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(19) **United States**(12) **Patent Application Publication**
Lipschitz et al.(10) **Pub. No.: US 2021/0008462 A1**(43) **Pub. Date: Jan. 14, 2021**(54) **PLAY STRUCTURE AND PLAY STRUCTURE
ASSEMBLY METHODS****Publication Classification**(51) **Int. Cl.***A63H 3/52* (2006.01)*A63H 33/04* (2006.01)*A63H 33/10* (2006.01)(52) **U.S. Cl.**CPC *A63H 3/52* (2013.01); *A63H 33/107*
(2013.01); *A63H 33/044* (2013.01)(71) Applicant: **KidKRAFT, INC.**, Dallas, TX (US)(72) Inventors: **Daniel Lipschitz**, Dallas, TX (US);
Jake Warren, Dallas, TX (US);
Grayson T. Gary, Carrollton, TX (US)(21) Appl. No.: **16/958,395**(22) PCT Filed: **Jan. 4, 2019**(86) PCT No.: **PCT/US2019/012431**

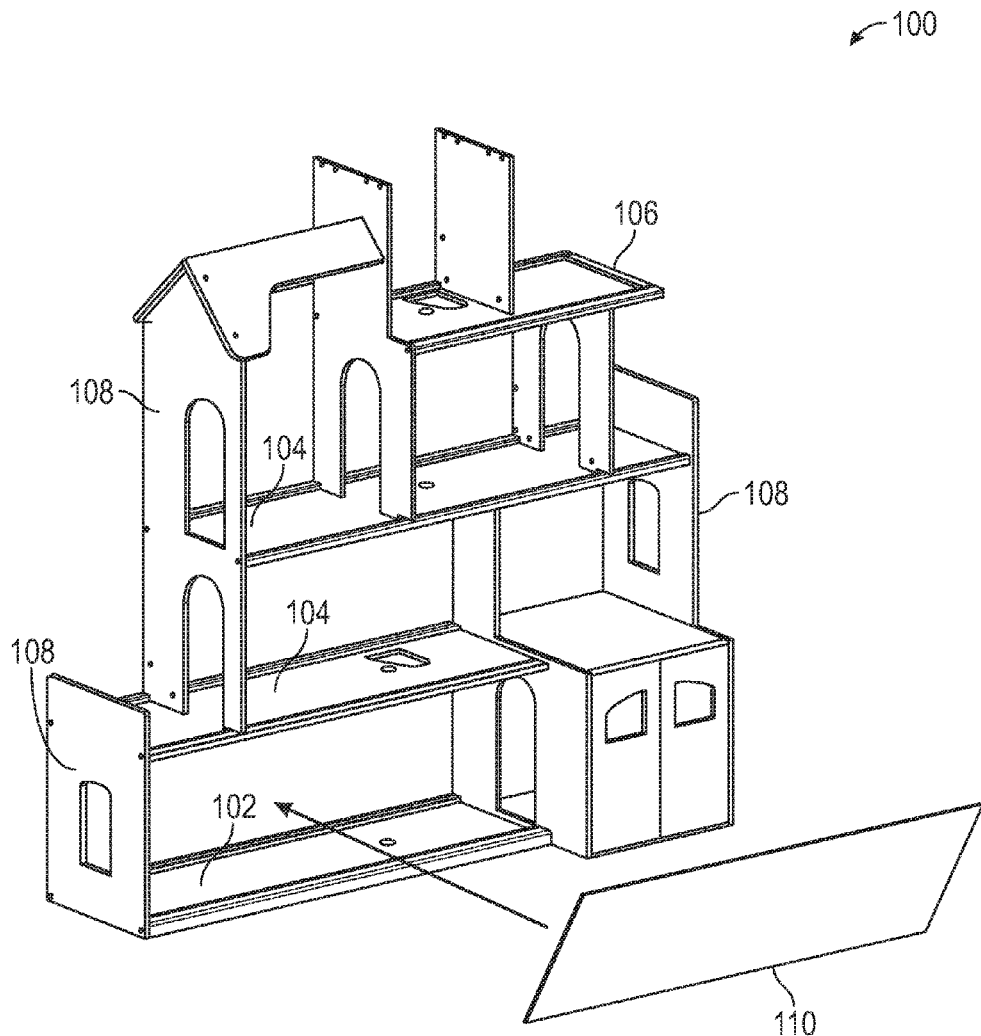
§ 371 (c)(1),

(2) Date: **Jun. 26, 2020****Related U.S. Application Data**(60) Provisional application No. 62/613,739, filed on Jan.
4, 2018.

(57)

ABSTRACT

Embodiments relate generally to play structures and assembly methods for play structures. A play structure may comprise at least one floor panel comprising at least one hole into a side surface of the floor panel; at least one side wall panel configured to attach to the at least one floor panel and comprising at least one hole through the thickness of the side wall panel; and at least one bracket configured to at least temporarily attach the floor panel to the side wall panel, wherein the at least one bracket comprises: a first section configured to be inserted into and held in place within the hole of the floor panel; and a second section attached to the first section configured to protrude from the floor panel and to be inserted into and held in place within the hole of the side wall panel.



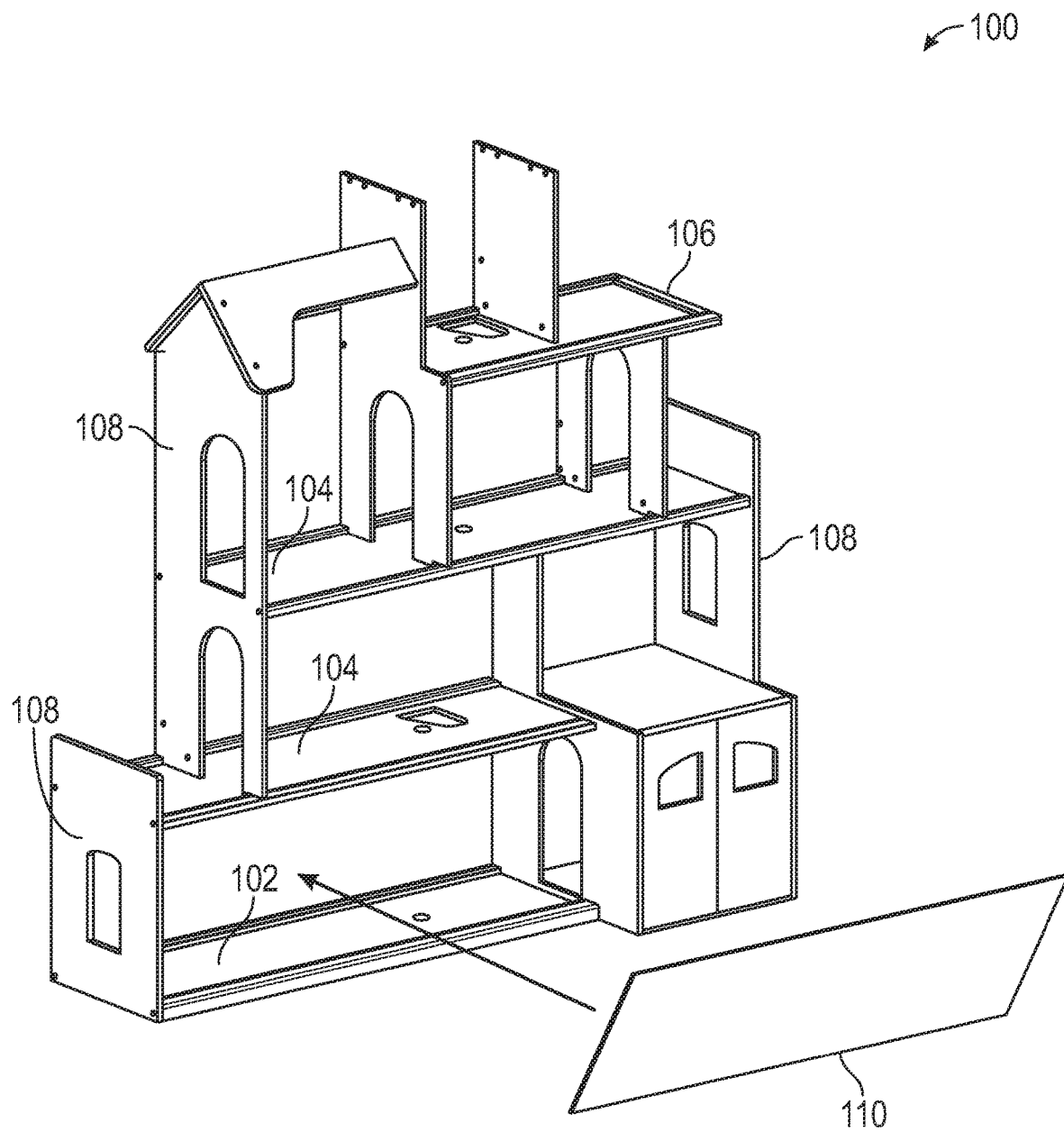


FIG. 1

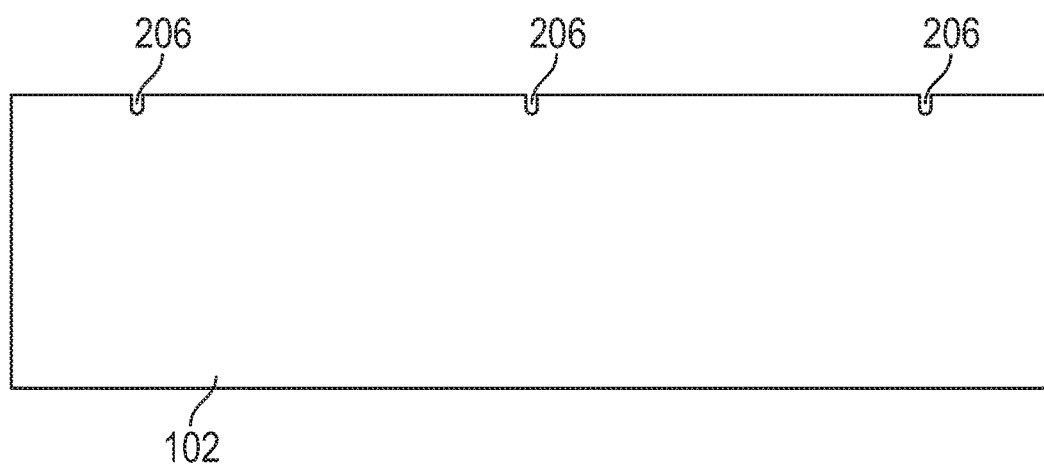


FIG. 2

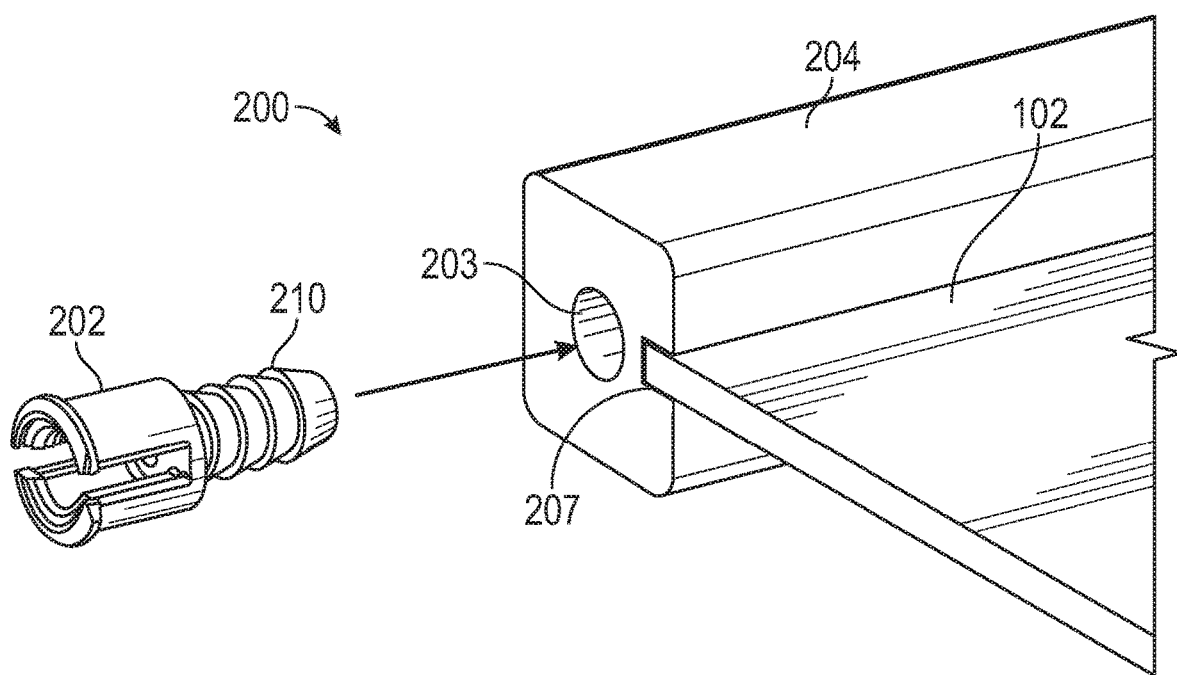


FIG. 3

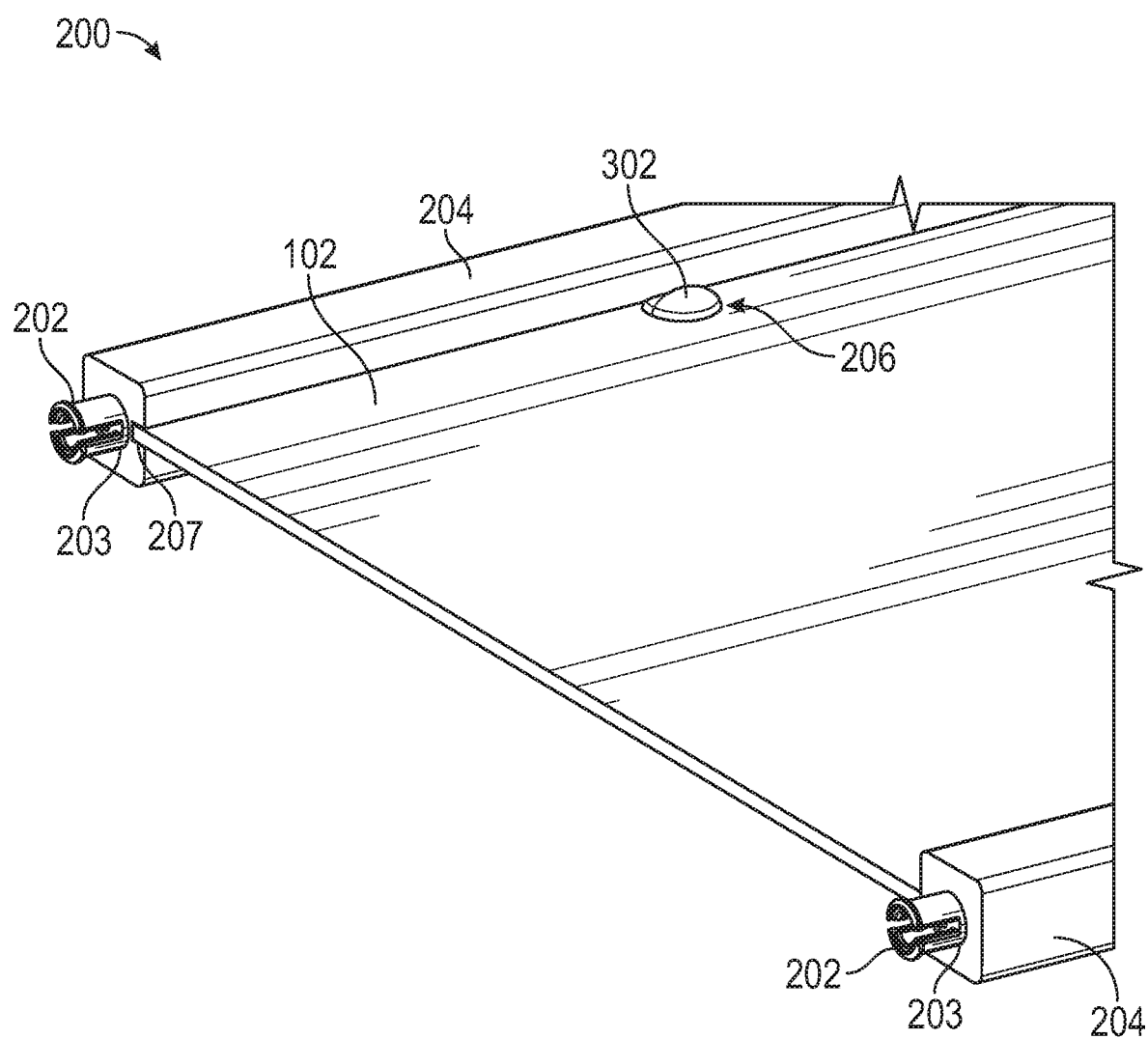


FIG. 4

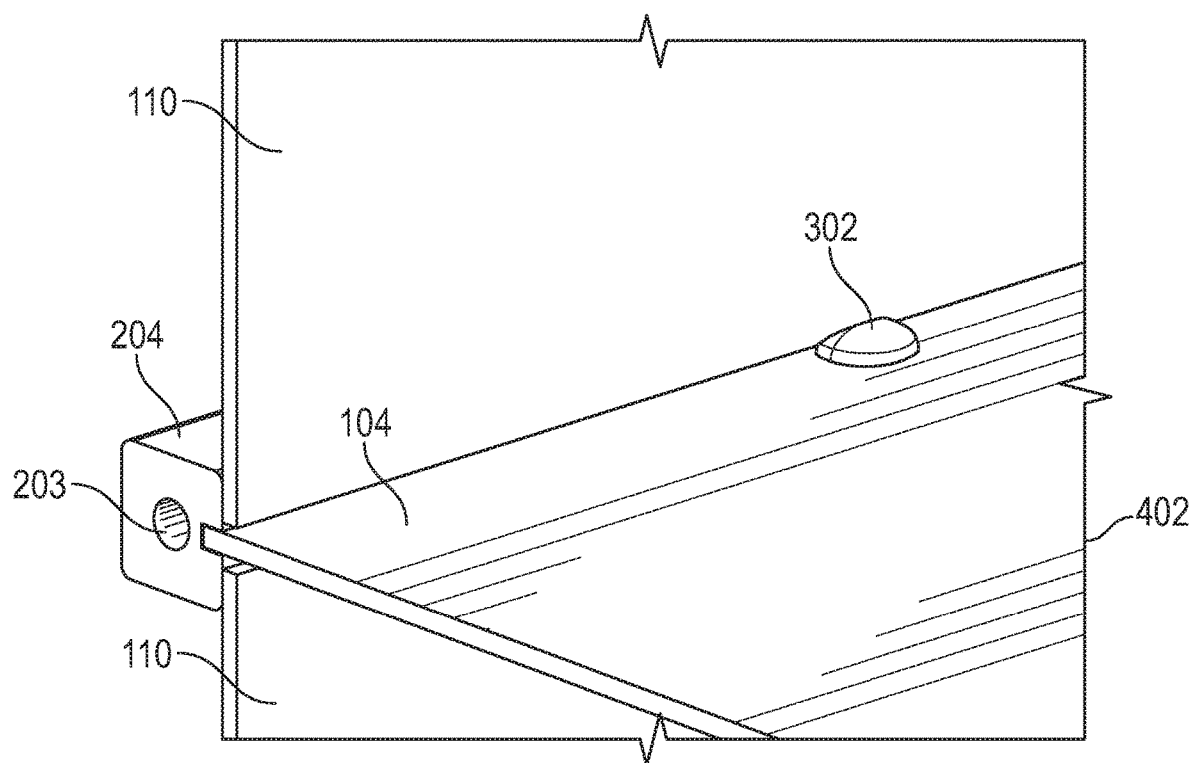


FIG. 5

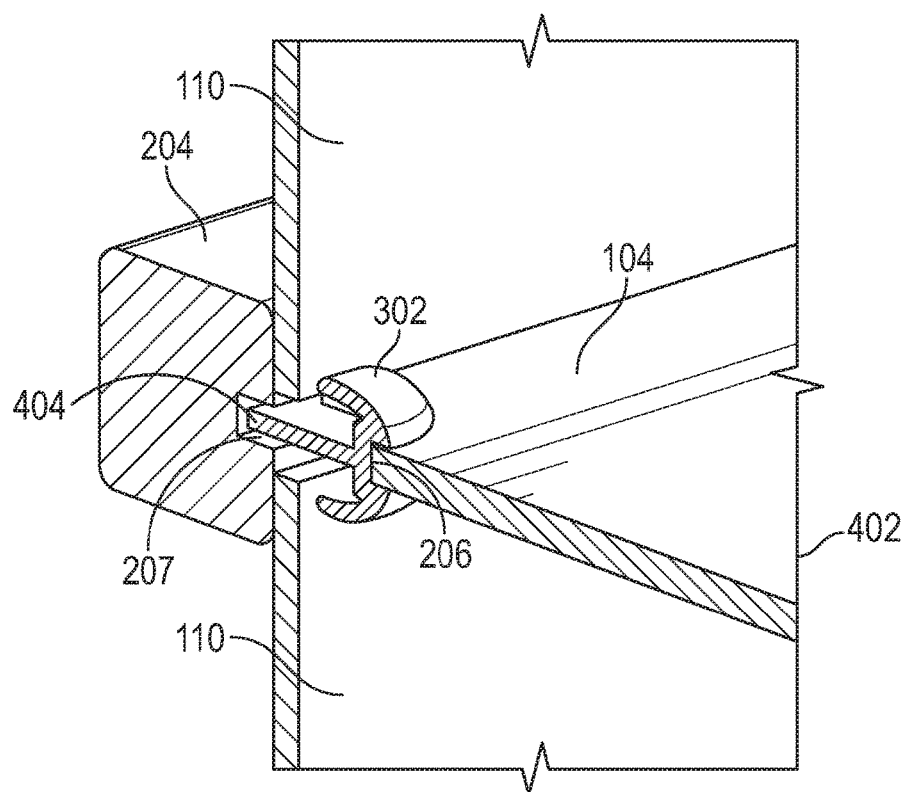


FIG. 6

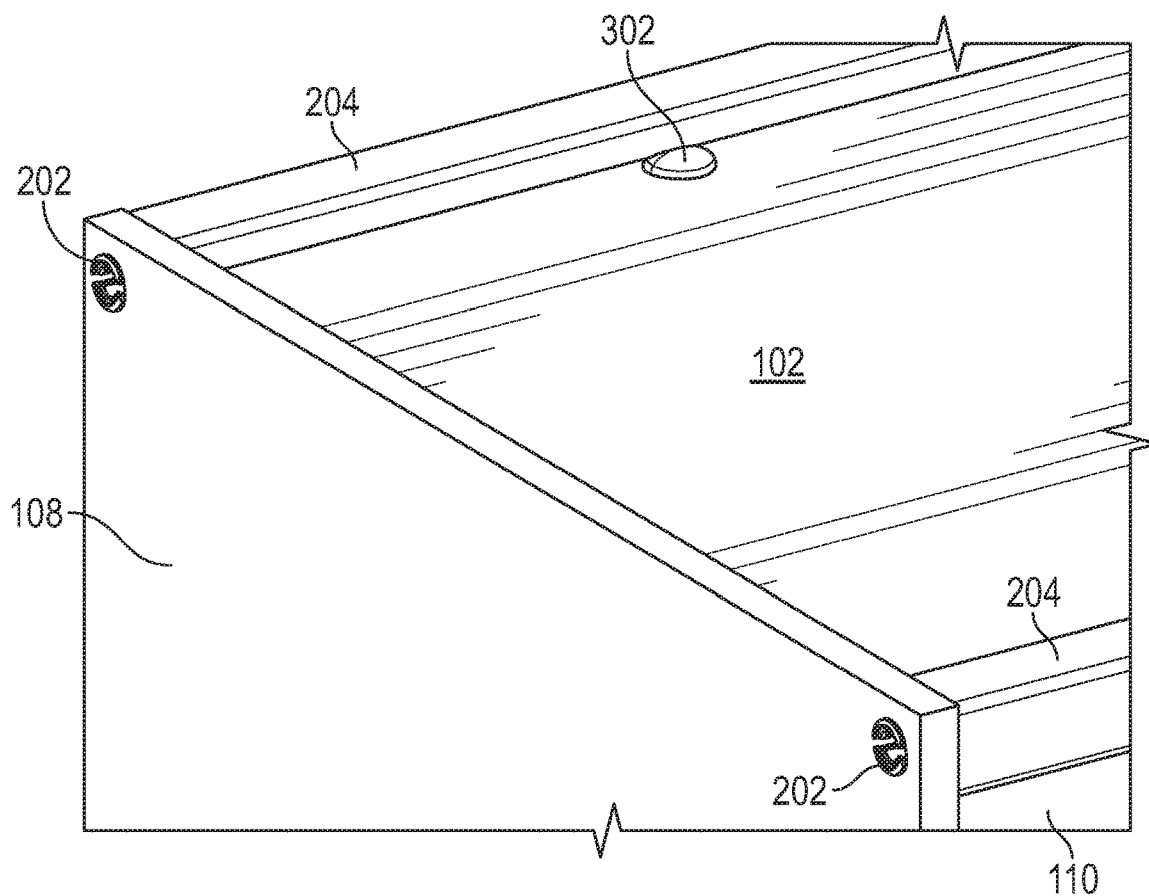


FIG. 7

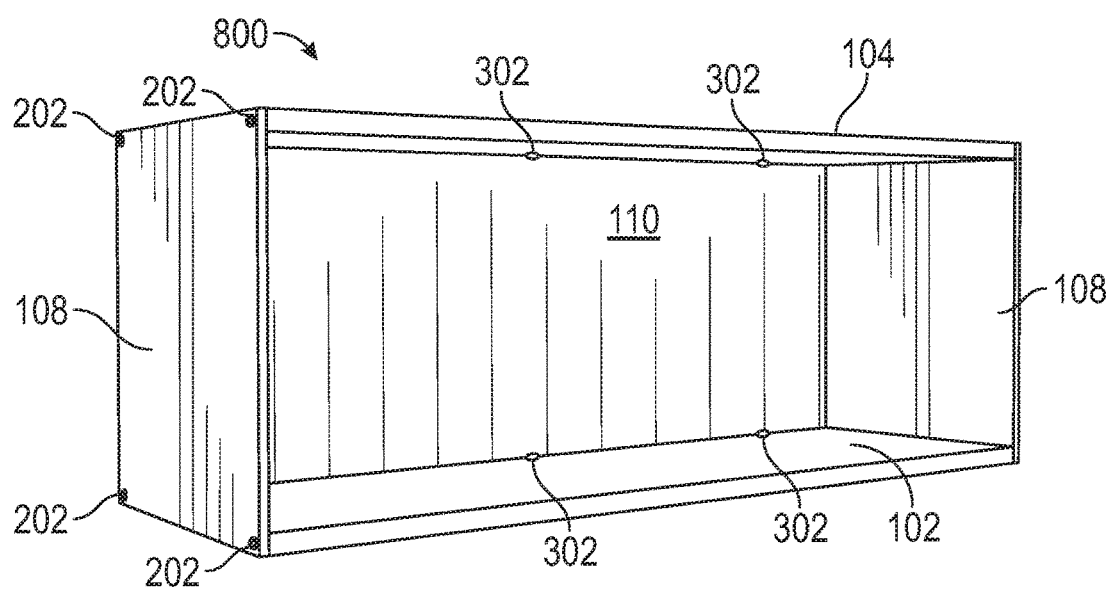


FIG. 8

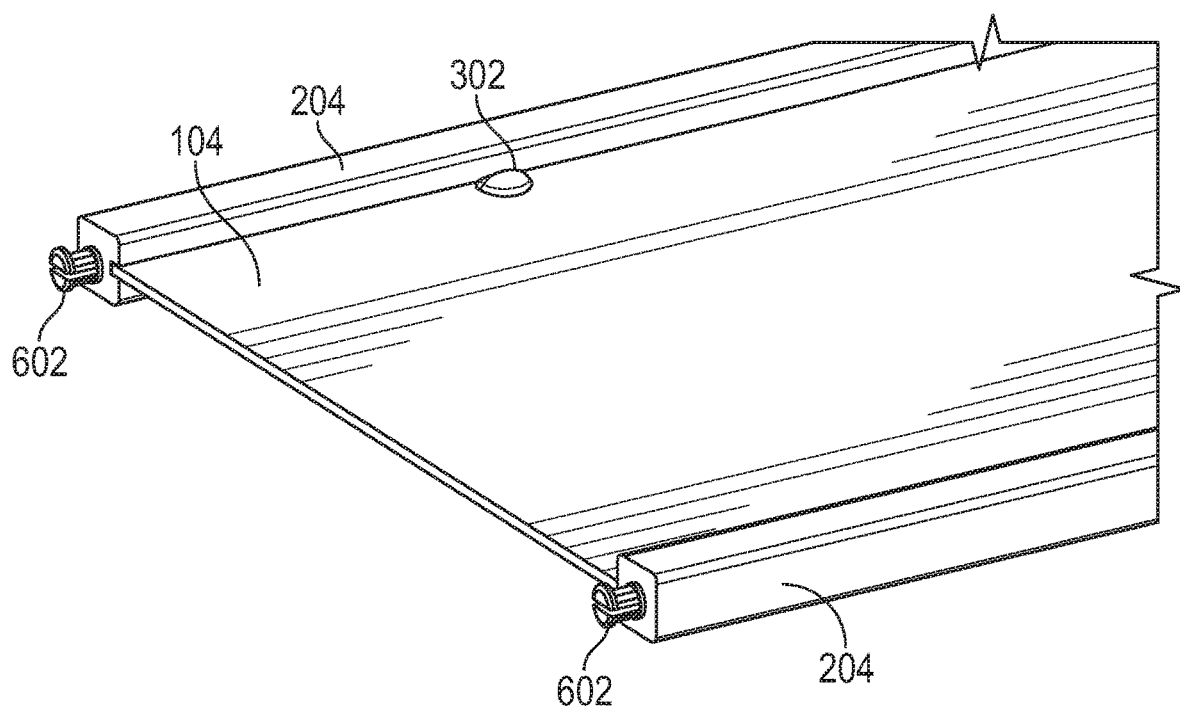


FIG. 9

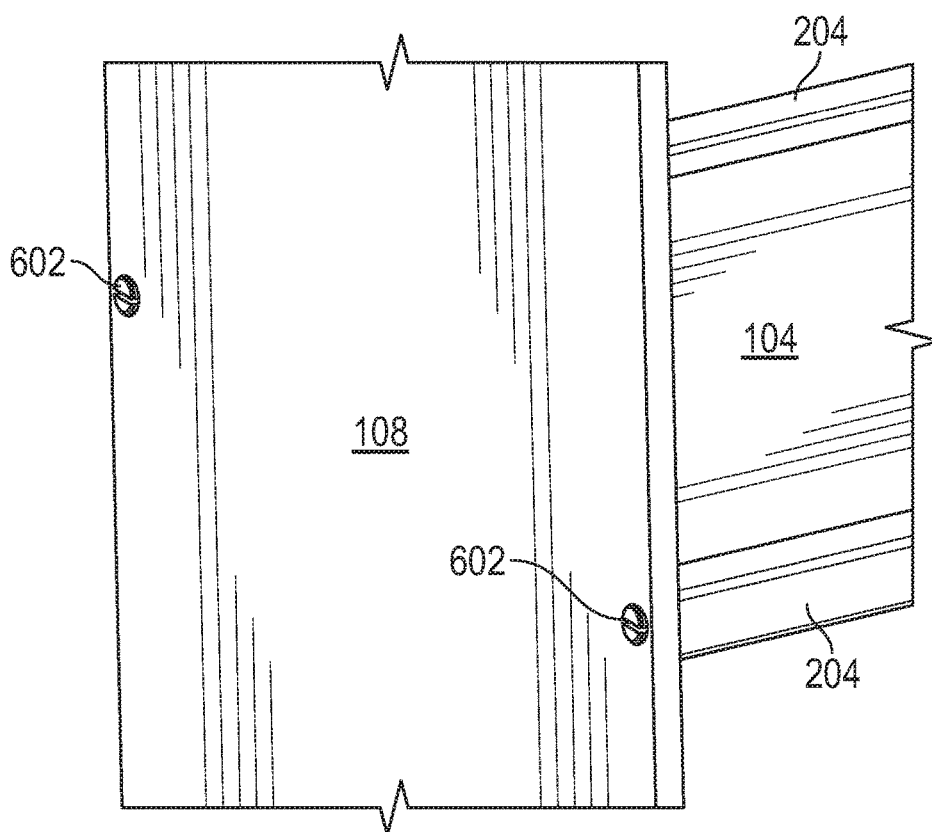


FIG. 10

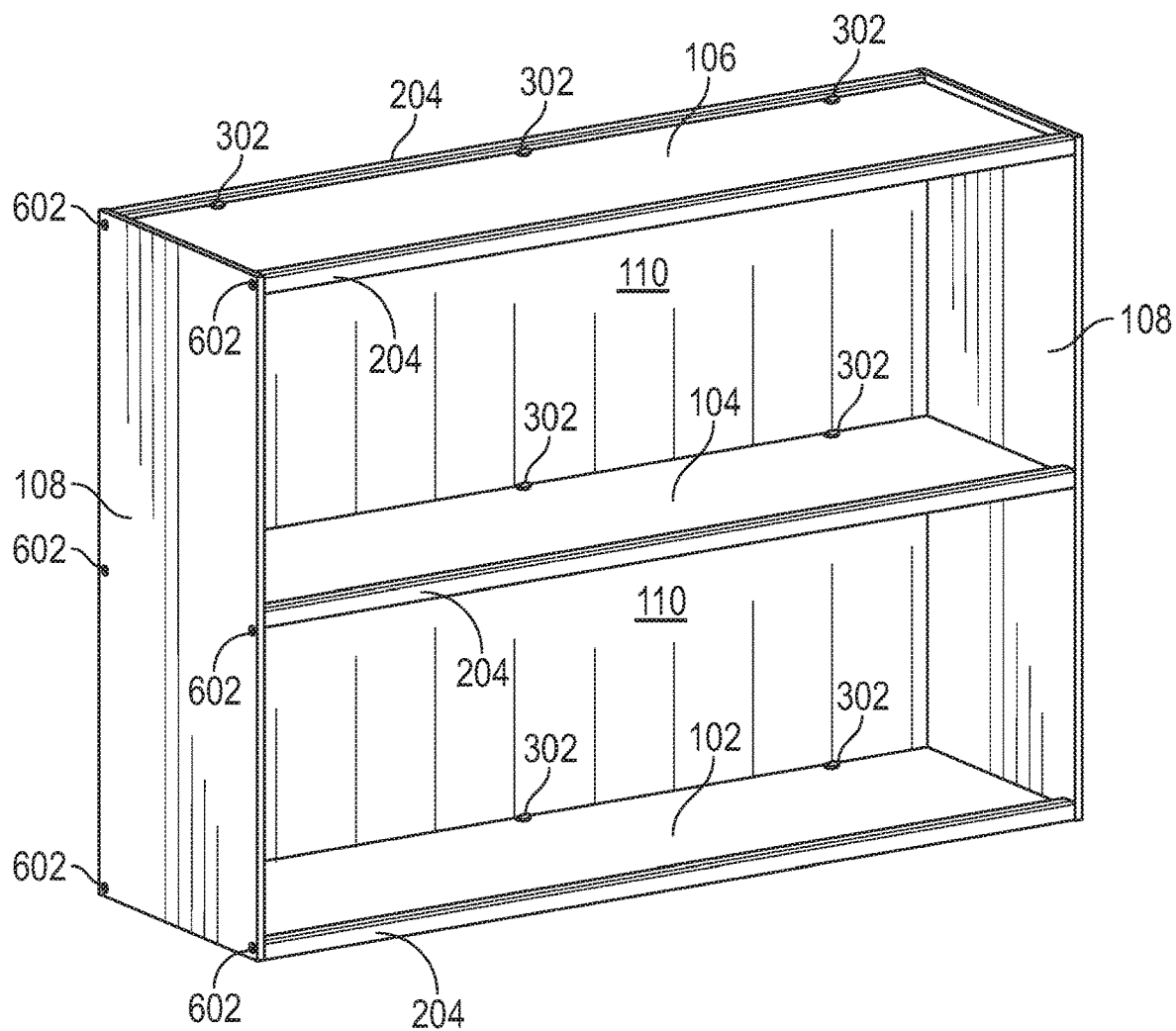


FIG. 11

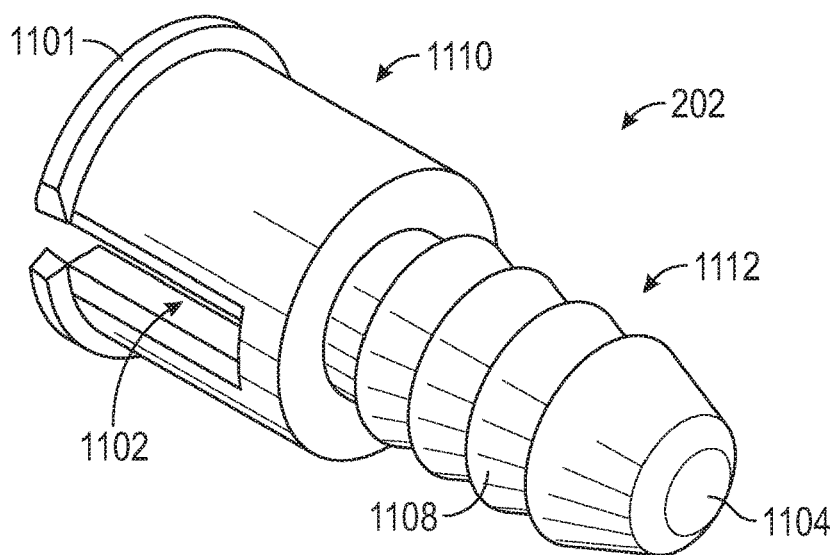


FIG. 12A

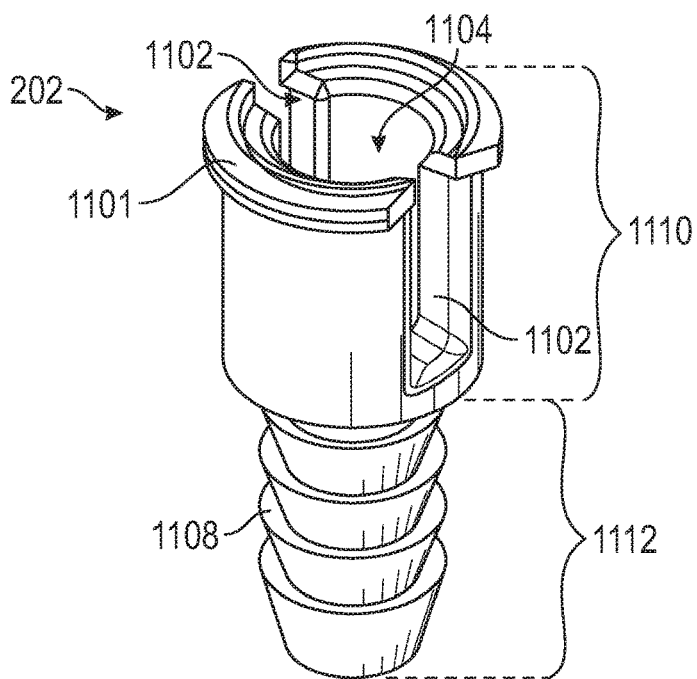


FIG. 12B

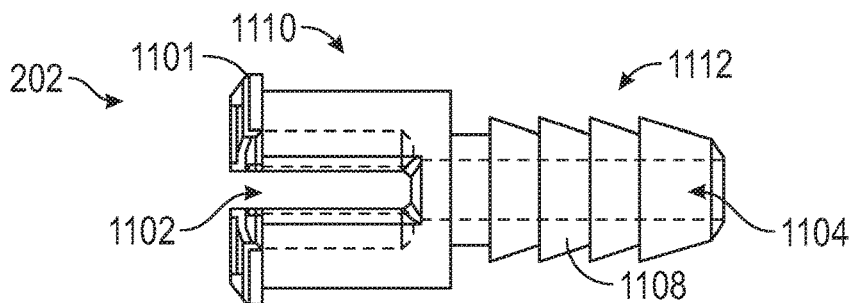


FIG. 12C

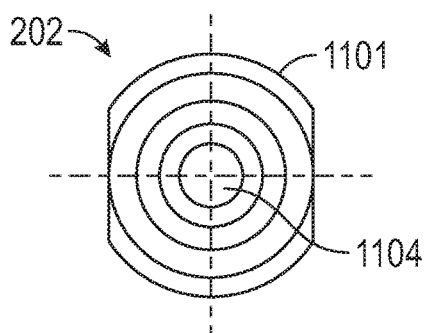


FIG. 12D

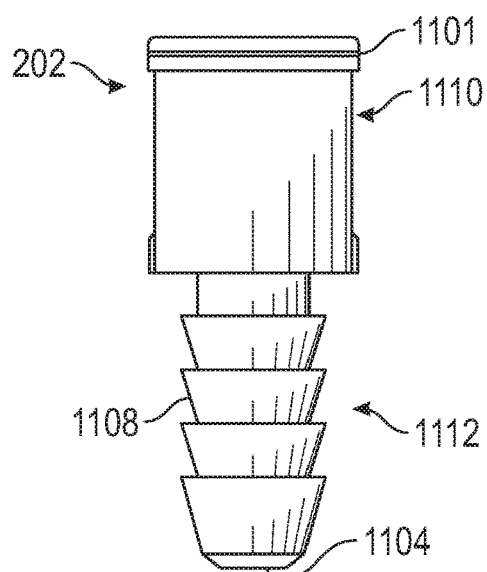


FIG. 12E

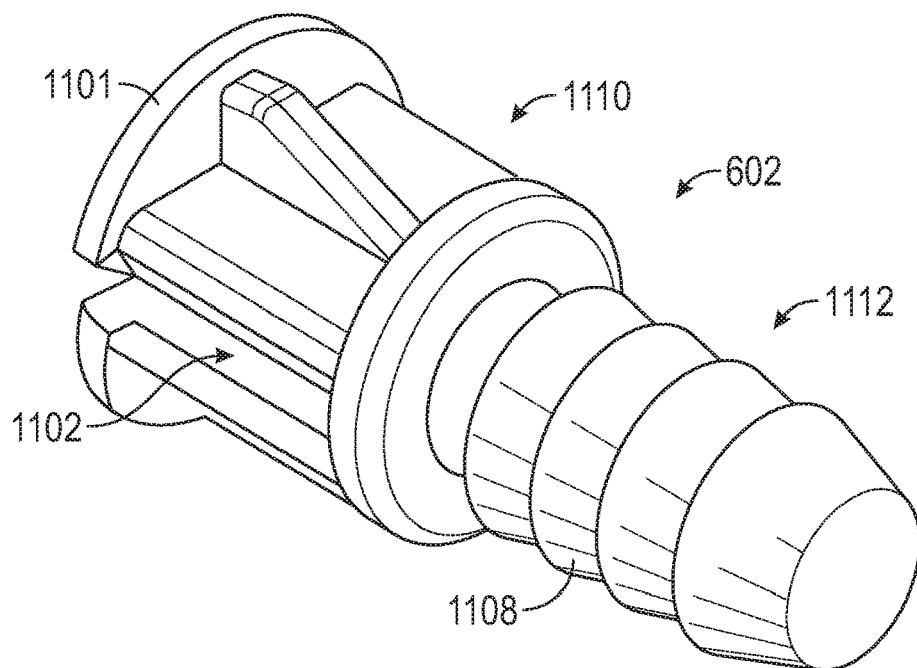


FIG. 13A

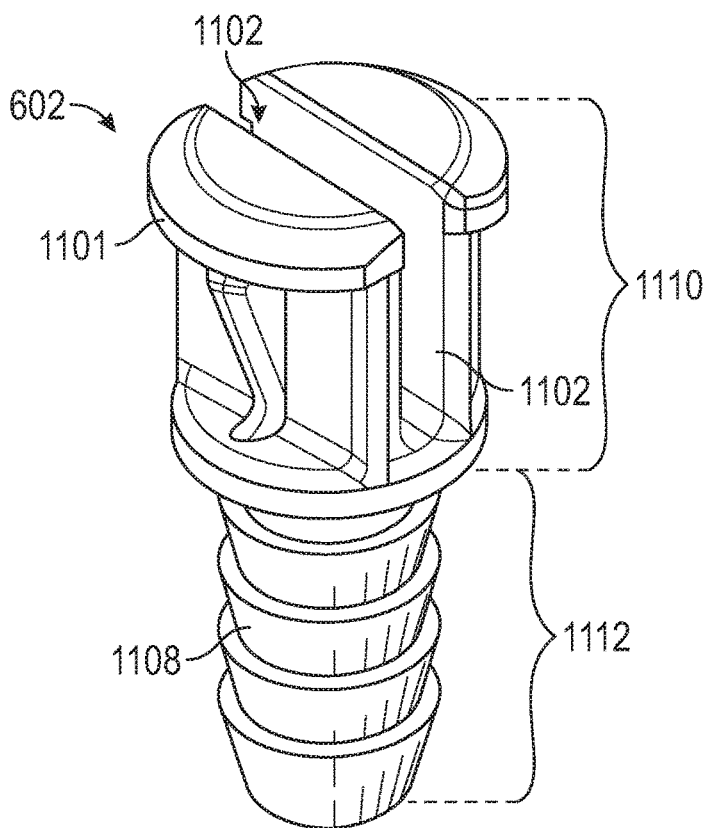


FIG. 13B

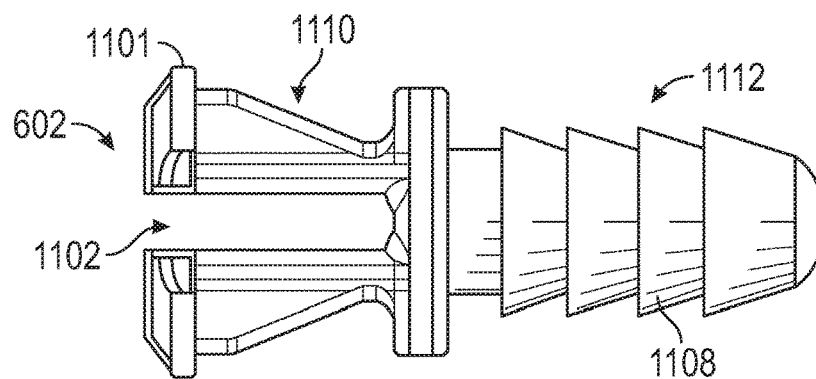


FIG. 13C

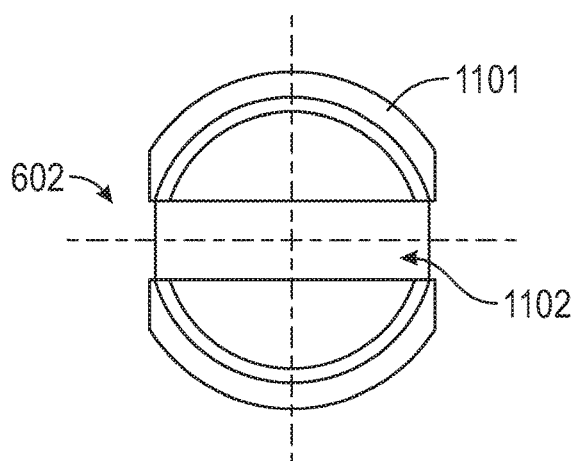


FIG. 13D

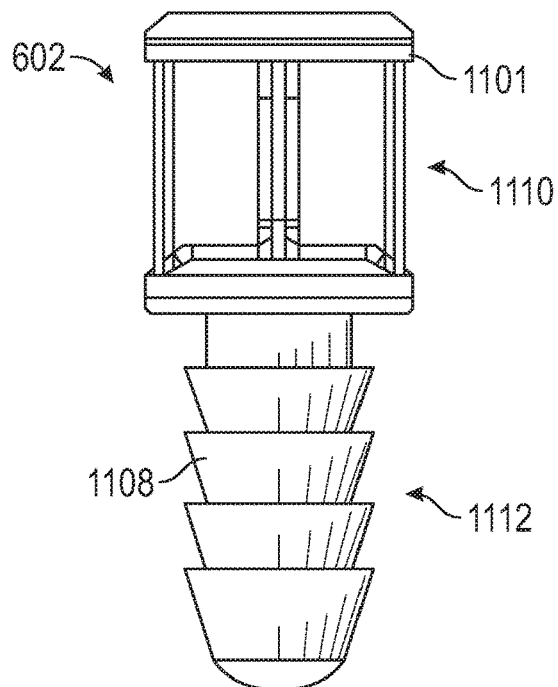


FIG. 13E

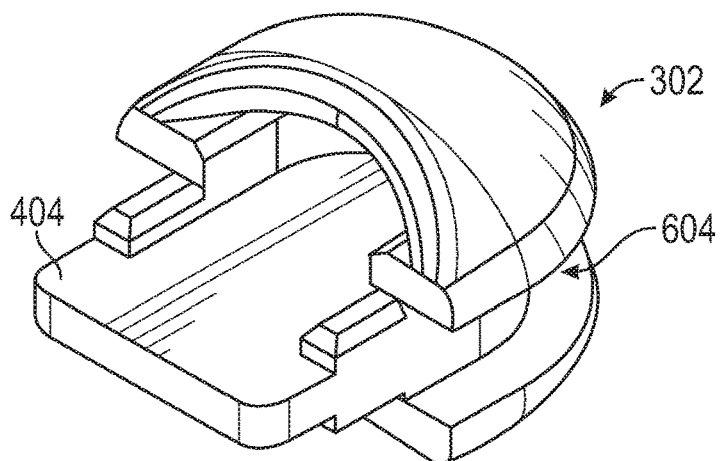


FIG. 14A

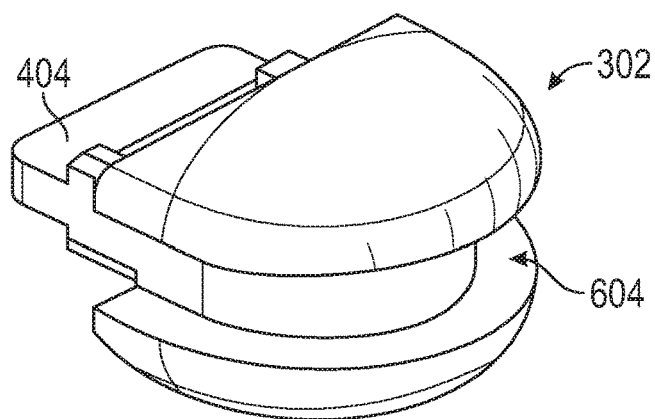


FIG. 14B

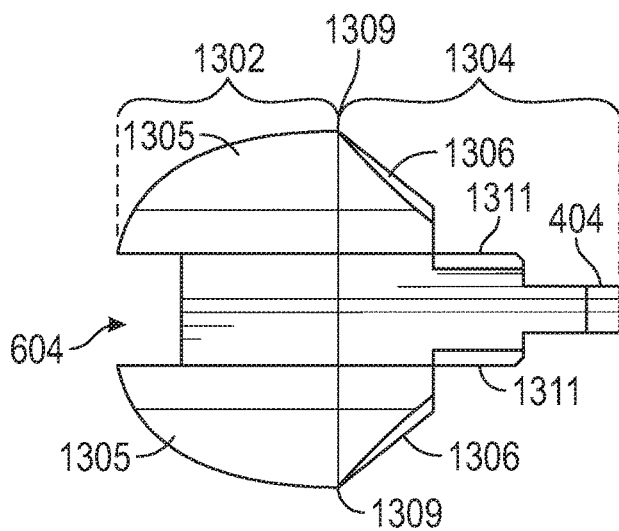


FIG. 14C

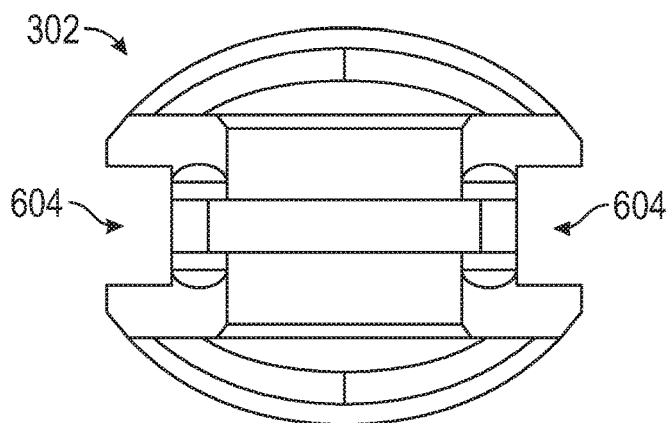


FIG. 14D

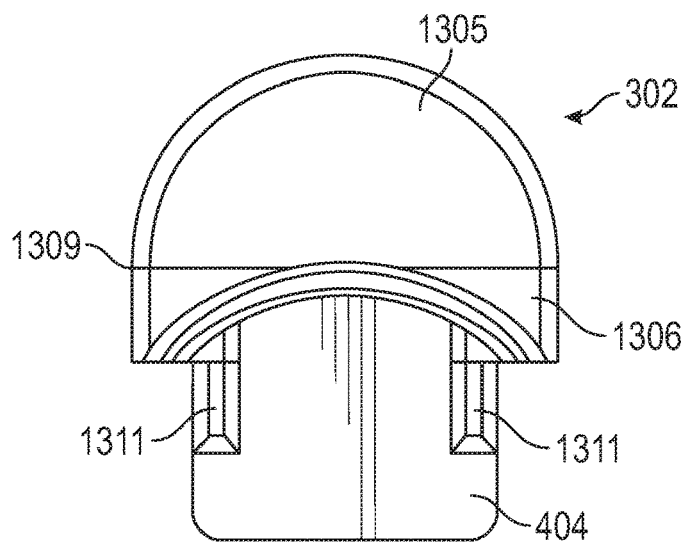


FIG. 14E

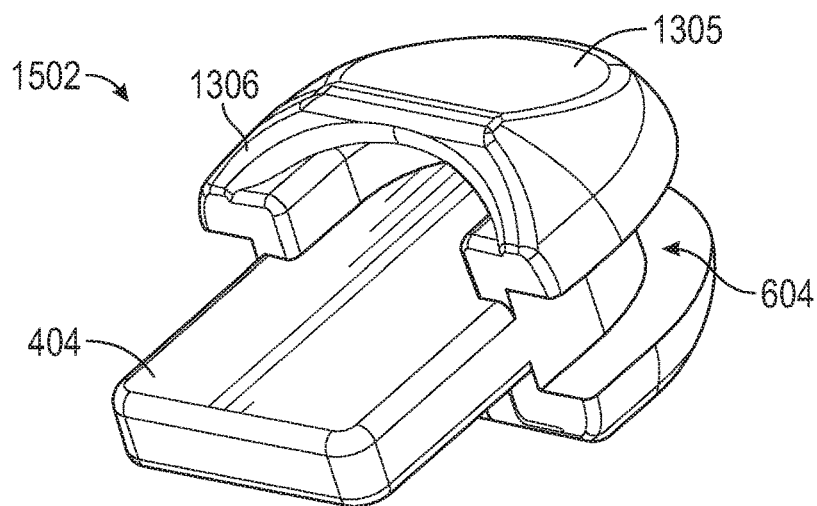


FIG. 15

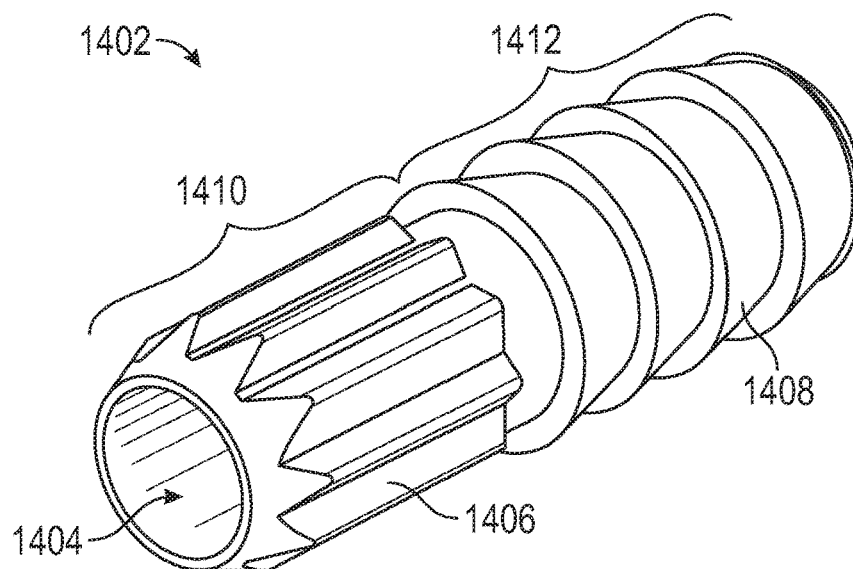


FIG. 16

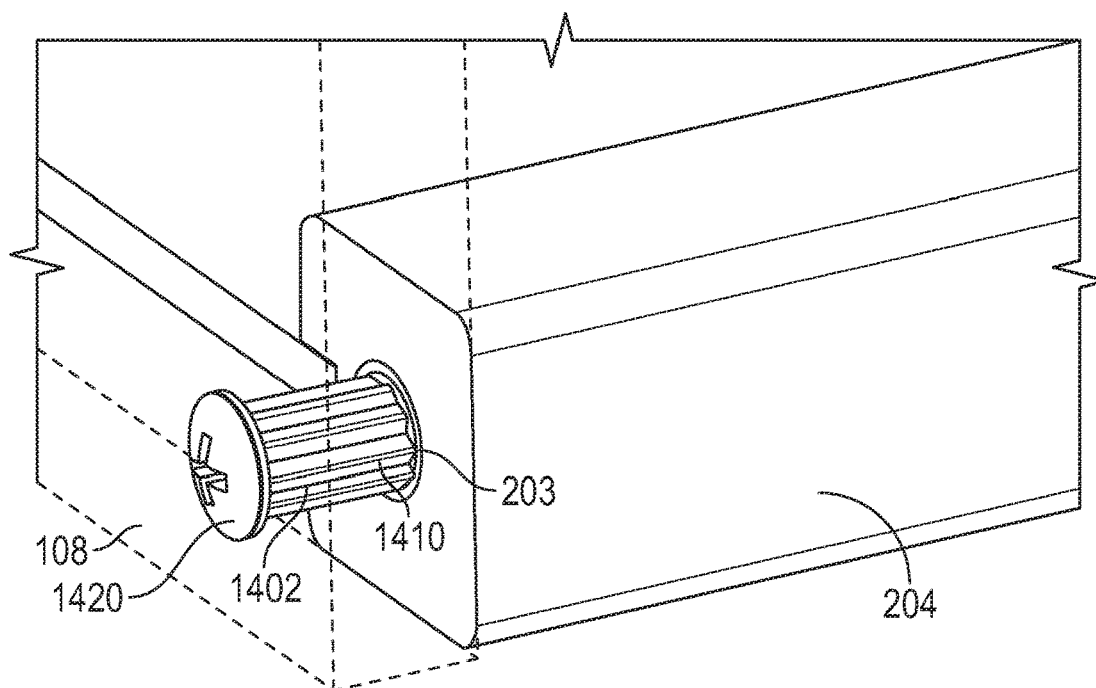


FIG. 17

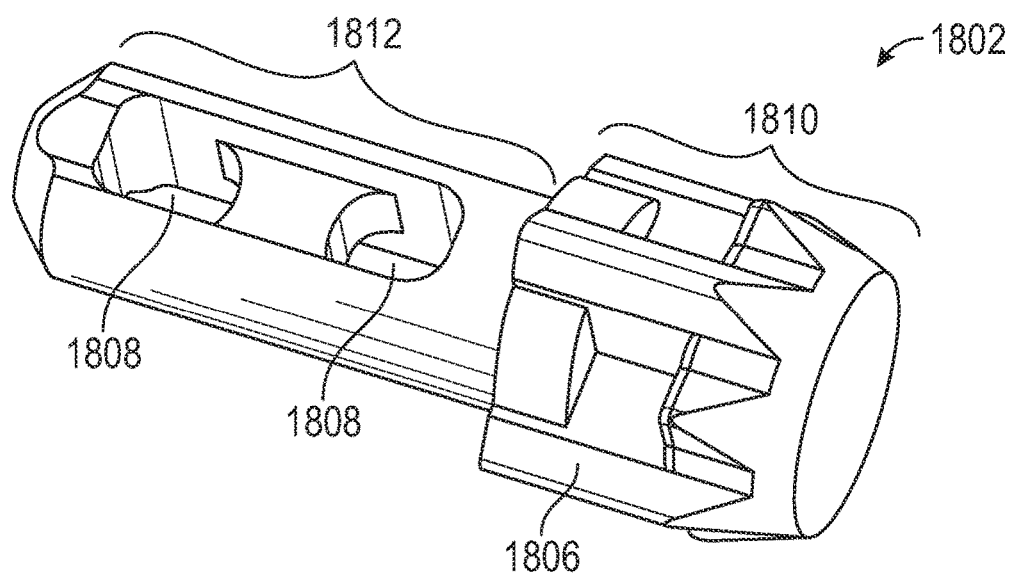


FIG. 18A

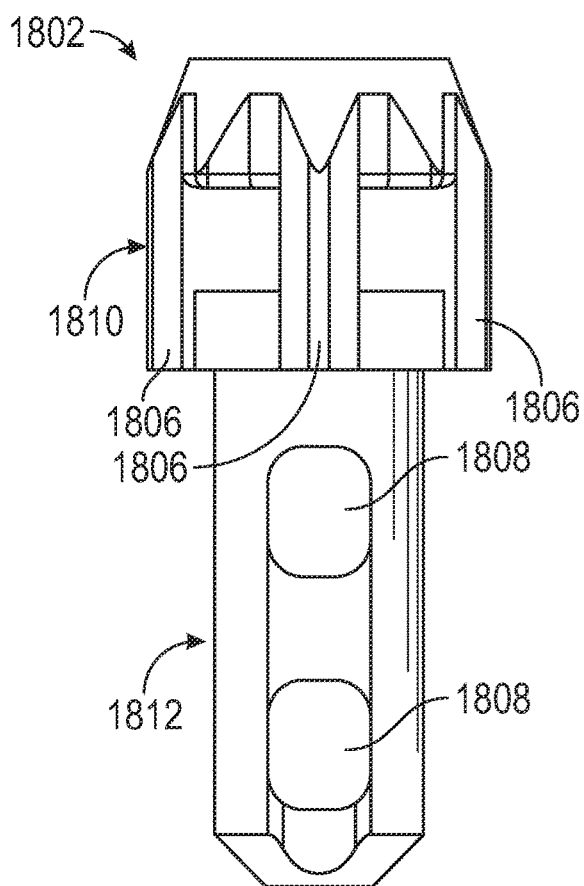


FIG. 18B

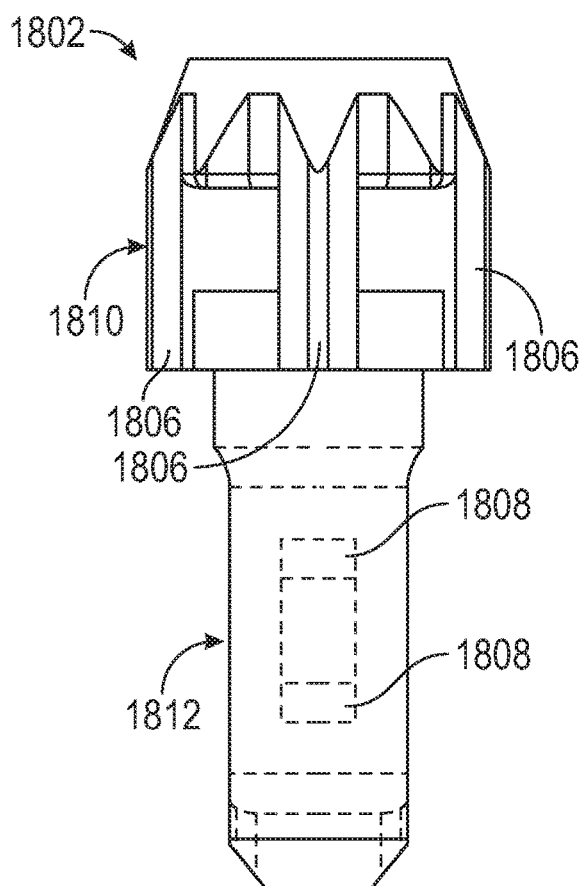


FIG. 18C

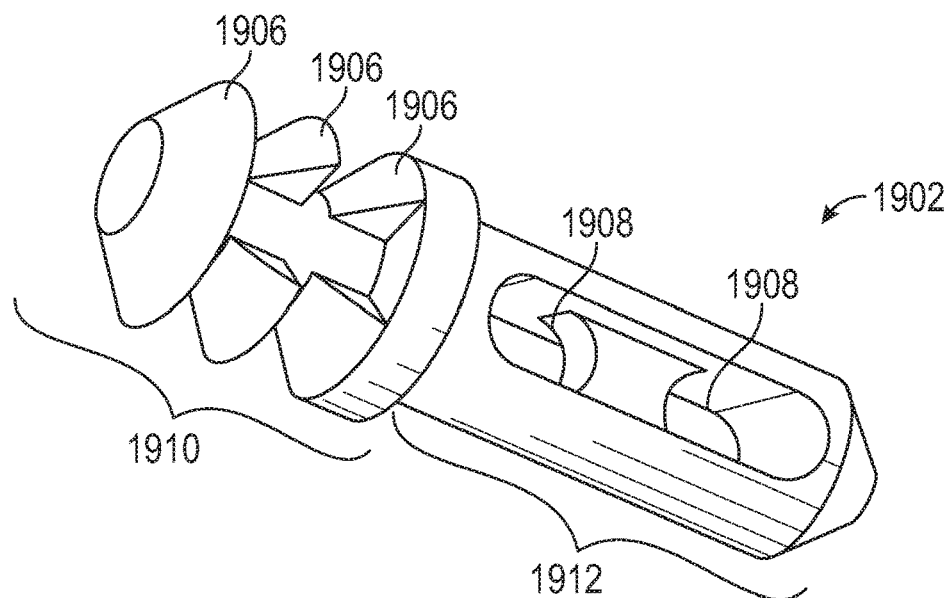


FIG. 19A

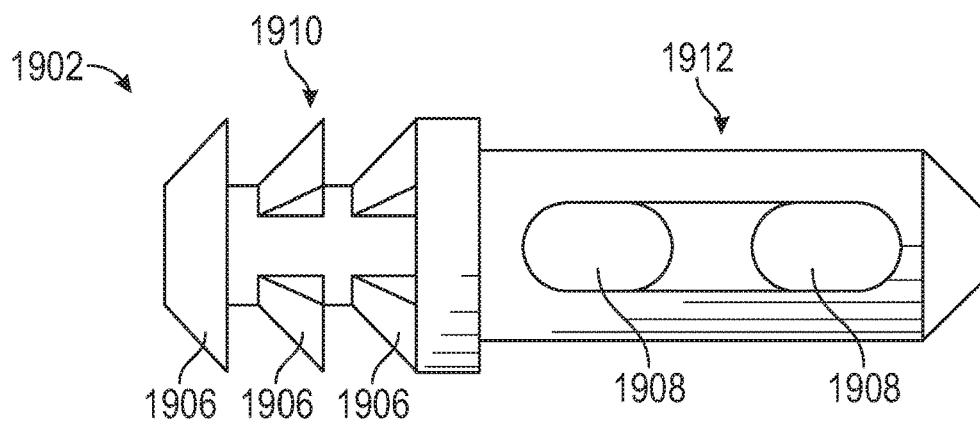


FIG. 19B

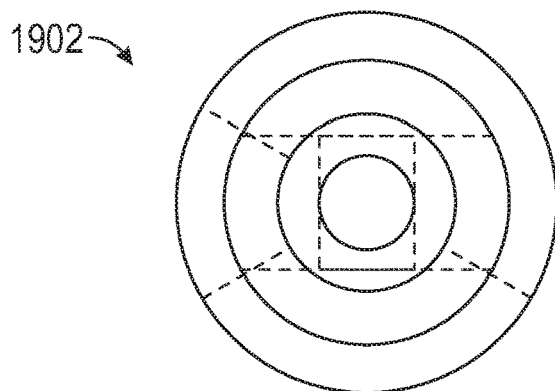


FIG. 19C

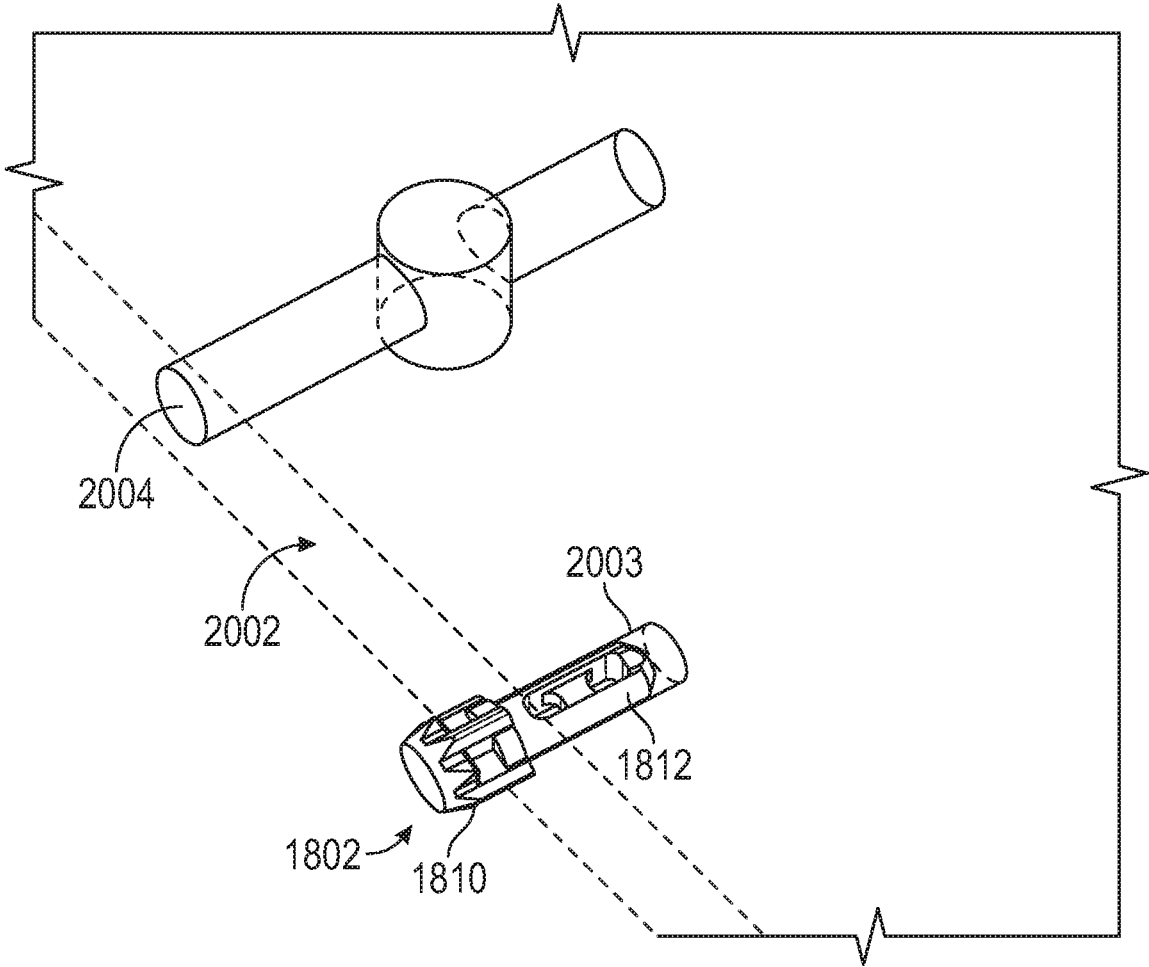


FIG. 20

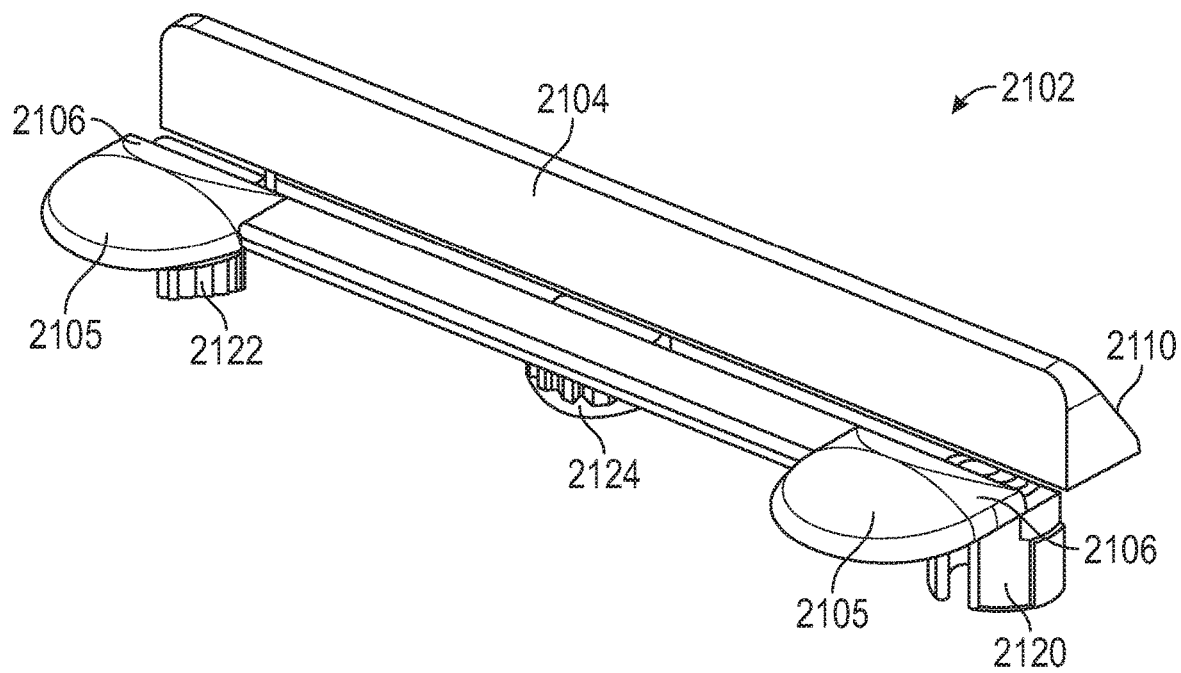


FIG. 21A

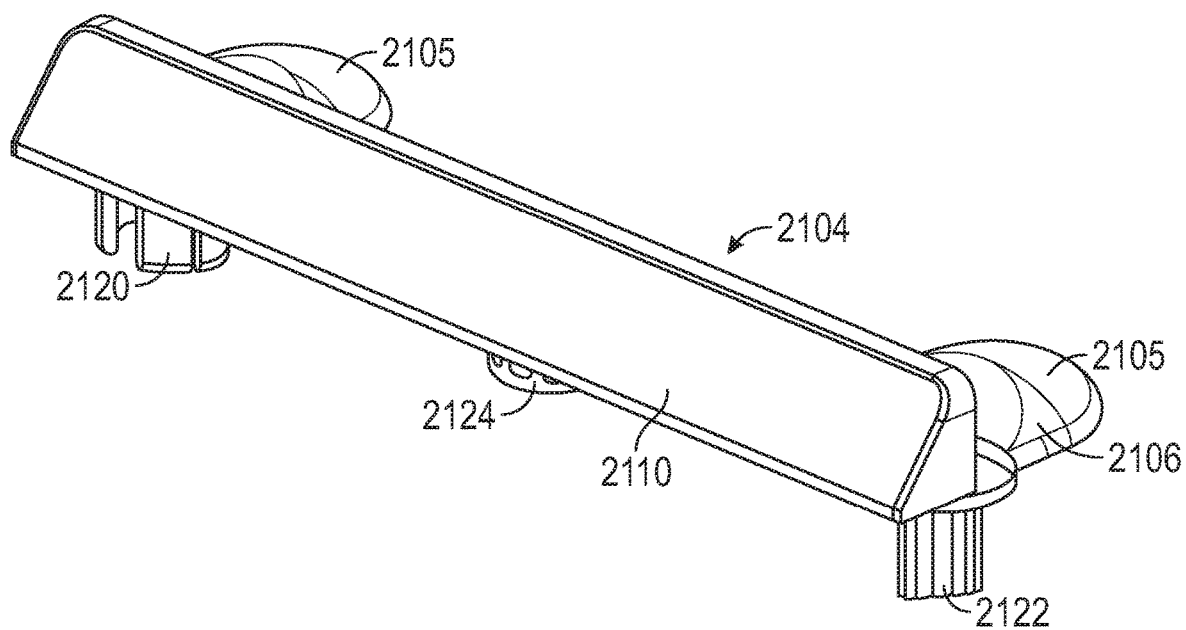


FIG. 21B

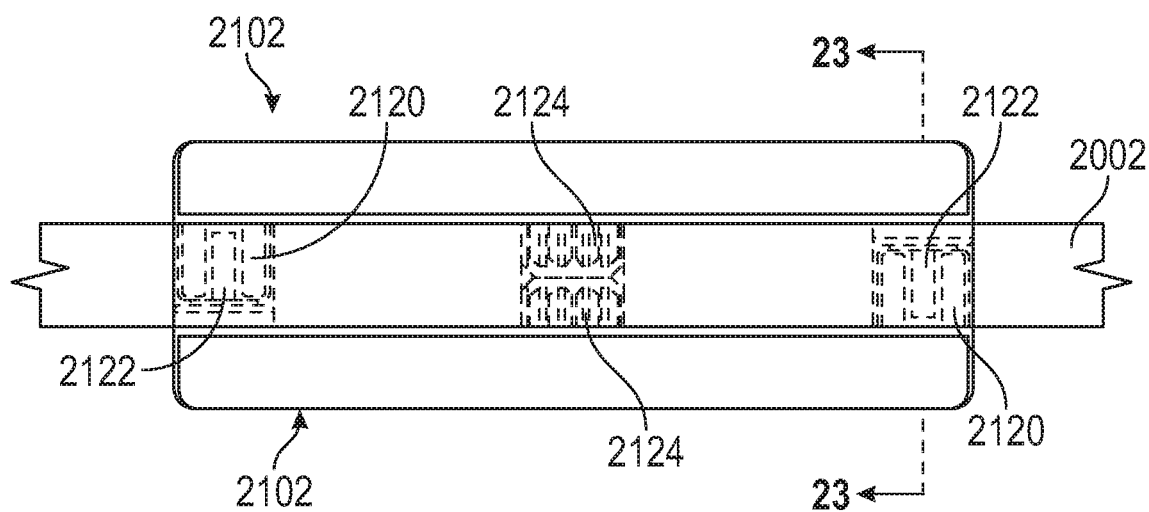


FIG. 22

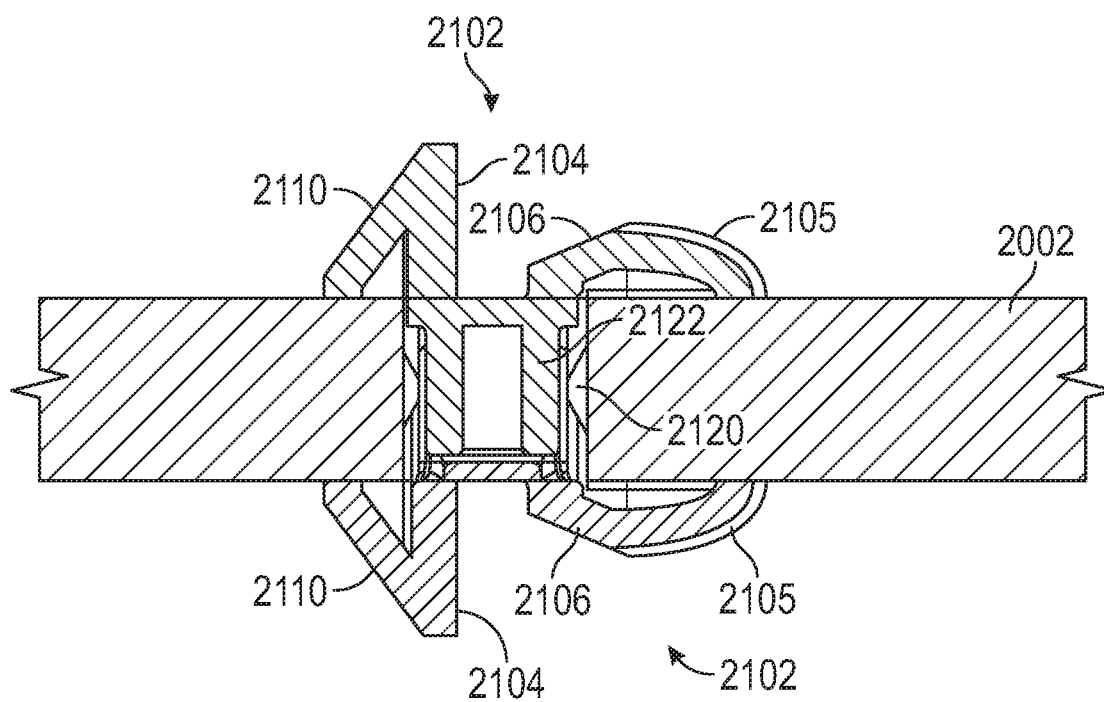


FIG. 23A

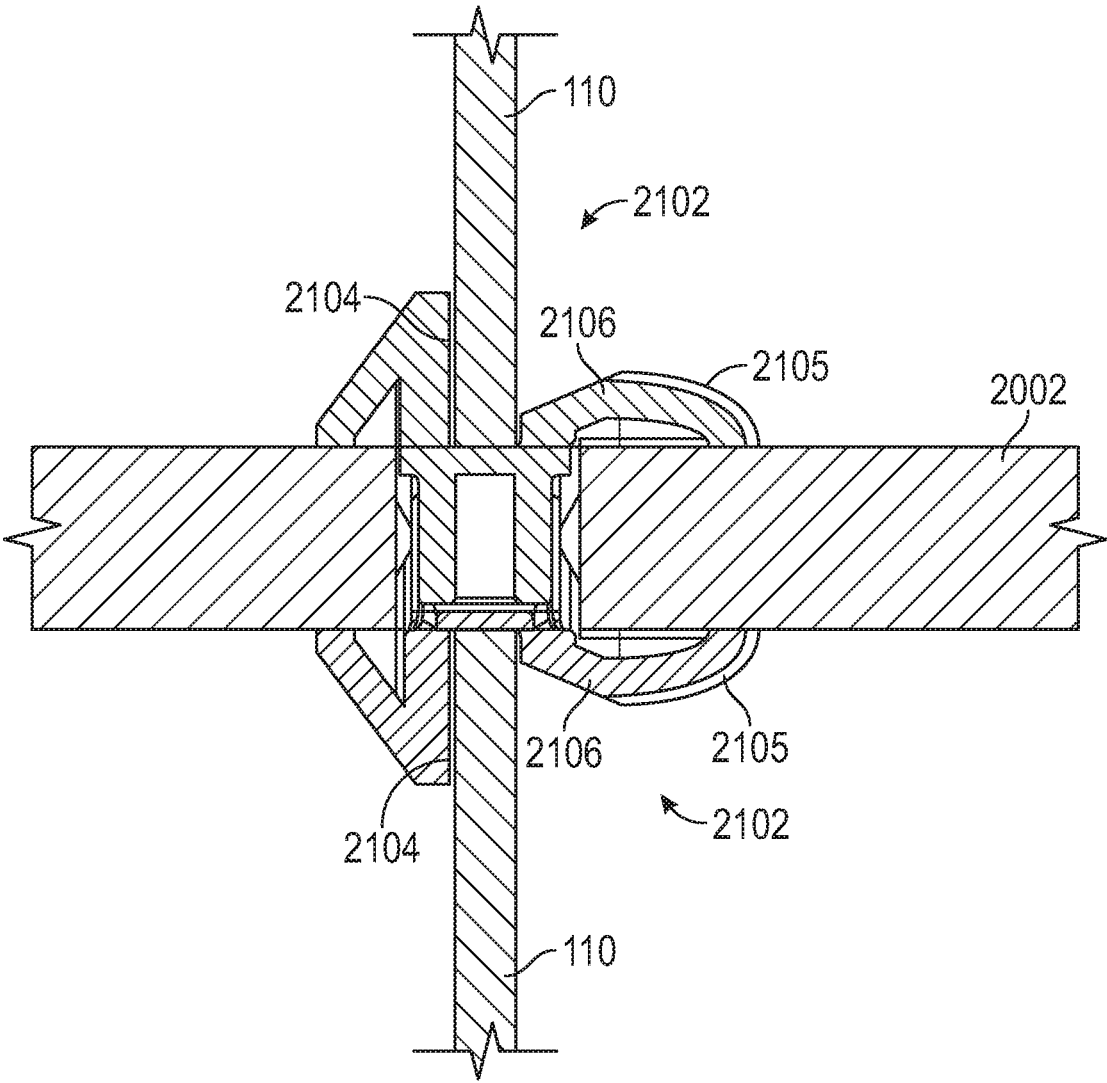


FIG. 23B

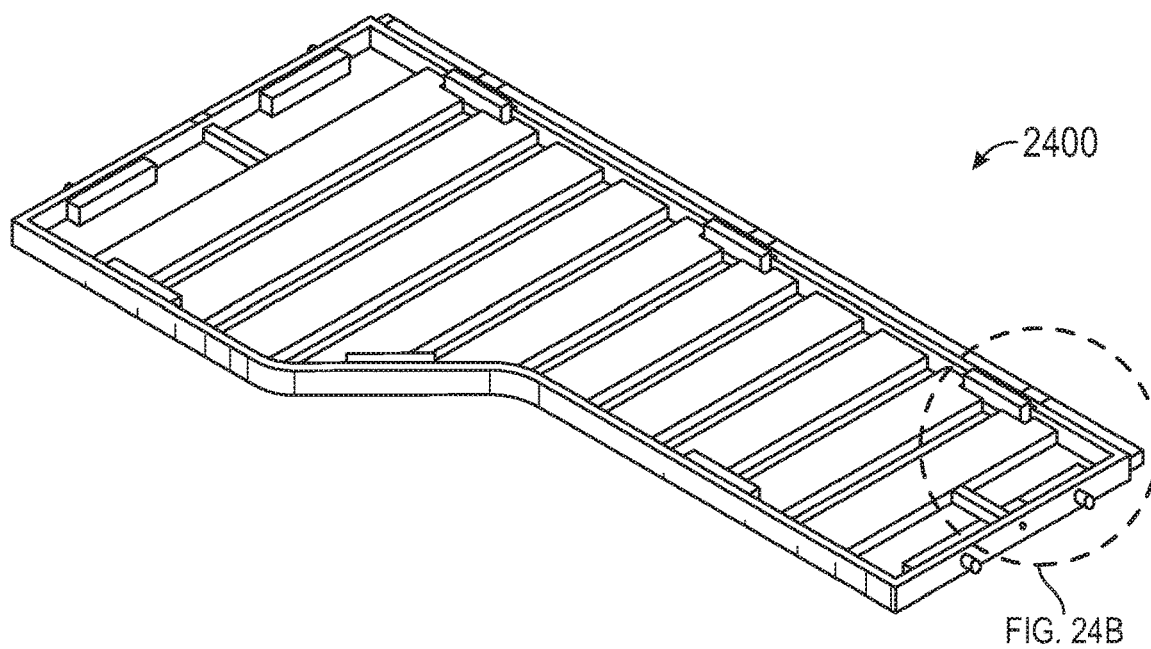


FIG. 24A

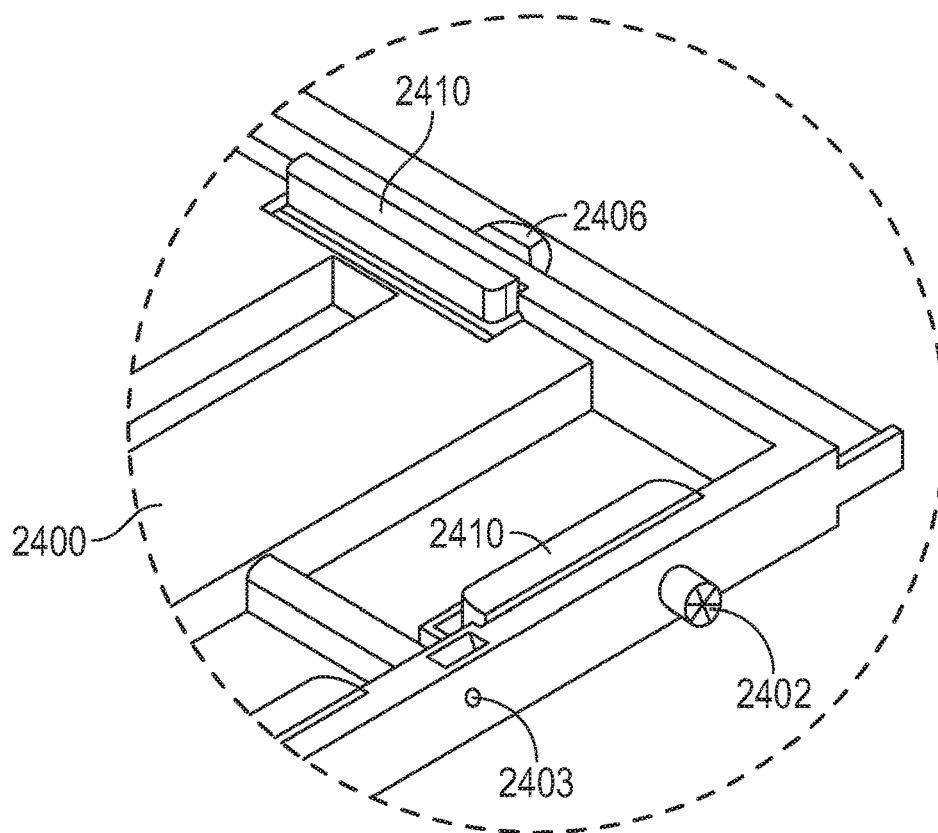


FIG. 24B

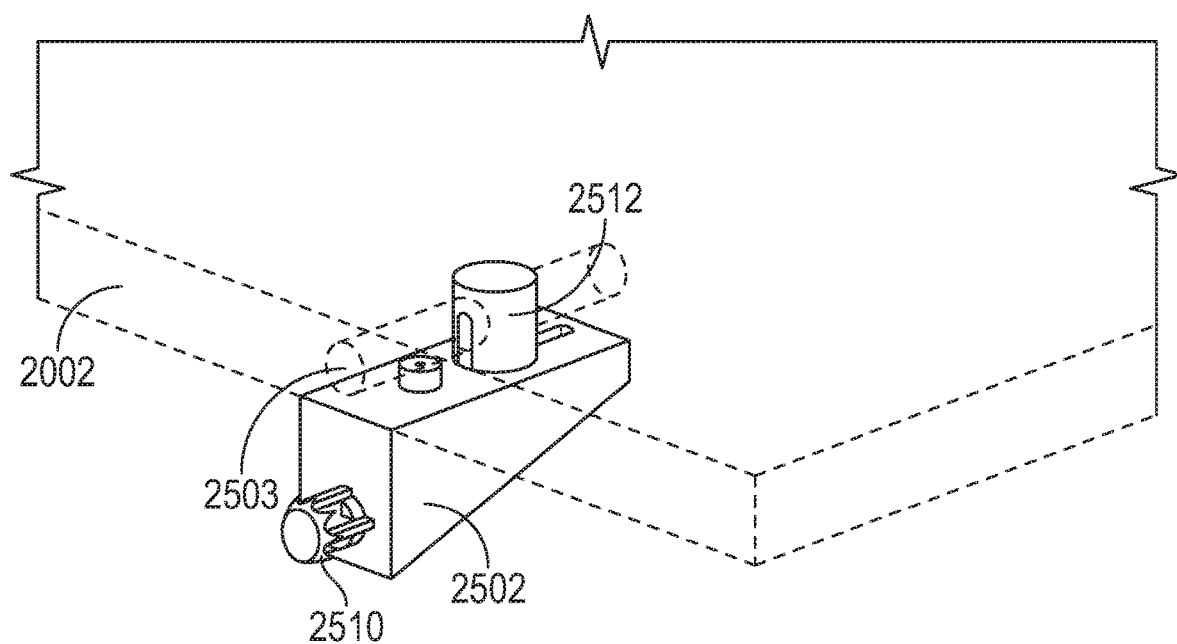


FIG. 25

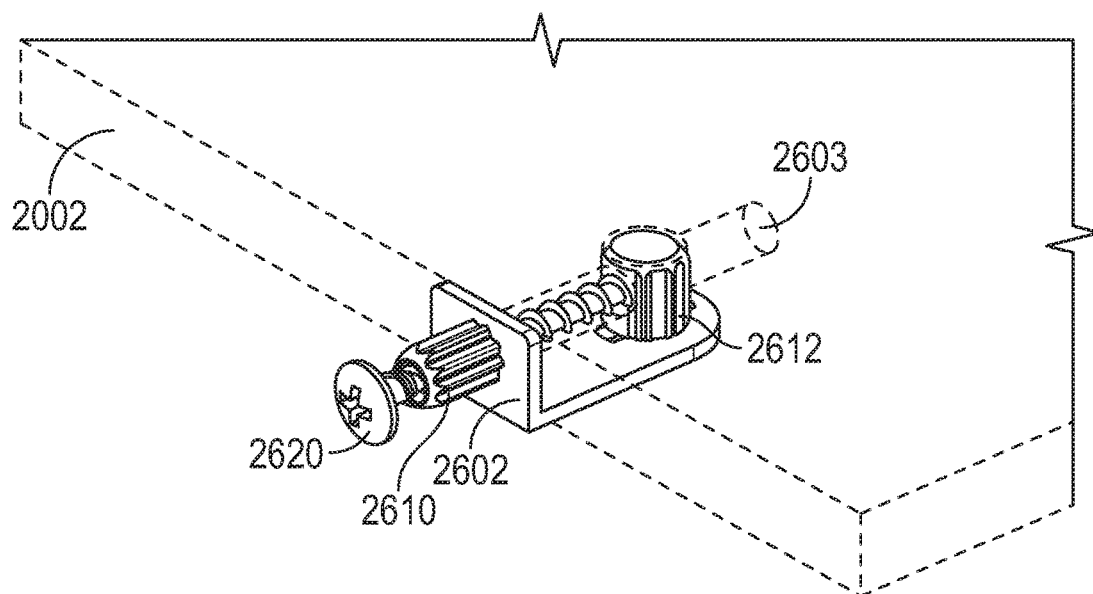


FIG. 26

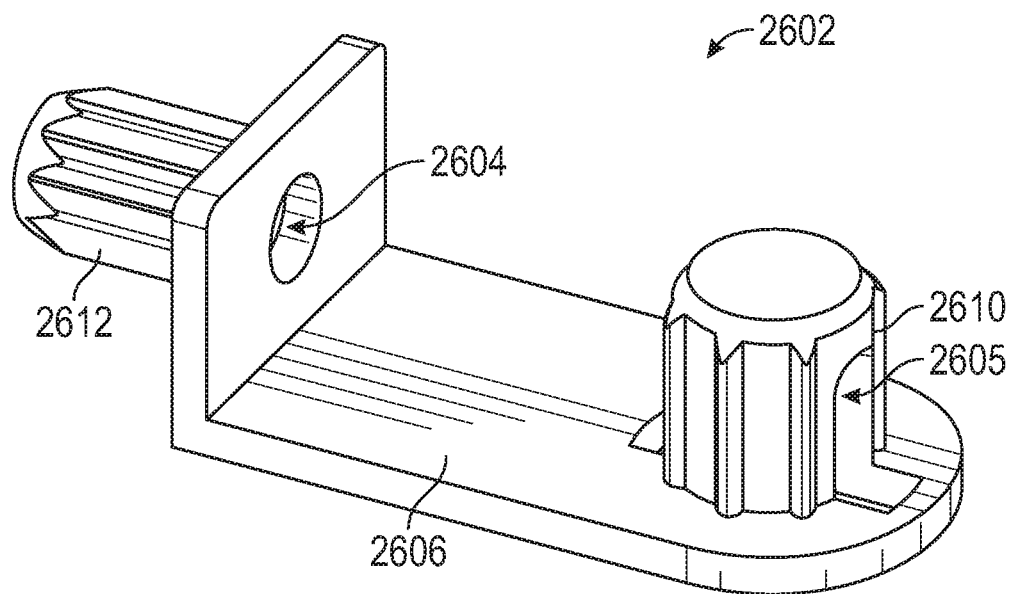


FIG. 27A

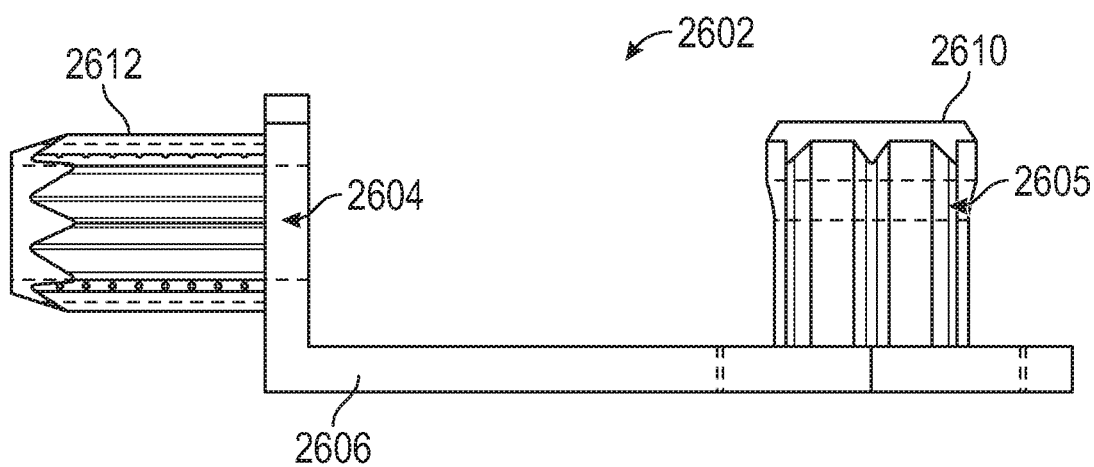


FIG. 27B

PLAY STRUCTURE AND PLAY STRUCTURE ASSEMBLY METHODS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a filing under 35 U.S.C. 371 of International Application No. PCT/US2019/012431 filed on Jan. 4, 2019, entitled “Play Structure and Play Structure Assembly Methods,” which claims priority to U.S. Provisional Patent Application Ser. No. 62/613,739 filed Jan. 4, 2018 by Daniel Lipschitz, et al. and entitled “Dollhouse, dollhouse kit, and dollhouse assembly methods” which is incorporated herein by reference as if reproduced in its entirety.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

REFERENCE TO A MICROFICHE APPENDIX

[0003] Not applicable.

BACKGROUND

[0004] Typical children’s play structures (including play houses, play tables, and/or play stations) may be sold to consumers at least partially disassembled and contained within a box or packaging. The play structures may then be assembled by the user, using the parts and instructions associated with the play structure.

SUMMARY

[0005] The described designs provide for easily assembled dollhouses and other toy structures designed to be provided in a packaged or kit form to consumers that provide for easy assembly techniques.

[0006] In an embodiment, a play structure may comprise at least one floor panel comprising at least one pre-drilled hole into a side surface of the floor panel; at least one side wall panel configured to attach to the at least one floor panel and comprising at least one pre-drilled hole through the thickness of the side wall panel; and at least one bracket configured to at least temporarily attach the floor panel to the side wall panel, wherein the at least one bracket comprises: a first section configured to be inserted into and held in place within the pre-drilled hole of the floor panel; and a second section attached to the first section configured to protrude from the floor panel and to be inserted into and held in place within the pre-drilled hole of the side wall panel.

[0007] In an embodiment, a method of assembling a play structure may comprise pre-drilling at least one hole in a side surface of a floor panel; pre-drilling at least one corresponding hole through the thickness of a side panel; attaching a first section of a bracket to the pre-drilled hole of the floor panel; positioning the side panel perpendicular to the floor panel; and attaching a second section of the bracket to the pre-drilled hole of the side panel, thereby at least temporarily securing the side panel to the floor panel.

[0008] In an embodiment, a play structure may comprise at least one floor panel comprising at least one cut-out into a surface of the floor panel; at least one back-wall panel configured to attach to the at least one floor panel; and at least one back-wall bracket configured to at least temporarily

attach the floor panel to the back-wall panel, wherein the at least one back-wall bracket comprises: at least one connector configured to be inserted into the at least one cut-out of the floor panel; a front portion that is rounded to allow the back-wall panel to be pushed over the front portion; and a back portion that is spaced from the front portion to create a seat for the back-wall panel to be held between the front portion and the back portion.

[0009] In an embodiment, a method of assembling a play structure may comprise forming at least one cut-out into a surface of a floor panel; attaching at least one connector of at least one back-wall bracket into the at least one cut-out of the floor panel; positioning a back-wall panel perpendicular to the floor panel; pressing the back-wall panel against the back-wall bracket; flexing the back-wall panel over a front portion of the back-wall bracket that is rounded; and retaining the back-wall panel relative to the floor panel between the front portion of the back-wall bracket and a back portion of the back-wall bracket that is spaced from the front portion to create a seat for the back-wall panel to be held between the front portion and the back portion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] For a more complete understanding of the present disclosure, reference is now made to the following brief description, taken in connection with the accompanying drawings and detailed description, wherein like reference numerals represent like parts.

[0011] FIG. 1 illustrates a play structure according to an embodiment of the disclosure.

[0012] FIG. 2 illustrates a floor panel according to an embodiment of the disclosure.

[0013] FIG. 3 illustrates a corner section of a floor panel assembly according to an embodiment of the disclosure.

[0014] FIG. 4 illustrates another view of a floor panel assembly according to an embodiment of the disclosure.

[0015] FIG. 5 illustrates a floor panel and back panel assembly according to an embodiment of the disclosure.

[0016] FIG. 6 illustrates a cross-sectional view of the floor panel and back panel assembly according to an embodiment of the disclosure.

[0017] FIG. 7 illustrates a floor panel and side panel assembly according to an embodiment of the disclosure.

[0018] FIG. 8 illustrates a partial assembly view of an assembled play structure according to an embodiment of the disclosure.

[0019] FIG. 9 illustrates another view of a floor panel assembly according to an embodiment of the disclosure.

[0020] FIG. 10 illustrates another view of a floor panel and side panel assembly according to an embodiment of the disclosure.

[0021] FIG. 11 illustrates an assembled play structure according to an embodiment of the disclosure.

[0022] FIGS. 12A-12E illustrate a side wall bracket according to an embodiment of the disclosure.

[0023] FIGS. 13A-13E illustrate another side wall bracket according to an embodiment of the disclosure.

[0024] FIGS. 14A-14E illustrate a back-wall bracket according to an embodiment of the disclosure.

[0025] FIG. 15 illustrates another back-wall bracket according to an embodiment of the disclosure.

[0026] FIG. 16 illustrates another side wall bracket according to an embodiment of the disclosure.

[0027] FIG. 17 illustrates a corner section of a floor panel and side panel assembly according to an embodiment of the disclosure.

[0028] FIGS. 18A-18C illustrate another side wall bracket according to an embodiment of the disclosure.

[0029] FIGS. 19A-19C illustrate another side wall bracket according to an embodiment of the disclosure.

[0030] FIG. 20 illustrates a floor panel assembly according to an embodiment of the disclosure.

[0031] FIGS. 21A-21B illustrate another back-wall bracket according to an embodiment of the disclosure.

[0032] FIG. 22 illustrates the back-wall bracket install onto a floor panel according to an embodiment of the disclosure.

[0033] FIGS. 23A-23B illustrate cross-sectional views of the back-wall bracket install onto a floor panel according to an embodiment of the disclosure.

[0034] FIGS. 24A-24B illustrate a molded floor panel according to an embodiment of the disclosure.

[0035] FIG. 25 illustrates another side wall bracket installed onto a floor panel according to an embodiment of the disclosure.

[0036] FIG. 26 illustrates another side wall bracket installed onto a floor panel according to an embodiment of the disclosure.

[0037] FIGS. 27A-27B illustrate detailed views of the side wall bracket of FIG. 26 according to an embodiment of the disclosure.

DETAILED DESCRIPTION

[0038] It should be understood at the outset that although illustrative implementations of one or more embodiments are illustrated below, the disclosed systems and methods may be implemented using any number of techniques, whether currently known or not yet in existence. The disclosure should in no way be limited to the illustrative implementations, drawings, and techniques illustrated below, but may be modified within the scope of the appended claims along with their full scope of equivalents.

[0039] The following brief definition of terms shall apply throughout the application:

[0040] The term “comprising” means including but not limited to, and should be interpreted in the manner it is typically used in the patent context;

[0041] The phrases “in one embodiment,” “according to one embodiment,” and the like generally mean that the particular feature, structure, or characteristic following the phrase may be included in at least one embodiment of the present invention, and may be included in more than one embodiment of the present invention (importantly, such phrases do not necessarily refer to the same embodiment);

[0042] If the specification describes something as “exemplary” or an “example,” it should be understood that refers to a non-exclusive example;

[0043] The terms “about” or “approximately” or the like, when used with a number, may mean that specific number, or alternatively, a range in proximity to the specific number, as understood by persons of skill in the art field (for example, $\pm 10\%$); and

[0044] If the specification states a component or feature “may,” “can,” “could,” “should,” “would,” “preferably,” “possibly,” “typically,” “optionally,” “for example,” “often,” or “might” (or other such language) be included or have a characteristic, that particular component or feature is not

required to be included or to have the characteristic. Such component or feature may be optionally included in some embodiments, or it may be excluded.

[0045] In the field of dollhouses and other toy or play structures, there have often been kits sold in which the end consumer, or the consumer parent, will assemble the final dollhouse or structure when received from the merchant. A difficulty with such structures is they can be large and have multiple pieces, and therefore they can be hard to assemble, which leads to a substantial amount of time for assembly, based upon the multiple pieces needing to be held in place and attached to one another. There have been many approaches in which these have been tried, the most common one would be simply to use fasteners such as screws or nails along with known wood routing and cutting techniques to make the pieces engage with each other. Problems with these types of approaches include that two or three or four pieces must be held simultaneously while they are fastened to one another. One approach for dealing with this would be to have press fit engagement between different pieces, but factors such as part size variation and/or changes in humidity causing wooden and/or medium density fiberboard (MDF) pieces to change in size makes such an approach difficult. Further, approaches that use complex structures in the final pieces can cause difficulty and expense in the manufacturing of those pieces in that expensive router cutting is necessary, as opposed to straight cut approaches (e.g., table saw or other straight cut saw approaches) which are less expensive compared to more complex routing that requires a substantial amount of additional labor costs.

[0046] Embodiments of the disclosure relate to brackets that may be used to temporarily affix panels of a play structure to one another, so that the panels may be positioned correctly for a user to permanently affix the panels to one another. Although the term “bracket” may be used throughout, a bracket could also be referred to as a connector, a physical communication apparatus, a brace, or another similar term, where the bracket may be described by its function to at least temporarily affix two panels. The brackets may be configured to affix two perpendicular panels to one another by fitting within holes and/or cut-outs formed within the panels. The brackets may comprise side wall brackets configured to affix a side wall to a floor panel, and/or back-wall brackets configured to affix a back wall to a floor panel.

[0047] FIG. 1 illustrates one example of a dollhouse (or play structure). The play structure 100 may include various components, such as a bottom floor, middle floor(s), top floor, and side panel(s). In the embodiment of FIG. 1, the play structure 100 includes a bottom floor formed by a bottom panel 102, two middle floors, middle panel 104, a top floor, top panel 106, and at least two side panels 108. Also illustrated is a back panel 110, which in a prior design might have been clipped between the bottom panel 102 and the middle floor immediately above the middle panel 104. Products like the play structure 100 are typically shipped boxed (e.g., with each floor and side panel separate, for example to allow stacking within a box) and ready to be assembled by an end-consumer. The difficulty with assembling these pieces together, as can be readily appreciated, is if a person without any special tools were to try to assemble side panels 108 with the bottom panel 102 and the middle panel 104, that alone would be four separate pieces to be held, potentially at a single given time, each piece being long and unwieldy and can be prone to escaping the consumer's

grasp during assembly. Described in the present application are a series of fasteners and panel designs that allow for easy assembly, including the intermediate assembly of piece parts before final fastening of the assembly. The use of intermediate structures for holding pieces together in the present disclosure addresses some of the difficulties in part size variation and/or variations with changing temperatures or humidity.

[0048] FIG. 2 illustrates an embodiment of the bottom panel 102, which may be formed without complex exterior computer-controlled routing. For example, the bottom panel 102 may require just simple routed semicircular cut-outs 206 in three places on its back surface (where in some embodiments, the bottom panel 102 may comprise more than three semicircular cut-outs 206 or less than three semicircular cut-outs 206).

[0049] FIG. 3 illustrates an embodiment of a corner section of a floor panel assembly 200, showing a bracket 202 inserted into a hole 203 on the end of each of a side rail 204. In the embodiment of FIG. 3, the side rail 204 comprises a slot 207 extending along the length of the side rail 204, into which the bottom panel 102 may be inserted, allowing the side rail 204 to frame and support the edge of the bottom panel 102. While FIG. 3 shows a possible factory assembly of this floor panel assembly 200, it should be noted that this assembly could be completed at any location including a retail outlet or at the consumer's home. In FIG. 3, the bracket 202 is inserted into the hole 203. This insertion is meant to be relatively secure, although not necessarily as rigidly secure as one would want for a final assembled product. The bracket 202 may include one or more protrusions 210 extending circumferentially around a portion of the bracket 202, for example, threads, ridges, or ribs, which can be of the bracket 202 can be crushed to cause a friction fit into the hole 203, and thus ideally the diameter of the protrusions 210 are slightly greater than the diameter of the hole 203. Glue or other adhesives can also be used for this connection. In some embodiments, the bracket 202 and/or protrusions 210 may be designed with a porous plastic material that is adapted to be usable with general-purpose wood glue or another adhesive. The details, features, and advantages of the bracket 202 are further illustrated in other figures of this application.

[0050] Shown in FIG. 4 is another view of the floor panel assembly 200. This view is slightly expanded with respect to FIG. 3 and it includes one entire end of the floor panel assembly 200, comprising the bottom panel 102 located between two side rails 204. In the embodiment of FIG. 4, brackets 202 have now been disposed within the holes 203 in each of the two side rails, as similarly disclosed with respect to FIG. 3. In some embodiments, this complete assembly is performed at the factory before being shipped to stores for consumer purchase. Also shown in this figure is a back-wall bracket 302 that has been placed into one of the semicircular cut-outs 206 of the bottom panel 102 prior to the bottom panel 102 being inserted into the respective side rail 204 (via the slot 207 shown in FIG. 3) to complete the assembly. In some embodiments, other portions of the floor panel assembly 200 may be similarly configured, for example, having these same components, depending on the particular end application, for example, upon the design of the dollhouse or other play structure. In the embodiment of FIG. 4, the bracket 202 and back-wall bracket 302 may be injection-molded with materials chosen according to the design purposes for their use. The overall purpose of this assembly is

to allow the customer to quickly assemble the frame of a dollhouse or other play structure and then complete the construction with more permanent fasteners, such as screws. Essentially, this provides a very simple process which can broadly be seen as snapping all the pieces of a dollhouse or other play structure together and then completing that construction with permanent fasteners, such as screws. In some embodiments, the style of fasteners are consistent throughout the assembly, so the customer achieves increased familiarity with the process, leading to further ease and speed of assembly. As an example, as shown in FIG. 4, the floor panel assembly 200 may comprise various dimensions, for example, where the side rail 204 is a 20 mm square piece of any suitable length and the bottom panel 102 has a 3 mm thickness.

[0051] The floor panel assembly 200 of FIG. 4 is illustrated in a configuration that, in some embodiments, is ready to be shipped to a distributor, retailer, or customer (e.g., in a box with other unassembled floor panels, side panels, and/or back panels). Although FIG. 4 illustrates a floor panel assembly, a similar concept and configuration could be applied to any other panels and/or assemblies according to the described principles. In the described embodiments, all of these elements of the floor panel assembly 200 have been pre-assembled by a supplier or manufacturer and are ready for assembly of a final dollhouse or other play structure 100 by a consumer. The elements are described in this figure as being glued together, although it is to be appreciated that it can be attached by other means or even permanently attached at this stage. An advantage of the present design, however, is that the final assembly can be used to further buttress an intermediate assembly that is done using glue or other less permanent engaging mechanisms by a manufacturer or supplier.

[0052] The views shown in FIGS. 5 and 6 provide further detail of the placement of the back-wall brackets 302 with respect to the floor panel assembly 200 or another panel assembly, such as a middle floor assembly 402. It should be appreciated that any dimensions included in the figures of this application are merely for illustration purposes and the design principles described herein can be used in any number of applications. Shown in FIG. 5 is a back-wall assembly for a middle panel 104, as an example, having 3 mm thick back walls that are held in place against the respective side rail 204 by the back-wall bracket 302. In this embodiment, the back panel 110 are pressed into place by the back-wall bracket 302, which holds them securely against the side rail 204.

[0053] FIG. 6 illustrates a cross-section of the back-wall bracket 302 and shows the slot 207 in the side rail 204. FIG. 6 also illustrates that the back-wall bracket 302 comprises a lip 404 that extends into the slot of the side rail 204. As was described for FIG. 4, the back-wall bracket 302 may be an injection-molded plastic component that can be pre-assembled with respect to the floor panel assembly 200 prior to shipping to the retailer and/or directly to the consumer. In some embodiments, the back-wall bracket 302 may be made from a clear material (e.g., a substantially clear plastic) in order to reduce its visibility.

[0054] Illustrated in FIG. 7 is a partial view of a dollhouse or other structure following one of these floor or ceiling or middle panels having been inserted into a side panel 108. In the embodiment of FIG. 7, the dollhouse or other structure is shown with the bottom panel 102, the middle panel 104,

and/or the top panel 106 affixed to the side panel 108 via the brackets 202, but with no permanent fastener having yet been applied. In other words, the structure is in an intermediate state, where the elements are held with respect to one another prior to permanent attachment. Particularly, in the embodiment of FIG. 7, the bracket 202 retains the side panel 108 in place relative to another panel, such as the bottom panel 102. It is to be appreciated that any suitable wall thickness appropriate for the design could be used in a similar fashion.

[0055] FIG. 8 provides view of a partially-assembled dollhouse or other play structure 800. For example, the structure shown here may be top and bottom floors engaged with two side panels 108 and a back panel 110. The brackets 202 are illustrated to the left of the figure. The back-wall brackets 302 can be seen at the bottom back edge of the structure although they would be at the top back edge of the structure as well. It should be appreciated that this play structure 800 is provided to illustrate the construction of these elements, but that in embodiments they would be employed in a more complex design such as illustrated in the play structure 100 illustrated in FIG. 1. As mentioned previously, each of the bottom panel 102, middle panel 104, and/or top panel 106, with their corresponding brackets 202 and/or 302 may have been preassembled at a manufacturer or supplier before shipping (e.g., with side brackets and/or back brackets pre-inserted into the rods by the manufacturer prior to shipment and/or assembly by the end user). Further, the back-wall brackets 302 may have similarly been assembled and affixed into the bottom panel 102, middle panel 104, and/or top panel 106. Further, holes would've been previously drilled into the side panels 108 and these holes would have been spaced to engage with the corresponding bracket 202 of the various floors according to the design of the overall dollhouse or other play structure 100. The brackets 202 are designed to flex inwardly so they can slide through the holes in the side panels 108 and pop back out again once through holding the panels in place with the lips (for example, as described in FIGS. 12, 13, and 14) of the brackets 202. This design holds the assembled components in place (e.g., acting as extra sets of hands to hold and sign the elements) until the customer or consumer can permanently connect the structures (e.g. through wood screws that extend through the bracket and into the wood).

[0056] Illustrated in FIG. 9 is a partial assembly view of an example in which two brackets 602 have been placed. The brackets 602 shown in FIG. 9 may not include screw holes. This design takes advantage of the fact that ultimately top and bottom floors would be permanently attached, and this middle floor would have then been captured within the perimeter of the overall side wall/top wall/side wall/bottom wall structure. This allows reduced hardware in the final assembly and may speed/ease final assembly by not requiring a screw or other additional permanent mount for the middle panels 104. Optionally, a bracket 602 may be used without a finishing screw for middle floor panels, where such middle panels are otherwise kept in place within an overall design in which a top floor roof panel and a bottom floor panel captures the overall perimeter of an assembled dollhouse or other play structure.

[0057] Illustrated in FIGS. 10 and 11 illustrate a multiple-level structure illustrating this final assembly with a middle panel 104 captured within the overall perimeter of the dollhouse structure.

[0058] FIGS. 12A-12E illustrate the bracket 202 that has been described generally throughout this application. Various figures are intended to show the overall structure of this bracket 202 as well as how it is designed to accept a screw or similar fastener in order to affect final assembly of the play structure 100 or other play structure. As shown in FIGS. 12A-12E, the bracket 202 includes a lip 1101 used to hold a side panel in place once the bracket has been pushed through a hole in the side panel 108. The bracket 202 includes a top portion 1110 (e.g., a first portion) that is designed to compress as the bracket is pressed through a hole in a side panel. The bracket 202 includes a cut-out 1102 through the top that allows the top portion to be compressed as it is inserted into a hole or opening in the side panel as the side panel is pressed onto the bracket 202. Although the compression mechanism shown in this figure is of a cut-out 1102 cut through the top portion 1110, there are multiple ways to accomplish the same effect. FIG. 12D illustrates the diameters of the sections of the top portion 1110 that are not perfectly circular, but instead have sections cut from either side of the diameter, which may further enable the compression of the top portion 1110 when pressed through the holes in the side panels. The top portion shown in the figure can be adjusted according to varying wall thicknesses. The gap between the two sides of the top portion allows for space for the sides to bend while being inserted into the side panel.

[0059] The lip 1101 may be configured to expand (e.g., back to its original shape) once pressed through the side panel. This keeps the bottom panel 102 and side panel 108 secured to one another. The top portion 1110 has a larger diameter than a bottom portion 1112 (e.g., a second portion) such that it will seat directly at the top of the holes in the side rails 204 to ensure correct depth of assembly of the wood rail of the floors and to the side panels. A cavity 1104 is provided that is coaxial through both of the top portion 1110 and bottom portion 1112, although not necessarily at the same diameter, to provide for passage of the screw through the bracket 202 and into the wood of the side rails 204, wherein a finishing screw may penetrate both the plastic of the bracket 202 and the wood into which the bracket 202 is inserted upon final assembly by the consumer. The side rails 204 might, for instance, have starter holes cut in the correct alignment to the holes in the brackets 202 so minimal screwing effort is required to effectively permanently affix the pieces together by the customer. Downward bearing ridges 1108 allow a tight fit to the wood of the side rails 204 and they further create a surface for the glue to adhere to. In some embodiments, the brackets 202 may be formed of a relatively porous material so that the glue can be absorbed to create a bond between the pieces with carpenter's glue or the like.

[0060] FIGS. 13A-13E provides a similar set of views to those of FIGS. 12A-12E, but these views are provided relative to the bracket 602 that does not use a screw inserted through the middle of them for permanent assembly. The design principles for this bracket, however, are otherwise similar to those described in FIGS. 12A-12E. As previously described, this bracket 602 may be used preferably for interior floors of a dollhouse or play structure where a bottom floor, side wall, top floor, and/or side wall perimeter otherwise capture the perimeter of the overall structure using permanent fasteners such as screws. The bracket 602 may comprise all of the same elements as the bracket 202 except the cavity 1104.

[0061] For both the brackets shown in FIGS. 12A-12E and FIGS. 13A-13E, there are a unique combination of elements that provide for easy assembly of the dollhouse or other play structure 100 in the context of thinner pieces of wood. This improved structure may allow for a two-stage assembly process (e.g., the first stage using the brackets to secure the panels and other elements together, so that final permanent assembly in the second stage is quicker and easier due to prior alignment and holding of the elements), avoiding or minimizing the use of permanent fasteners during initial (e.g., first stage) assembly (or at all for the middle floors) while still allowing for final (e.g., second stage) assembly with more permanent fasteners. The design provides for a consistency of fastening across the entire assembly, consistent dimensional positioning of the various pieces even when assembled by the end customer and/or by a single customer. The design further allows for structure and materials used to provide for flexible yet secure assembly, and the other design features described herein.

[0062] FIGS. 14A-14E illustrate the back-wall bracket 302. This image of the back-wall bracket 302 more clearly shows the lip 404 of the back-wall bracket 302 and a groove 604 of the back-wall bracket 302. The groove 604 may be sized to fit around the semicircular cuts in the floor panel and may be sized to provide a friction fit with the floor panel. The groove 604 of the back-wall bracket 302 is designed to engage with the respective top, bottom, or middle floor panel that it is engaged with. Thus, the groove 604 would generally have the same width as the respective panel it is engaged with. The lip 404 may be sized to provide spacing between the side rail and the front portion of the back-wall bracket to fit the back-wall panel.

[0063] FIGS. 14A-14E provides several views and perspectives of the back-wall bracket 302, illustrating the operation this bracket with respect to usage in the context of the disclosed designs. Specifically, as previously described, the bracket includes a lip 404 that engages into the slot 207 of the side rails 204. It further includes a groove 604 that engages to the bottom panel 102, middle panel 104, and/or top panel 106. The back-wall bracket 302 has two other aspects that enable mounting of the back walls 110 as a part of the final product assembly after the side panels 108 and bottom panel 102, middle panel 104, and/or top panel 106 have been engaged together. Specifically, the back-wall brackets 302 are designed to receive the back panel 110 from the front openings of a partially-assembled play structure 100 or other play structure. Accordingly, the front portion 1302 of the back-wall bracket 302 includes curved or rounded faces 1305 on either side of the groove 604 such that back walls are pushed in above or below the bottom panel 102, middle panel 104, and/or top panel 106 being captured by the groove 604 can be pushed over the rounded faces 1305 until it reaches the peak 1309. At the point of the peak 1309, the back wall is pushed over into the back portion 1304 of the back-wall bracket 302 and is naturally pushed into a seat 1311 by chamfer 1306. In other words, the back portion 1304 may include a chamfer 1306 directing and allowing the back wall to slide into place once it passes the peak 1309. In some embodiments, the seat 1311 may be raised with respect to the lip 404, where the seat 1311 may define how deep the lip 404 extends into the slot of the side rail (or back rail).

[0064] This unique structure allows the customer or consumer (or other assembler) to simply push the back panel

110 to the back of the open areas between the floors and against the rounded faces 1305 until the back panel 110 are engaged and seat into the seat 1311. This structure, along with the flexure of the relatively thin MDF back panels 110 (e.g., 3 mm thick) makes possible a very efficient assembly of the play structure 100, especially in connection with the other improved assembly techniques and structures described herein.

[0065] FIG. 15 illustrates an alternative embodiment of back-wall bracket 1502 similar to the back-wall bracket 302, that does not comprise the seat 1311. The spacing for the back wall to fit within the back-wall bracket 1502 may be created by the lip 404 and chamfer 1306.

[0066] Illustrated in FIGS. 16 and 17 is an alternative embodiment of a bracket 1402 (relative to the bracket 202 previously discussed), where the bracket 1402 comprises a top portion 1410 that has a friction fit (via ridges 1406) into a hole in the side panel 108 (for example, in lieu of the lip 1101 used in the bracket 202). Like the bracket 202, the bracket 1402 includes a bottom portion 1412 comprising downward bearing ridges 1108 configured to friction fit into the hole 203 of the side rail 204, and a coaxial screw hole 1404 that allows the screw 1420 to pass all the way through the top and down into the wood of the side rail 204. In this case, the screw 1420 would be longer than the bracket 1402, because it will extend all the way from the top of the wood of the side panel 108 into the wood of the side rail 204. The bracket 1402, however, still has the advantageous assembly concept previously described with respect to the bracket 202 in that it holds the pieces (e.g., floor panel, side rail 204, and side panel 108) in place securely for the end customer or consumer to perform final fastener insertion and assembly into the finished product.

[0067] FIGS. 18A-18C illustrate another embodiment of a bracket 1802 that may be similar to one or more of the brackets described above. The bracket 1802 includes a top portion 1810 that may comprise ridges 1806 designed to compress as the bracket 1802 is pressed through a hole in a side wall. The ridges 1806 may be configured to provide a friction fit between the bracket 1802 and a side wall, for example. Although the compression mechanism shown in this figure is of a plurality of ridges 1806 that extend axially from the top portion 1810, there are multiple ways to accomplish the same effect. The bracket 1802 may comprise a bottom portion 1812 configured to be inserted into a floor panel. The size (or diameter) or the bottom portion 1812 may be determined based on the size of the floor panel with which the bracket 1802 will be used. For example, if the floor panel comprises a thickness of approximately 3 mm, the diameter of the bottom portion 1812 may be less than 3 mm. Similarly, if the floor panel comprises a thickness of approximately 9 mm, the diameter of the bottom portion 1812 may be less than 9 mm.

[0068] The top portion 1810 may have a larger diameter than the bottom portion 1812 such that it will seat directly at the top of the holes in the floor panel to ensure correct depth of assembly of the floor panel(s) to the side panel(s). The size (or diameter) or the top portion 1810 may be determined based on the size of the floor panel with which the bracket 1802 will be used, where it may be desired for the top portion 1810 to not extend beyond the edges of the floor panel. For example, if the floor panel comprises a thickness of approximately 3 mm, the diameter of the top portion 1810 may be equal to or less than 3 mm. Similarly,

if the floor panel comprises a thickness of approximately 9 mm, the diameter of the top portion **1810** may be equal to or less than 9 mm.

[0069] In some embodiments, the bottom portion **1812** may comprise cutouts **1808** configured to allow glue or other adhesive to flow between each side of the bottom portion **1812** and create a surface to which the glue may adhere between the bottom portion **1812** and the interior surface of the hole in the floor panel. In some embodiments, a portion of the bracket **1802** may be formed of a relatively porous material so that the glue can be absorbed to create a bond between the pieces with carpenter's glue or the like.

[0070] FIGS. **19A-19C** illustrate another embodiment of a bracket **1902** that may be similar to one or more of the brackets described above. The bracket **1902** includes a top portion **1910** that may comprise ridges **1906** designed to compress as the bracket **1902** is pressed through a hole in a side wall. The ridges **1906** may be configured to provide a friction fit between the bracket **1902** and a side wall, for example. Although the compression mechanism shown in this figure is of a plurality of ridges **1906** that extend radially from the top portion **1910**, there are multiple ways to accomplish the same effect. The bracket **1902** may comprise a bottom portion **1912** configured to be inserted into a floor panel. The size (or diameter) of the bottom portion **1912** may be determined based on the size of the floor panel with which the bracket **1902** will be used. For example, if the floor panel comprises a thickness of approximately 3 mm, the diameter of the bottom portion **1912** may be less than 3 mm. Similarly, if the floor panel comprises a thickness of approximately 9 mm, the diameter of the bottom portion **1912** may be less than 9 mm.

[0071] The top portion **1910** may have a larger diameter than the bottom portion **1912** such that it will seat directly at the top of the holes in the floor panel to ensure correct depth of assembly of the floor panel(s) to the side panel(s). The size (or diameter) of the top portion **1910** may be determined based on the size of the floor panel with which the bracket **1902** will be used, where it may be desired for the top portion **1910** to not extend beyond the edges of the floor panel. For example, if the floor panel comprises a thickness of approximately 3 mm, the diameter of the top portion **1910** may be equal to or less than 3 mm. Similarly, if the floor panel comprises a thickness of approximately 9 mm, the diameter of the top portion **1910** may be equal to or less than 9 mm.

[0072] In some embodiments, the bottom portion **1912** may comprise cutouts **1908** configured to allow glue or other adhesive to flow between each side of the bottom portion **1912** and create a surface to which the glue may adhere between the bottom portion **1912** and the interior surface of the hole in the floor panel. In some embodiments, a portion of the bracket **1902** may be formed of a relatively porous material so that the glue can be absorbed to create a bond between the pieces with carpenter's glue or the like.

[0073] FIG. **20** illustrates a view of a bracket **1802** (such as the bracket **1802** described in FIG. **18**) installed within a floor panel **2002**, wherein the bracket **1802** may be installed into a bracket hole **2003** proximate to a receiving screw-hole **2004** for a screw attachment. In the embodiment shown in FIG. **20**, the floor panel **2002** may comprise a thickness of approximately 9 mm. The screw-hole **2004** may be configured to align with a screw hole disposed within a side panel (which may have been pre-drilled or molded, for example,

prior to provision to a consumer), while the bracket hole **2003** may be configured to align with a bracket hole within the side panel. The bracket **1802** may fit within the bracket hole of the side panel to hold the side panel in place against the floor panel **2002** while a screw is drilled through the side panel into the screw-hole **2004** of the floor panel **2002**. The bottom portion **1812** of the bracket **1802** may be inserted into the floor panel **2002** while the top portion **1810** of the bracket **1802** may be inserted into the side panel. In some embodiments, the bottom portion **1812** of the bracket **1802** may be held within the bracket hole **2003** via adhesive or glue. In some embodiments, the bottom portion **1812** of the bracket **1802** may be inserted directly into the floor panel **2002** (for example, instead of into a rail or side rail that is attached to the floor panel).

[0074] FIGS. **21A-21B** illustrate another embodiment of a back-wall bracket **2102** which may be configured to hold a back wall in place with respect to a floor panel and/or side wall or side panel. The back-wall bracket **2102** may be configured to be used alone or may be configured to connect to a second back-wall bracket **2102**. The back-wall bracket **2102** may comprise a first portion comprising a retaining wall **2104** configured to contact and support a back wall that is inserted into the back-wall bracket **2102**. The back-wall bracket **2102** may also comprise a second portion having one or more curved or rounded faces **2105** such that back walls are pushed into the back-wall bracket **2102** can be pushed over the rounded faces **2105** as well as a chamfered or tapered edge **2106** directing and allowing the back wall to slide into place once it passes over the rounded face **2105**. The retaining wall **2104** may comprise a flat vertical surface that is spaced from the taper edge **2106** at least the thickness of the back wall to be held by the back-wall bracket **2102**, creating a seat where the back wall may eventually be held between the retaining wall **2104** and the taper edge **2106**. The retaining wall **2104** may comprise a support section **2110** that may be tapered and comprises a larger thickness at the base of the support section **2110** than at the top, to provide support for retaining the back wall by the retaining wall **2104**. In some embodiments, the back-wall bracket **2102** may comprise one or more connectors, for example, a first connector **2120**, a second connector **2122**, and/or a third connector **2124**. The first connector **2120**, second connector **2122**, and/or third connector **2124** may be configured to connect the back-wall bracket **2102** to a floor panel and/or to another back-wall bracket.

[0075] This unique structure allows the customer or consumer (or other assembler) to simply push the back walls to the back of the open areas between the floors and against the faces **2105** until the back walls are engaged and held between the retaining wall **2104** and the tapered edge **2106**. This structure, along with the flexure of the relatively thin MDF back walls (e.g., 3 mm thick) makes possible a very efficient assembly of the overall structure, especially in connection with the other improved assembly techniques and structures described herein.

[0076] As shown in FIG. **22**, the connectors, particularly, the first connector **2120**, the second connector **2122**, and the third connector **2124**, may be configured to attach the back-wall bracket **2102** to a floor panel **2002** and/or to another back-wall bracket **2102**. In some embodiments, the first connector **2120** may be shaped to fit around and attach to the second connector **2122** of another back-wall bracket **2102**. In some embodiments, the third connector **2124** may

be configured to contact and/or attach to a third connector **2124** of another back-wall bracket **2102**.

[0077] FIGS. 23A-23B illustrate a cross-sectional view of the back-wall brackets **2102** through one of the connector attachment points. FIG. 23B illustrates the back-wall brackets **2102** holding multiple back panels **110** in place with respect to the floor panel **2002**, where the floor panel may comprise a middle floor. However, the back-wall bracket **2102** may be used with a top floor panel, a bottom floor panel, and/or a middle floor panel. The two back-wall brackets **2102** may be positioned on either side of a floor panel **2002**, where, for example, one back-wall bracket **2102** may hold the bottom edge of a first back panel **110**, while the other back-wall bracket **2102** may hold the top edge of a second back panel **110**.

[0078] FIGS. 24A-24B illustrate another embodiment of a floor panel **2400**, where the floor panel **2400** may comprise integrated elements that are molded with the floor panel as one piece. For example, the floor panel **2400** may comprise a plurality of clips **2410** positioned around the perimeter of the floor panel **2400** that may be configured to hold a decorative floor cover in place (which may be of a different material than the floor panel **2400**). The floor panel **2400** may comprise a plurality of back-wall brackets **2406** configured to hold a back wall in place with respect to the floor panel **2400**.

[0079] The floor panel **2400** may also comprise one or more dowels **2402** (which may be similar to the brackets described above) configured to temporarily secure a side panel to the floor panel **2400**. The floor panel **2400** may also comprise one or more screw-holes **2403** (which may have been pre-drilled or molded, for example, prior to provision to a consumer) configured to receive a screw that may permanently attach a side panel to the floor panel **2400**. In some embodiments, the floor panel **2400** may be used with other similarly molded and integrated panels, or it may be used as one of many floor panels in a structure that comprise different shapes and elements.

[0080] FIG. 25 illustrates another embodiment of a bracket **2502** configured to secure a side panel to a floor panel **2002** temporarily to allow for permanent attachment of the side panel to the floor panel, for example, with a screw. The bracket **2502** may be shaped to fit onto a bottom surface of the floor panel **2002** via a first protruding portion **2512**. The bracket **2502** may comprise a second protruding portion **2510** configured to fit into a hole in a side panel (which may have been pre-drilled or molded, for example, prior to provision to a consumer). The second protruding portion **2510** may comprise one or more ridges configured to provide a friction fit with the hole of the side panel. In some embodiments, the bracket **2502** may align with a hole **2503** (which may have been pre-drilled or molded, for example, prior to provision to a consumer) in the floor panel **2002**, wherein a screw may be used to permanently attach the side panel to the floor panel **2002** via the hole **2503**. In some embodiments, the screw may pass through at least a portion of the bracket **2502**, such as the first protruding portion **2512**. When the brackets **2502** is used, the side panel may comprise two aligned holes, with one configured to receive the second protruding portion **2510** and one configured to allow the screw to attach the side panel to the floor panel **2002**.

[0081] FIGS. 26, 27A, and 27B illustrate another embodiment of a bracket **2602** configured to secure a side panel to

a floor panel **2002** temporarily to allow for permanent attachment of the side panel to the floor panel, for example, with a screw. The bracket **2602** may be shaped to fit onto a bottom surface of the floor panel **2002** via a first protruding portion **2612**. The bracket **2602** may comprise a second protruding portion **2610** connected to the first protruding portion **2612** via a body **2606** of the bracket **2602**, where the first protruding portion **2612** is configured to fit into a hole in a side panel. The second protruding portion **2610** may comprise one or more ridges configured to provide a friction fit with the hole of the side panel. In some embodiments, the bracket **2602** may align with a hole **2603** (which may have been pre-drilled or molded, for example, prior to provision to a consumer) in the floor panel **2002**, wherein a screw may be used to permanently attach the side panel to the floor panel **2002** via the hole **2603**. In some embodiments, the screw may pass through at least a portion of the bracket **2602**, such as a hole **2604** through the second protruding portion **2610** and/or a hole **2605** through the first protruding portion **2612**. When the brackets **2602** is used, the side panel may comprise one hole configured to receive the second protruding portion **2610** and configured to allow the screw to attach the side panel to the floor panel **2002**.

[0082] Having described various devices and methods herein, exemplary embodiments or aspects can include, but are not limited to:

[0083] In a first embodiment, a play structure may comprise at least one floor panel comprising at least one pre-drilled hole into a side surface of the floor panel; at least one side wall panel configured to attach to the at least one floor panel and comprising at least one pre-drilled hole through the thickness of the side wall panel; and at least one bracket configured to at least temporarily attach the floor panel to the side wall panel, wherein the at least one bracket comprises: a first section configured to be inserted into and held in place within the pre-drilled hole of the floor panel; and a second section attached to the first section configured to protrude from the floor panel and to be inserted into and held in place within the pre-drilled hole of the side wall panel.

[0084] A second embodiment can include the play structure of the first embodiment, wherein the bracket further comprises at least one cavity to allow a screw to pass through the bracket to permanently attach the side wall panel to the floor panel.

[0085] A third embodiment can include the play structure of the first or second embodiments, wherein the pre-drilled hole of the floor panel is in a side rail of the floor panel.

[0086] A fourth embodiment can include the play structure of any of the first through third embodiments, wherein the first section of the bracket is held in place within the pre-drilled hole of the floor panel by friction ridges.

[0087] A fifth embodiment can include the play structure of any of the first through fourth embodiments, wherein the first section of the bracket is held in place within the pre-drilled hole of the floor panel by adhesive.

[0088] A sixth embodiment can include the play structure of the fifth embodiment, wherein the first section of the bracket comprises one or more cut-outs configured to allow the adhesive to flow through the first section of the bracket.

[0089] A seventh embodiment can include the play structure of any of the first through sixth embodiments, wherein the second section of the bracket is held in place within the pre-drilled hole of the side wall panel by a compressible lip.

[0090] An eighth embodiment can include the play structure of any of the first through seventh embodiments, wherein the second section of the bracket is held in place within the pre-drilled hole of the side wall panel by friction ridges.

[0091] A ninth embodiment can include the play structure of any of the first through eighth embodiments, wherein the diameter of the second section is greater than the diameter of the first section, creating a seat for the second section to be pressed against the floor panel while protruding from the floor panel.

[0092] A tenth embodiment can include the play structure of any of the first through ninth embodiments, wherein the diameter of the first section is less than the thickness of the floor panel.

[0093] In an eleventh embodiment, a method of assembling a play structure may comprise pre-drilling at least one hole in a side surface of a floor panel; pre-drilling at least one corresponding hole through the thickness of a side panel; attaching a first section of a bracket to the pre-drilled hole of the floor panel; positioning the side panel perpendicular to the floor panel; and attaching a second section of the bracket to the pre-drilled hole of the side panel, thereby at least temporarily securing the side panel to the floor panel.

[0094] A twelfth embodiment can include the method of the eleventh embodiment, further comprising permanently attaching the side panel to the floor panel via a screw.

[0095] A thirteenth embodiment can include the method of the twelfth embodiment, wherein the screw passes through at least a portion of the bracket.

[0096] A fourteenth embodiment can include the method of the twelfth or thirteenth embodiments, wherein the screw passes through a second pre-drilled hole in the floor panel and a second pre-drilled hole in the side panel.

[0097] A fifteenth embodiment can include the method of any of the eleventh through fourteenth embodiments, wherein attaching a first section of a bracket to the pre-drilled hole of the floor panel comprises attaching via adhesive.

[0098] In a sixteenth embodiment, a play structure may comprise at least one floor panel comprising at least one cut-out into a surface of the floor panel; at least one back-wall panel configured to attach to the at least one floor panel; and at least one back-wall bracket configured to at least temporarily attach the floor panel to the back-wall panel, wherein the at least one back-wall bracket comprises: at least one connector configured to be inserted into the at least one cut-out of the floor panel; a front portion that is rounded to allow the back-wall panel to be pushed over the front portion; and a back portion that is spaced from the front portion to create a seat for the back-wall panel to be held between the front portion and the back portion.

[0099] A seventeenth embodiment can include the play structure of the sixteenth embodiment, wherein the back portion of the back-wall bracket comprises a lip configured to fit within a slot of a side rail of the floor panel.

[0100] An eighteenth embodiment can include the play structure of the sixteenth or seventeenth embodiments, wherein the at least one connector of the back-wall bracket comprises a groove configured to fit around the cut-out into the surface of the floor panel.

[0101] A nineteenth embodiment can include the play structure of any of the sixteenth through eighteenth embodi-

ments, wherein the back portion of the back-wall bracket comprises a retaining wall configured to extend vertically from the floor panel.

[0102] A twentieth embodiment can include the play structure of any of the sixteenth through nineteenth embodiments, wherein the at least one connector allows the at least one back-wall bracket to be connected to another back-wall bracket through the cut-out of the floor panel.

[0103] In a twenty-first embodiment, a method of assembling a play structure may comprise forming at least one cut-out into a surface of a floor panel; attaching at least one connector of at least one back-wall bracket into the at least one cut-out of the floor panel; positioning a back-wall panel perpendicular to the floor panel; pressing the back-wall panel against the back-wall bracket; flexing the back-wall panel over a front portion of the back-wall bracket that is rounded; and retaining the back-wall panel relative to the floor panel between the front portion of the back-wall bracket and a back portion of the back-wall bracket that is spaced from the front portion to create a seat for the back-wall panel to be held between the front portion and the back portion.

[0104] A twenty-second embodiment can include the method of the twenty-first embodiment, wherein forming at least one cut-out into a surface of a floor panel comprises forming a semicircular cut-out into a back surface of the floor panel.

[0105] A twenty-third embodiment can include the method of the twenty-second embodiment, wherein attaching at least one connector of at least one back-wall bracket into the at least one cut-out of the floor panel comprises fitting a groove of the back-wall bracket over the semicircular cut-out; and retaining the back-wall bracket between the semicircular cut-out and a side rail of the floor panel.

[0106] A twenty-fourth embodiment can include the method of any of the twenty-first through twenty-third embodiment, wherein forming at least one cut-out into a surface of a floor panel comprises forming at least one hole through the thickness of the floor panel.

[0107] A twenty-fifth embodiment can include the method of the twenty-fourth embodiment, wherein attaching at least one connector of at least one back-wall bracket into the at least one cut-out of the floor panel comprises inserting at least one connector of the back wall into the at least one hole through the thickness of the floor panel.

[0108] A twenty-sixth embodiment can include the method of the twenty-fourth or twenty-fifth embodiment, wherein attaching at least one connector of at least one back-wall bracket into the at least one cut-out of the floor panel comprises attaching the at least one connector of a first back-wall bracket positioned on one side of the floor panel to the at least one connector of a second back-wall bracket positioned on the opposite side of the floor panel, wherein the connectors attach through the at least one hole through the floor panel.

[0109] In a twenty-seventh embodiment, a play structure comprising a floor panel assembly comprising a side rail and a floor panel, the side rail having a hole within the side rail, a side panel configured to attach to the floor panel assembly and comprising a hole through a thickness of the side panel, and a bracket configured to attach the floor panel to the side panel, wherein the bracket comprises a first portion configured to be inserted into and held in place within the hole of the floor panel and a second portion attached to the first

portion configured to protrude from the floor panel when the bracket is disposed within the hole of the floor panel and to engage the hole of the side panel.

[0110] A twenty-eighth embodiment can include the play structure of the twenty-seventh embodiment, wherein the bracket further comprises a cavity configured to receive a screw to pass there-through the bracket so as to permanently attach the side panel to the floor panel.

[0111] A twenty-ninth embodiment can include the play structure of one of the twenty-seventh through twenty-eighth embodiments, wherein the first portion of the bracket is configured to be held in place within the hole of the floor panel by friction ridges.

[0112] A thirtieth embodiment can include the play structure of one of the twenty-seventh or twenty-ninth embodiments, wherein the first portion of the bracket is held in place within the hole of the floor panel by adhesive.

[0113] A thirty-first embodiment can include the play structure of one of the twenty-seventh through thirtieth embodiments, wherein the first portion of the bracket comprises one or more cut-outs configured to allow the adhesive to flow through the first portion of the bracket.

[0114] A thirty-second embodiment can include the play structure of one of the twenty-seventh through thirty-first embodiments, wherein the second portion of the bracket comprises a compressible lip configured to engage the hole of the side panel.

[0115] A thirty-third embodiment can include the play structure of one of the twenty-seventh through thirty-second embodiments, wherein the second portion of the bracket comprises friction ridges configured to engage the hole of the side panel.

[0116] A thirty-fourth embodiment can include the play structure of one of the twenty-seventh through thirty-third embodiments, wherein a diameter of the second portion is greater than a diameter of the first portion, and wherein the bracket comprises a seat at which the first portion meets the second portion.

[0117] A thirty-fifth embodiment can include the play structure of one of the twenty-seventh through thirty-fourth embodiments, wherein a diameter of the first portion is less than the thickness of the floor panel.

[0118] In a thirty-sixth embodiment, a method of providing a play structure for later assembly by a consumer, the method comprising providing a floor panel assembly comprising a side rail and a floor panel, the side rail having a hole within the side rail, providing a side panel configured to attach to the floor panel assembly and comprising a hole through a thickness of the side panel, and providing a bracket configured to attach the floor panel to the side panel, wherein the bracket is configured to be disposed within and attached to, via a first portion of the bracket, to the hole of the floor panel, and wherein the bracket is configured to be disposed within the hole of the floor panel and so as to engage the hole of the side panel, via a second portion of the bracket.

[0119] In a thirty-seventh embodiment, a play structure comprising a floor panel assembly comprising a floor panel comprising a cut-out within a surface of the floor panel, a back panel, and a back-wall bracket configured to attach the floor panel to the back panel, wherein the back bracket configured to be inserted into the cut-out of the floor panel and comprising a front portion that is rounded to allow the

back panel to be pushed over the front portion and a back portion that comprises a seat configured to receive the back panel.

[0120] A thirty-eighth embodiment can include the play structure of the thirty-seventh embodiment, wherein the back portion of the back-wall bracket comprises a lip configured to fit within a slot of a side rail of the floor panel assembly.

[0121] A thirty-ninth embodiment can include the play structure of one of the thirty-seventh or thirty-eighth embodiments, wherein the back-wall bracket comprises a groove configured to receive the floor panel.

[0122] In a fortieth embodiment, a play structure comprising a floor panel assembly comprising a floor panel comprising a cut-out within a surface of the floor panel, a back panel, and a back-wall bracket configured to attach the floor panel to the back panel, wherein the back-wall bracket comprises a connector configured to be received within the cut-out of the floor panel a first portion comprising a retaining wall and a second portion spaced apart from the first portion and configured to allow the back-wall panel to be pushed there-over a seat configured to receive the back-wall panel so as to hold the back-wall panel between the first portion and the second portion.

[0123] A forty-first embodiment can include the play structure of the fortieth embodiment, wherein the retaining wall extends vertically from the floor panel.

[0124] A forty-second embodiment can include the play structure of one of the fortieth through forty-first embodiments, wherein the connector is configured to be connected to another back-wall bracket through the cut-out of the floor panel.

[0125] While this invention has been described with reference to illustrative embodiments, this description is not intended to be construed in a limiting sense. A few preferred embodiments have been described in detail herein. It is to be understood that the scope of the invention also comprehends embodiments different from those described, yet within the scope of the claims. Various other modifications and combinations of the illustrative embodiments, as well as other embodiments of the invention, will be apparent to persons skilled in the art upon reference to the description. It is therefore intended that subsequent claims encompass such modifications or embodiments.

What is claimed is:

1. A play structure comprising:

- a floor panel assembly comprising a side rail and a floor panel, the side rail having a hole within the side rail;
- a side panel configured to attach to the floor panel assembly and comprising a hole through a thickness of the side panel; and
- a bracket configured to attach the floor panel to the side panel, wherein the bracket comprises:
 - a first portion configured to be inserted into and held in place within the hole of the floor panel; and
 - a second portion attached to the first portion configured to protrude from the floor panel when the bracket is disposed within the hole of the floor panel and to engage the hole of the side panel.

2. The play structure of claim 1, wherein the bracket further comprises a cavity configured to receive a screw to pass there-through the bracket so as to permanently attach the side panel to the floor panel.

3. The play structure of claim 1, wherein the first portion of the bracket is configured to be held in place within the hole of the floor panel by friction ridges.

4. The play structure of claim 1, wherein the first portion of the bracket is held in place within the hole of the floor panel by adhesive.

5. The play structure of claim 5, wherein the first portion of the bracket comprises one or more cut-outs configured to allow the adhesive to flow through the first portion of the bracket.

6. The play structure of claim 1, wherein the second portion of the bracket comprises a compressible lip configured to engage the hole of the side panel.

7. The play structure of claim 1, wherein the second portion of the bracket comprises friction ridges configured to engage the hole of the side panel.

8. The play structure of claim 1, wherein a diameter of the second portion is greater than a diameter of the first portion, and wherein the bracket comprises a seat at which the first portion meets the second portion.

9. The play structure of claim 1, wherein a diameter of the first portion is less than the thickness of the floor panel.

10. A play structure comprising:

a floor panel assembly comprising a floor panel comprising a cut-out within a surface of the floor panel;

a back panel; and

a back-wall bracket configured to attach the floor panel to the back panel, wherein the back-wall bracket comprises:

a front portion that is rounded to allow the back panel to be pushed over the front portion; and

a back portion that comprises a seat configured to receive the back panel.

11. The play structure of claim 10, wherein the back portion of the back-wall bracket further comprises a lip configured to fit within a slot of a side rail of the floor panel assembly.

12. The play structure of claim 10, wherein the back-wall bracket comprises a groove configured to receive the floor panel.

13. The play structure of claim 10, wherein the back-wall bracket further comprises a connector configured to be received within the cut-out of the floor panel.

14. The play structure of claim 10, wherein the seat is further configured to hold the back-wall panel between the front portion and the back portion.

15. The play structure of claim 10, wherein the front portion comprises a retaining wall.

16. The play structure of claim 15, wherein the retaining wall extends vertically from the floor panel.

17. The play structure of claim 13, wherein the connector is configured to be connected to another back-wall bracket through the cut-out of the floor panel.

18. A method of providing a play structure for later assembly by a consumer, the method comprising:

providing a floor panel assembly comprising a side rail and a floor panel, the side rail having a hole within the side rail;

providing a side panel configured to attach to the floor panel assembly and comprising a hole through a thickness of the side panel; and

providing a bracket configured to attach the floor panel to the side panel.

19. The method of claim 18, wherein the bracket is configured to be disposed within and attached to, via a first portion of the bracket, to the hole of the floor panel.

20. The method of claim 18, wherein the bracket is configured to be disposed within the hole of the floor panel and so as to engage the hole of the side panel, via a second portion of the bracket.

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