220b** (e.g., plastic, or metal, or any other suitably strong material). As a further option, the material of the decorative element **40** is softer than the material of the first and second connector portions. This assists in providing a more lifelike representation of the features of the character that is portrayed by the assembled structure (in embodiments in which the decorative element **40** is used. For example, the decorative element **40** may represent a mane of a lion (FIG. 15), which is relatively flexible as compared to the body of the lion. The building elements **1010**, **1020**, and **1030** may be made from any suitable material such as wood, plastic, or any other suitable material.

[0103] Optionally, the kit of parts **300** further includes at least one spacer (e.g., spacer **29**) that extends from at least one of the decorative element retaining surface **258** of the first connector portion **220a** and the decorative element retaining surface **258** of the second connector portion **220b**.

[0104] Optionally, the kit of parts **300** may further include a plurality of the building elements (e.g., the building elements **1010**, **1020** and **1030**).

[0105] Optionally, the first connector portion **220a** may be one of a plurality of first connector portions **220a**, each of which is a different colour, and the second connector portion **220b** may be one of a plurality of second connector portions **220b**, each of which is a different colour.

[0106] In another aspect, the kit of parts **300** described above may further include a third connector portion (e.g., the connector portion **220b** shown in FIGS. 4B or 4C). The third connector portion **220b** has a first end **223a** with a functional element that is one of a connector-to-movable-element projection **230** or a connector-to-movable-element aperture **232**, and further has a second end **223b**. The functional element of the third connector portion is engageable with another functional element on a movable element (such as a vehicle trailer). The second end **223b** of the third connector portion **220b** (FIG. 4B or FIG. 4C) is releasably engageable with the at least one intra-connector projection **28** on the first connector portion **220a** to releasably connect the first and third connector portions (**220a**, **220b**) together.

[0107] Optionally, the third connector portion further includes a decorative element retaining surface of the third connector portion. The second end **223b** of the third connector portion **220b** (FIG. 4B or FIG. 4C) is shaped such that releasable engagement with the at least one intra-

connector projection **28** on the first connector portion **220a** to releasably connect the first and third connector portions (**220a**, **220b**) together positions the decorative element retaining surface **258** of the first connector portion **220a** and the decorative element retaining surface **258** of the third connector portion **220b** facing one another, and spaced apart from one another.

[0108] Optionally, the functional element of the second connector portion **220b** forms a ball and socket joint with the other functional element on the movable element.

[0109] The elements shown in FIG. **11** may be considered to be a kit of parts **310** that can be used to form a connector such as the connector **10** shown in that figure. The kit of parts **310** includes a single connector portion (e.g., single connector portion **270** shown in FIG. **11**) and a decorative element (e.g., the decorative element **40** shown in FIG. **11**). The single connector portion **270** includes a first flange (e.g., first flange **267**) having a first side **267a** with a first connector-to-building-element projection **24** extending therefrom and a second side **267b** having a first decorative element retaining surface **258** thereon. The single connector portion **270** includes a second flange (e.g., second flange **269**) having a first side **269a** with a second connector-to-building-element projection **24** extending therefrom and a second side **269b** having a second decorative element retaining surface **258** thereon that faces the first decorative element retaining surface **258** and an intermediate member **271** connecting the second side **267b** of the first flange **267** with the second side **269b** of the second flange **269**. The first flange **267** has a first flange cross-sectional dimension DIM1 and the second flange **269** has a second flange cross-sectional dimension DIM2. The first flange cross-sectional dimension DIM1 is the smallest cross-sectional dimension of the first flange **267**. In embodiments in which the first flange **267** is circular, the first flange cross-sectional dimension DIM1 is the same in any direction. The second flange cross-sectional dimension DIM2 is the smallest cross-sectional dimension of the second flange **269**. In embodiments in which the second flange **269** is circular, the first flange cross-sectional dimension DIM2 is the same in any direction. However, the first and second flanges **267** and **269** may have any other suitable shape, such as a polygonal shape, a non-circular arcuate shape, or an irregular shape. The decorative element **40** has an intra-connector pass-through aperture **47** therethrough to fit around the intermediate member. The intra-connector pass-through aperture has an aperture cross-sectional dimension DIM3 that is smaller than both the first flange cross-sectional dimension DIM1 and the second flange cross-sectional dimension DIM2. The decorative element **40** is flexible to permit the intra-connector pass-through aperture **47** to enlarge to fit over at least one of the first and second flanges **267** and **269** for positioning between the first and second flanges **267** and **269** around the intermediate member **271**.

[0110] Optionally, the decorative element **40** includes at least one slot **272** that extends outward from the intra-connector pass-through aperture **47**, so as to permit the intra-connector pass-through aperture **47** to fit over at least one of the first and second flanges **267** and **269** for positioning between the first and second flanges **267** and **269** around the intermediate member **271**.

[0111] It has been described that the first and second connector portions **220a** and **220b** may be releasably connectable together. If they are connected by press-fit of the intra-connector projections **28** in the intra-connector apertures **27** then they can be disassembled by pulling the first and second connector portions **220a** and **220b** apart. If the intra-connector projections **28** include the locking projections **291**, then the user may push the arms **290** towards one another to permit the locking projections **291** to disengage from the shoulders **292** and to be withdrawn through the intra-connector apertures **27** in order to disassemble the connector **10**.

[0112] In all the embodiments described herein, it will be noted that the at least one intra-connector projection **28** could be positioned on the second connector portion **220b**. Furthermore, the at least one intra-connector projection **28** could be positioned on the third connector portion **220b** in embodiments where there is a third connector portion **220b** having the functional element thereon (as shown in FIG. **4B** or **4C**). Accordingly, the first connector portion **220a** could engage with the at least one intra-connector projection to connect the first connector portion **220a** with the second



or third connector portion **220b** as the case may be. In some embodiments, the first connector portion may have at least one intra-connector aperture **27** thereon to receive the at least one intra-connector projection.

[0113] As shown throughout the drawings, like reference numerals designate like or corresponding parts. While illustrative embodiments of the present disclosure have been described and illustrated above, it should be understood that these are exemplary of the disclosure and are not to be considered as limiting. Additions, deletions, substitutions, and other modifications can be made without departing from the spirit or scope of the present disclosure. Accordingly, the present disclosure is not to be considered as limited by the foregoing description.

## Claims

1. A kit of parts, comprising: a first connector portion having a first end with a connector-to-building-element projection and a second end having at least one intra-connector projection, wherein the connector-to-building-element projection of the first connector portion is engageable with a building element aperture on a first building element to connect the first connector portion thereto, wherein the first connector portion further includes a decorative element retaining surface of the first connector portion; a second connector portion having a first end with a connector-to-building-element projection, and a second end, wherein the second connector portion further includes a decorative element retaining surface of the second connector portion, wherein the connector-to-building-element projection of the second connector portion is engageable with a building element aperture on a second building element to connect the second connector portion thereto, wherein the second end of the second connector portion is releasably engageable with the at least one intra-connector projection on the first connector portion to releasably connect the first and second connector portions together with the decorative element retaining surface of the first connector portion and the decorative element retaining surface of the second connector portion facing one another, and spaced apart from one another; and a decorative element positionable between the decorative element retaining surfaces of the first and second connector portions, wherein the decorative element includes at least one intra-connector pass-through aperture to permit the at least one intra-connector projection to pass therethrough to connect with the second connector portion.
2. The kit of parts as claimed in claim 1, wherein at least one of the first and second connector portions includes a flange separating the first and second ends, and having a first side that is positioned to engage an exterior face of an associated one of the first and second building elements, and having a second side that is the decorative element retaining surface.
3. The kit of parts as claimed in claim 1, wherein the connector-to-building-element projection on the first connector portion is the same as the connector-to-building-element projection on the second connector portion.
4. The kit of parts as claimed in claim 1, wherein the second end of the second connector portion includes at least one intra-connector aperture, positioned to receive the at least one intra-connector projection.
5. The kit of parts as claimed in claim 4, wherein the at least one intra-connector projection is at least one intra-connector projection of the first connector portion, and wherein the at least one intra-connector aperture is at least one intra-connector aperture of the second connector portion, and wherein the second end of the second connector portion further includes at least one intra-connector projection of the second connector portion, and the second end of the first connector portion includes at least one intra-connector aperture of the first connector portion, positioned to receive the at least one intra-connector projection of the second connector portion.
6. The kit of parts as claimed in claim 1, wherein the decorative element is made from a material that is different than a material of the first and second connector portions.

7. The kit of parts as claimed in claim 6, wherein the material of the decorative element is softer than the material of the first and second connector portions.

8. The kit of parts as claimed in claim 1, further comprising at least one spacer that extends from at least one of the decorative element retaining surface of the first connector portion and the decorative element retaining surface of the second connector portion.

9. A kit of parts, comprising: a first connector portion having a first end with a connector-to-building-element projection and a second end having at least one intra-connector projection, wherein the connector-to-building-element projection of the first connector portion is engageable with an aperture on a first building element to connect the first connector portion thereto; a second connector portion having a first end with a connector-to-building-element projection, and a second end, wherein the connector-to-building-element projection of the second connector portion is engageable with an aperture on a second building element to connect the second connector portion thereto, wherein the second end of the second connector portion is releasably engageable with the at least one intra-connector projection on the first connector portion to releasably connect the first and second connector portions together; and a third connector portion having a first end with a functional element thereon, which is one of a connector-to-movable-element projection and a connector-to-movable-element aperture, and further includes a second end, wherein the functional element of the third connector portion is engageable with another functional element on a movable element, wherein the second end of the third connector portion is releasably engageable with the at least one intra-connector projection on the first connector portion to releasably connect the first and third connector portions together.

10. The kit of parts as claimed in claim 9, wherein the connector-to-building-element projection on the first connector portion is the same as the connector-to-building-element projection on the second connector portion.

11. The kit of parts as claimed in claim 9, wherein the second end of the second connector portion includes at least one intra-connector aperture, positioned to receive the at least one intra-connector projection.

12. The kit of parts as claimed in claim 11, wherein the at least one intra-connector projection is at least one intra-connector projection of the first connector portion, and wherein the at least one intra-connector aperture is at least one intra-connector aperture of the second connector portion, and wherein the second end of the second connector portion further includes at least one intra-connector projection of the second connector portion, and the second end of the first connector portion includes at least one intra-connector aperture of the first connector portion, positioned to receive the at least one intra-connector projection of the second connector portion.

13. The kit of parts as claimed in claim 9, wherein the first connector portion further includes a decorative element retaining surface of the first connector portion, wherein the second connector portion further includes a decorative element retaining surface of the second connector portion, wherein the third connector portion further includes a decorative element retaining surface of the third connector portion, wherein the second end of the second connector portion is shaped such that releasable engagement with the at least one intra-connector projection on the first connector portion to releasably connect the first and second connector portions together positions the decorative element retaining surface of the first connector portion and the decorative element retaining surface of the second connector portion facing one another, and spaced apart from one another, wherein the second end of the third connector portion is shaped such that releasable engagement with the at least one intra-connector projection on the first connector portion to releasably connect the first and third connector portions together positions the decorative element retaining surface of the first connector portion and the decorative element retaining surface of the second connector portion facing one another and spaced apart from one another, and wherein the kit of parts further comprises a decorative element positionable between the decorative element retaining surfaces of the first and second connector portions, wherein the decorative element includes at least one intra-

connector pass-through aperture to permit the at least one intra-connector to pass therethrough to connect with the second connector portion.

**14.** The kit of parts as claimed in claim 13, wherein at least one of the first and second connectors includes a flange separating the first and second ends, and having a first side that is positioned to engage an exterior face of an associated one of the first and second building elements, and having a second side that is the decorative element retaining surface.

**15.** The kit of parts as claimed in claim 13, wherein the decorative element is made from a material that is different than a material of the first and second connector portions.

**16.** The kit of parts as claimed in claim 14, wherein the material of the decorative element is softer than the material of the first and second connector portions.

**17.** The kit of parts as claimed in claim 13, further comprising at least one spacer that extends from at least one of the decorative element retaining surfaces of the first connector portion and the decorative element retaining surfaces of the second connector portion.

**18.** The kit of parts as claimed in claim 9, wherein the functional element of the second connector portion forms a ball and socket joint with the other functional element on the movable element.

**19.** A kit of parts, comprising: a single connector portion including a first flange having a first side with a first connector-to-building-element projection extending therefrom and a second side having a first decorative element retaining surface thereon, the single connector portion including a second flange having a first side with a second connector-to-building-element projection extending therefrom and a second side having a second decorative element retaining surface thereon that faces the first decorative element retaining surface and an intermediate member connecting the second side of the first flange with the second side of the second flange, wherein the first flange has a first flange cross-sectional dimension and the second flange has a second flange cross-sectional dimension; and a decorative element, having an intra-connector pass-through aperture therethrough to fit around the intermediate member, the intra-connector pass-through aperture having an aperture cross-sectional dimension that is smaller than both the first flange cross-sectional dimension and the second flange cross-sectional dimension, wherein the decorative element is flexible to permit the intra-connector pass-through aperture to enlarge to fit over at least one of the first and second flanges for positioning between the first and second flanges around the intermediate member.

**20.** The kit of parts as claimed in claim 19, wherein the decorative element includes at least one slot that extends outward from the intra-connector pass-through aperture, so as to permit the intra-connector pass-through aperture to fit over at least one of the first and second flanges for positioning between the first and second flanges around the intermediate member.

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