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### WALL AND CEILING TRACK SYSTEM FOR MOUNTING DEVICES

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#### Abstract

The presently claimed invention contemplates a track for mounting devices onto a structure with a support surface on a rear side of the track configured to be installed on a structure. The track further comprises a first rear-facing hook and a second rear-facing hook that bends toward the rear side of the track. The first and second rear-facing hooks are disposed on opposite ends of the support surface.

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## Background/Summary

### FIELD OF THE INVENTION

[0001] The field of the invention is wall mounting devices and accessories.

### BACKGROUND

[0002] The background description includes information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0003] Various wall mounting devices for handling and storing items on a wall are known. For example, U.S. Pat. No. 7,900,781 to Baine describes a rail having a protrusion including a first flange and a second flange. Baine further discloses an accessory mount having a top hook for engaging the first flange and a resilient bottom hook for engaging the second flange.

[0004] As another example, U.S. Patent Publication No. 2012/0091086 to Gregory describes a rail having a first flange along an upper edge and a second flange along a bottom edge. A rail cover can be slid or snapped onto the rail. An accessory can be mounted onto the rail. The accessory has a downwardly-facing hook that is placed over a top edge of the rail cover, and a latch that engages the rail cover.

[0005] As yet another example, U.S. Pat. No. 7,992,728 to Burgess describes a track having a base, and a bar coupled to, and spaced from, the base to form an I-beam having a longitudinal axis. Burgess further discloses that the base is configured for attachment to a horizontal mounting surface or a vertical mounting surface.

[0006] While various configurations for mounting devices are known in the art, there is still a need for improved mounting devices that provide greater flexibility, compatibility, and customization.

[0007] These and all other extrinsic materials discussed herein are incorporated by reference in their entirety. Where a definition or use of a term in an incorporated reference is inconsistent or contrary to the definition of that term provided herein, the definition of that term provided herein applies and the definition of that term in the reference does not apply.

### SUMMARY OF THE INVENTION

[0008] The inventive subject matter provides apparatus, systems, and methods in which a wall mounting assembly includes a track for mounting devices onto a structure, such as a wall or ceiling. The rear side of the track has a support surface with a first rear-facing hook and a second rear-facing hook. The track is typically mounted on the wall or ceiling by affixing the support surface to the structure. Once mounted, one or more devices/accessories having attachment mechanisms can be removably coupled to the track by engaging one or more of the first and second rear-facing hooks.

[0009] In another aspect, the inventive subject matter comprises a vertical rail that has a coupling unit, a first wall, and a second wall, and various support units. The vertical rail can removably couple to a track that is mounted on a structure, such as the one described above. The vertical rail can removably couple to one or more devices/accessories using the support units to thereby mount the devices/accessories onto the structure. The vertical rail can also be used cooperatively with other vertical rails by (i) coupling a first vertical rail onto a second vertical rail to extend the height of the second vertical rail, or (ii) coupling first and second vertical rails onto different positions on a track to provide added support for accessories and/or other mounting devices (e.g., a bracket, a shelf system).

[0010] Various objects, features, aspects and advantages of the inventive subject matter will become more apparent from the following detailed description of preferred embodiments, along with the accompanying drawing figures in which like numerals represent like components.

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## Description

### BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIGS. **1A-1E** depict various views of an embodiment of a track for mounting devices.

[0012] FIGS. **2A-2D** depict various views of an alternative embodiment of a track for mounting devices.

[0013] FIG. **3** depicts a cross-sectional view of the track in FIGS. **2A-2D** mounted to a wall.

[0014] FIGS. **4A-4D** depict various views of a vertical rail capable of attaching to the track in FIGS. **1A-1E** and **2A-2D**.

[0015] FIGS. **5A-5F** depict various devices/accessories that can attach to the vertical rail in FIGS. **4A-4D**.

[0016] FIG. **6A-6C** depict various views of a bracket that removably couples to the vertical rail in FIGS. **4A-4D**.

[0017] FIG. **6D** depicts a bracket attached to a slatwall.

[0018] FIG. **7A** depicts an exploded view of the bracket in FIG. **6A**.

[0019] FIGS. **7B-7C** depict a track, bracket, and adapter in a slidable relationship.

[0020] FIGS. **8A-8D** depict various views of an adapter that removably couples to the bracket in FIG. **6A**.

[0021] FIGS. **9A-9B** depict the bracket in FIG. **6A** coupled with the track in FIG. **2** to store containers.

[0022] FIGS. **10A-10B** depict accessories attached to the track in FIG. **2** on a ceiling for overhead storage.

[0023] FIGS. **11A-11B** depict perspective views of a locking pin mechanism and an overhead shelf system.

[0024] FIG. **12** depicts a perspective view of an overhead storage system coupled to both a track mounted on a ceiling and a track mounted on a vertical wall.

### DETAILED DESCRIPTION

[0025] The following discussion provides example embodiments of the inventive subject matter. Although each embodiment represents a single combination of inventive elements, the inventive subject matter is considered to include all possible combinations of the disclosed elements. Thus if one embodiment comprises elements A, B, and C, and a second embodiment comprises elements B and D, then the inventive subject matter is also considered to include other remaining combinations of A, B, C, or D, even if not explicitly disclosed.

[0026] Also, as used herein, and unless the context dictates otherwise, the term “coupled to” is intended to include both direct coupling (in which two elements that are coupled to each other contact each other) and indirect coupling (in which at least one additional element is located between the two elements). Therefore, the terms “coupled to” and “coupled with” are used synonymously.

[0027] FIGS. **1A-1E** depict various views of a track **100** for mounting devices. Track **100** comprises a support surface **112**, a first rear-facing hook **102**, and a second rear-facing hook **104** (see FIG. **1A**). Support surface **112** is flat and is disposed at a rear side of track **100** (see FIG. **1B**). Track **100** further comprises a cavity **108** that is defined by at least a portion of support surface **112**, the first rear-facing hook **102** and the second rear-facing hook **104**. It is contemplated that a cover can removably couple with track **100** to cover a portion of track **100**. For example, a cover **114** as shown in FIG. **1D** comprises protrusions that engage recesses or channels **106** within the cavity

**108** of track **100**.

[0028] Track **100** can be mounted onto a vertical and/or horizontal structure. For example, track **100** can be mounted onto a vertical wall or a ceiling. It is contemplated that track **100** is mounted onto the structure via support surface **112**. In one embodiment, support surface **112** comprises one or more openings/apertures **606** adapted to receive one or more fasteners (e.g., a screw, a bolt, a nail, etc.). In another embodiment, support surface **112** can comprise multiple types of openings adapted to receive different types of fasteners (e.g., a first opening **606a** for a screw and a second opening **606b** for a bolt) (see FIG. 1C). For example, a first type of opening can be sized and dimensioned to receive  $\frac{1}{4}$  inch screw diameters, and a second type of opening can be sized and dimensioned to receive  $\frac{1}{8}$  inch screw diameters.

[0029] Although fasteners are described above, it is contemplated that track **100** can be mounted onto a structure using other devices with or without fasteners (e.g., a screw, a bolt, a nail, etc.). For example, support surface **112** can be directly welded onto a metal structure to mount track **100** onto the structure. In another example, an adhesive can be applied to support surface **112** to mount track **100** onto a structure. Adhesives can include any non-metallic or partially metallic substance that binds surfaces together and resist separation. In some embodiments, an adhesive can be applied to support surface **112** followed by use of fasteners via openings in a support surface to create a mechanical bond between track **100** and the structure. For example, glue can be applied to a support surface and the glue can be allowed to seep through one or more openings that then receive fasteners to further assist in preventing separation of track **100** from the structure. In another example, glue can be applied to a support surface in a manner that it does not seep through opening on support surface **112**, and then fasteners are driven through the openings and into a structure to mount track **100**. It should be appreciated adhesive is applied to the side of support surface **112** that contacts the structure. Additionally, or alternatively, adhesive could be applied on the structure at a location where track **100** is to be mounted. In yet another example, the fastener could comprise magnetic couplings or mechanical engagements (e.g., male-female connectors, snap-fit connectors, hook and loop fasteners, etc.).

[0030] Cover **114** is configured to cover the openings in support surface **112** and any fasteners or devices that couple track **100** to the structure (see FIG. 1E). As shown in FIG. 1A, track **100** includes two recesses **106** or channels that are adapted to receive a corresponding protrusion on cover **114**. It is contemplated that cover **114** can be pressed into a cavity **108** of track **100** defined by at least a portion of support surface **112**, the first rear-facing hook **102** and the second rear-facing hook **104**. Once cover **114** is pressed into the support structure with sufficient pressure, cover **114** can snap into place when the protrusions enter the recesses **106** of track **100**. As shown in FIG. 1E, it is contemplated that cover **114** is the same length as track **100**.

[0031] The first and second rear-facing hook are configured to couple with one or more track attachments, which will be discussed in further detail below. As shown in FIG. 1D, the first rear-facing hook **102** has a first portion that is substantially orthogonal relative to support surface **112**. The first portion comprises a first recess **106** that is sized and dimensioned to receive a first cover protrusion. It is contemplated that other coupling members can be used (e.g., opening) to receive the first cover protrusion. Although cover **114** is disclosed as having a protrusion, it is contemplated that track **100** can comprise the protrusion and cover **114** can comprise a recess **106**, opening or other coupling member that receives the protrusion. The first rear-facing hook **102** further comprises a second portion that runs substantially parallel to support surface **112**. The first rear-facing hook **102** further comprises a third portion that runs substantially parallel to the first portion. It is contemplated that the first portion and second portion are substantially orthogonal and/or the second portion and third portion are substantially orthogonal. As used herein, “substantially orthogonal” means between 80°-100°. A first parallel portion is disposed between the first and third portions.

[0032] Similar to the first rear-facing hook **102**, the second rear-facing hook **104** has a first portion

that is substantially orthogonal relative to support surface **112**. The first portion comprises a second recess **106** that is sized and dimensioned to receive a second cover protrusion. The second rear-facing hook **104** further comprises a second portion that runs substantially parallel to support surface **112**. The second rear-facing hook **104** further comprises a third portion that runs substantially parallel to the first portion. It is contemplated that the first portion and second portion are substantially orthogonal and/or the second portion and third portion are substantially orthogonal. A second parallel portion is disposed between the first and third portions.

[0033] FIGS. 2A-2C depict various views of another embodiment of track **200** for mounting devices. Track **200** comprises a support surface **202**, a first rear-facing hook **204**, and a second rear-facing hook **206**.

[0034] Support surface **202** partially defines a rear side of track **200**. In the depicted embodiment, support surface **202** is configured to removably couple with a structure using one or more fasteners and one or more openings. The openings can comprise any shape or form including, for example, circular openings, ovular openings, and rectangular openings.

[0035] In one embodiment, support surface **202** comprises one or more openings adapted to receive one or more fastening devices. In another embodiment, support surface **202** can comprise multiple types of openings adapted to receive different types of fastening devices. In embodiments where support surface **202** comprises one or more openings, it is contemplated that the fastening devices can include screws, nails, and any other fastener known in the art.

[0036] As shown in FIG. 2A, support surface **202** is not flat. Support surface **202** includes a raised portion relative to two adjacent flat portions (i.e., the portions of the support structure that are closest to the wall when the support structure is attached). In this embodiment, the raised portion can include openings that accommodate one or more fasteners, and the flat portions can separately include openings that accommodate one or more fasteners of the same or different type.

[0037] In some embodiments, the raised portion can include multiple types of openings to accommodate different types of hardware fasteners. For example, the raised portion can comprise a first type of opening sized and dimensioned to receive  $\frac{1}{4}$  inch screw diameters and a second type of opening sized and dimensioned to receive  $\frac{1}{8}$  inch screw diameters. The flat portions can similarly include different types of openings to accommodate different screw diameters.

[0038] Similar to the embodiment depicted in FIGS. 1A-1E, support surface **202** can be mounted onto a structure using other devices with or without fasteners (e.g., a screw, a bolt, a nail, etc.). For example, support surface **202** can be welded on to a metal structure to create a substantially permanent fixture. In another example, support surface **202** can use an adhesive to fix support surface **202** to a structure.

[0039] In yet another embodiment, support surface **202** and the structure can be coupled to a structure using a mixture of chemical adhesive agents and fasteners (e.g., a screw, a bolt, a nail, etc.). For example, support surface **202** can be coupled to a wall by applying glue between support surface **202** and the wall, and additionally fastening one or more screws from a first side of support surface **202** through to a second side of support surface **202** and finally into the wall.

[0040] FIG. 3 depicts a cross-sectional view of track **200** shown in FIGS. 2A-2C. As shown, track **200** is capable of receiving different type of fasteners, such as wood screws on the flat portions and a lag bolt on the raised portion of support surface **202**. In other embodiments, the hardware-based fastening devices can be of the same type. Furthermore, as shown in FIG. 3, track **200** comprises a cavity **208** adapted to receive a cover **114** via a snap-fit mechanism between cover protrusions and recesses on track **200**. Cover **114** can alternatively be coupled to track **200** using a friction fit. The first and second rear-facing hooks **204** and **206** are configured to couple with corresponding structures on track attachments, which will be discussed in further detail below.

[0041] Track **200** can be installed on wall **214**. Wall **214** can represent any solid surface that track **200** can be secured onto with fasteners or alternative attachment mechanisms as discussed above in FIG. 1.

[0042] FIGS. 4A-4D depict various perspective views of a vertical rail that mounts to track **100** and track **200**. Vertical rail **400** comprises a coupling unit comprising a first hook and a second hook configured to removably couple with a track, first wall **412** coupled to coupling unit **402**, second wall **414** coupled to coupling unit **402**, support units coupled to first and second walls **412** and **414**, and one or more slots **406** disposed between the first support unit and coupling unit **402** and between any two adjacent support units.

[0043] First wall **412** and second wall **414** are attached to coupling unit **402** and one or more support units. In one embodiment, first wall **412**, second wall **414**, and coupling unit **402** can be made of metal. In this embodiment, first and second walls **412** and **414** can each be welded to one or more coupling units **402** and support units **408** and **410**. In other embodiments, first and second walls **412** and **414** can be coupled to the one or more coupling units and support units **408** and **410** using any one or more of adhesives, hardware based fasteners (e.g., a screw, a bolt, a nail, etc.), locking pin fasteners, and magnetic fasteners.

[0044] In other embodiments, first and second walls **412** and **414**, the one or more coupling units **402**, and support units **408** and **410** can be one continuous structure. For example, vertical rail **400** can be formed by a molding process or other manufacturing process that produces one continuous plastic structure or one continuous metal structure. In yet other embodiments, first and second walls **412** and **414**, the one or more coupling units **402**, and support units **408** and **410** can comprise a mixture of different materials. For example, first and second walls **412** and **414** can be made from a first metal or metal alloy, support units **408** and **410** can be made of one or more types of plastics, and coupling unit **402** can be made of a second metal or metal alloy. It is contemplated that the structures disclosed herein can comprise a variety of materials including, for example, metals, metal alloys, moldable polymeric materials, woods, glass, and composite materials.

[0045] It is contemplated that the bottom support unit can be thinner than the remaining support units to allow a second vertical rail to attach to a first vertical rail. For example, a first hook of a coupling unit **402** of a second vertical rail can be slid through the slot above a bottom support unit of a first vertical rail, and a second hook of coupling unit **402** of the second vertical rail can engage a bottom portion of the bottom support unit of the first vertical rail to thereby couple a second vertical rail onto a first vertical rail. It should be appreciated that the ability to couple two or more vertical rails allows additional accessories to be mounted along a vertical length.

[0046] It is also contemplated that coupling unit **402** comprises track couplers **416**. Track couplers **416** allowing coupling unit **402** to removably couple with a horizontal track or one or more support units **408** and **410** of vertical rail **400**.

[0047] However, it is also contemplated that track couplers **416** do not exist in some embodiments, such as in FIG. 4D. In these embodiments, coupling unit **402** hangs off track **100** or track **200** and stays coupled to track by force of gravity.

[0048] In the depicted embodiment, anchor holes **418** are configured and distributed in any manner. For example, anchor holes **418** and their corresponding diameters can be each be substantially the same. In another example, anchor holes **418** and their corresponding diameters can be a mixture of different diameters.

[0049] FIG. 4D further depicts a cross sectional view of vertical rail **400** along line A-A (see FIG. 4A) showing a first lip **420** and a second lip **422**. In the depicted embodiment, first lip **420** and second lip **422** extend towards the posterior surface of vertical rail **400**. The depicted embodiment further shows first lip **420** being shorter than second lip **422**.

[0050] In alternative embodiment, first lip **420** and second lip **422** can be in any length and direction. For example, first lip **420** can extend towards the anterior surface of vertical rail **400** and second lip **422** can extend towards a posterior surface of vertical rail **400**. In another example, first lip **420** can extend in either direction and second lip **420** can extend in a posterior direction. In yet another example, first lip **420** and second lip **422** can extend at non-orthogonal angles relative to the anterior and/or posterior surfaces of vertical rail **400**.

[0051] FIGS. 5A-5F depict various devices/accessories that can be attached to vertical rail **400** and/or track **200**. FIG. 5A depicts a utility hook that couples to slot **406** between a coupling unit and a first support unit of a vertical rail. It is contemplated, however, that utility hook **502** can couple to any slot along vertical rail **400**, such as slots **406** formed by any two adjacent support units. Additionally, or alternatively, utility hook **502** can directly attach to track **200**. Suitable utility hooks are described in U.S. Pat. Nos. 8,800,212 and 9,173,507, which are hereby incorporated by reference.

[0052] In one embodiment, utility hook **502** comprises two hooking members that are removably attached to two attachment mechanisms **504** on the anterior face of utility hook **502**. The two hooking members can be attached to the two attachment mechanisms **504** using a magnetic coupling mechanism, a screw-based coupling mechanism, a snap-fit coupling mechanism, and/or a friction-fit coupling mechanism. It is contemplated that two attachment mechanisms **504** do not have to be the same type. For example, a first attachment mechanism of the two attachment mechanisms **504** can be magnetic, and a second attachment mechanism of the two attachment mechanisms **504** can be a screw-based coupling mechanism. In an alternative embodiment, the two attachment mechanisms **504** can be permanently fixed to the anterior face of utility hook **502**.

[0053] In yet another embodiment, the two attachment mechanisms **504** can be configured to attach to alternative tools. In one example, the two attachment mechanisms **504** can be configured to attach to a reinforced hook made for supporting weights up to 100 pounds. In another example, the two attachment mechanisms **504** can be configured to attach to a longer retail hook configured to allow multiple inventory items to be stored and displayed in a retail environment.

[0054] Though the depicted embodiment in FIG. 5A shows a utility hook comprising two attachment mechanisms **504** and two hooking members, utility hook **502** can comprise any number of attachment mechanisms **504** and hooking members.

[0055] FIG. 5B depicts a bracket and shelf system whereby bracket **600** (discussed in further detail in the detailed description of FIG. 6) has hooks that are inserted into slots on vertical rail **400**. It is contemplated that bracket and shelf system can couple to any slot, such as slots **406** formed by any two adjacent support units.

[0056] Bracket and shelf system further comprises a flat platform **604** on the top side of bracket **600**, and a first and second cavity disposed on opposite lateral sides of bracket **600**. Additionally, the flat platform **604** on the top side of bracket **600** can comprise openings to receive one or more fasteners. It is contemplated that a shelf can be coupled onto bracket **600** using the one or more fasteners. For example, a screw, a bolt, or a nail can be driven through the shelf and into the opening of bracket **600** to secure the shelf.

[0057] FIG. 5C depicts a basket assembly **506** that couples to slot **406** between a first and second support unit of a first vertical rail, and a second slot between a first and second support unit of a second vertical rail. It is contemplated, however, that basket assembly **508** is not limited to the depicted embodiment and can be coupled to only one slot between a first and second support unit.

[0058] FIG. 5D depicts bracket and container **514**, wherein bracket **512** has hooks that are inserted into a first and a second slot formed by support units of a vertical rail. As shown in FIG. 5D, a first support ridge on a flat platform on the top side of bracket **600** can be inserted into a corresponding cavity formed by a handle on container **514** to thereby attach container **514** onto bracket **600**. It is contemplated that at least two brackets work cooperatively to engage two corresponding cavities on opposite sides of container **514** and thereby mount container **514**. It is further contemplated that a second support ridge of bracket **600** shown in FIG. 5D can be inserted into a cavity formed by a handle of a different container. Thus, rows of containers can be mounted at various heights relative to the floor using a combination of tracks, vertical rails, and brackets. For example, three brackets, each having a pair of support ridges **512** can couple to two containers with the middle bracket engaging a cavity of a first container and a cavity of a second container, and the two other brackets each engaging an opposite cavity of the first or second container.

[0059] FIG. 5E depicts a tire rack system **516**. Four connecting members **518** of the tire rack system each having hooks that are inserted into slots formed by the support units on a first and second vertical rail. In the depicted embodiment, first and second connecting members **518** of the tire rack system pair to the first vertical rail and third and fourth connecting members of the tire rack system pair to the second vertical rail. In preferred embodiments, the first and second connecting members are in a parallel arrangement relative to the third and fourth connecting members.

[0060] The connecting members attach to secure a platform formed by two support bars disposed between two platform arms **520** connected to a first set of connecting members. A second set of connecting members are coupled to two superior support arms which couple to a substantially anterior portion of the two platform arms **520**, respectively. In one embodiment, the platform comprises two bars disposed between the two platform arms that can receive a tire.

[0061] FIG. 5F depicts a lumber rack system **522** comprising a connecting member, a hinge attachment **524**, a restriction mechanism **526**, and a telescoping arm comprising first arm **528** and second arm **530**, and restriction platform **532**. The telescoping arm comprises first arm **528** and second arm **530** in a slidable relationship, such that first arm **528** substantially encapsulates second arm **530** when the telescoping arm is in a contracted configuration. In an extended configuration, an inner surface area of the first arm **528** and an outer surface area of the second arm partially overlap. In a preferred embodiment, the first arm **528** comprises a restricting mechanism to restrict the first and second arms **528** and **530** from sliding relative to each other. For example, the restriction mechanism **526** can comprise a screw that is coupled to a screw hole on first arm **528**, which causes friction-based restriction of movement when engaged by exerting pressure on second arm **530**.

[0062] The hinge attachment **524** allows first and second arms **528** and **530** to connect to the connecting member in a hinged configuration. In a preferred embodiment, the hinge attachment **524** attaches to second arm **530** using a pin lock mechanism. However, it is contemplated that any mechanism allowing a hinged relationship between the connecting member and second arm **530** can be used. The hinged configuration allows first and second arms **528** and **530** to move relative to the connecting member.

[0063] The restricting platform **532** limits rotation of first and second arms **528** and **530** from a vertical configuration to a horizontal configuration to a range of up to 90°. However, it is contemplated that the restricting platform **532** can be disposed at a different angle to allow greater or less degree of rotation for first and second arms **528** and **530**.

[0064] FIGS. 6A-6C depicts various views of a bracket that removably couples to vertical rail **400**, track **100**, or track **200** for mounting devices (see, e.g., FIG. 5B). Additionally, or alternatively, bracket **600** can removably couple with a slatwall mounting system and/or an overhead storage system. Suitable slatwall mounting systems are described in U.S. Pat. No. 8,746,472, which is hereby incorporated by reference. Suitable overhead storage systems are described in U.S. Pat. Nos. 8,657,130, 8,985,350, and 9,433,285, which are hereby incorporated by reference.

[0065] As shown in FIGS. 6A-6C, bracket **600** comprises a flat platform **604** at the top side of bracket **600**, first and second cavities **608** disposed on lateral sides of bracket **600**, a first and second accessory rails **602** that extend along the body of bracket **600**, and top hook **610** for partial mounting of bracket **600** to a track and/or vertical rail. An adapter **612** can be coupled onto bracket **600** as shown in FIG. 6 to provide enhanced coupling with track **100** or track **200**.

[0066] In some embodiments, the accessory rails **602** can comprise one or more protrusions to releasably engage with corresponding recesses on various accessories. For example, a container handle can comprise four recesses that mate with four corresponding protrusions in a first accessory rail **602** in order to restrict posterior-anterior movement (i.e., sliding) of the container.

[0067] It is contemplated that the flat platform **604** can comprises one or more attachment mechanisms **504**. For example, the flat platform **604** can have one or more apertures **606** adapted to



receive a fastener (e.g., a screw, a bolt, a nail, etc.) to fix a shelf to bracket **600**. Additionally, or alternatively, the flat platform **604** can comprise one or more support ridges **512** adapted to engage slots of an accessory. For example, the support ridges **512** can releasably engage a shelf with corresponding slots to prevent substantial movement of the shelf relative to bracket **600**.

[0068] FIG. **6D** depicts a slatwall **634** configured to removably couple with any one or more accessories **638**, such as the embodiments depicted and described in FIGS. **5A-5F**. It is contemplated that slatwall **634** comprises alternative rows of cavities **636** and support surfaces **638**. It is contemplated that cavities **636** can be shaped in any manner to receive and secure any one or more accessories described above. It is further contemplated that cavities **636** can be through-holes that extend through both an anterior surface and posterior surface of slatwall **634**.

[0069] In some embodiments, slatwall **634** has one or more anchor holes, such as the anchor holes **418**. As with anchor holes **418**, slatwall **634** can have any combination of anchor holes.

[0070] FIG. **7A** depicts an exploded view of bracket **600** shown in FIG. **6**. As shown, bracket **600** comprises hooks **702** that are configured to engage slots in adapter **612** in a slidable relationship. After hooks of bracket **600** are inserted into slots **406** of adapter **612**, it is contemplated that a top hook of bracket **600** can be placed on top of a top rear-facing hook of track **100**, and adapter **612** can be slid relative to bracket **600** to thereby position a ridge of adapter **612** at an end of a bottom rear-facing hook of a track to restrict tilting of bracket **600** and further secure bracket **600** on track **100** as shown in FIG. **7B**. From the locked configuration, adapter **612** can be slid down to alter the position of the ridge away from the bottom rear-facing hook to allow bracket **600** to tilt for removal from track **100** as shown in FIG. **7B**. In alternative embodiments, adapter **612** can engage bracket **600** using a magnetic mechanism, a screw-based mechanism, a friction fit mechanism, and a snap fit mechanism.

[0071] FIG. **7A** further depicts protrusions **704** located in one or more locations within first and/or second cavities **608**. It is contemplated that protrusions **704** releasably mate with corresponding cavities in one or more accessories to secure the accessory to bracket **600**.

[0072] FIGS. **8A-D** depict various views of adapter **612** that removably couples to bracket **600**. As depicted, adapter **612** comprises adapter ridge **614** disposed at the top side of adapter **612**, a first slot, a second slot, a third slot, and a fourth slot (see slots **610** in FIG. **8B**). It is contemplated that adapter **612** further comprises cavity sized and dimensioned to receive a finger of a user to slide adapter **612** relative to bracket **600** between a locked configuration and an unlocked configuration as discussed above. Although adapter ridge **614** of adapter **612** is discussed restricting tilt in a locked configuration when coupled to a track, it is contemplated that adapter ridge **614** can be slid into a second slot of a vertical rail after top hook **610** of bracket **600** is inserted into a first slot of vertical rail **400** to further secure bracket **600** onto vertical rail **400**. Additionally, or alternatively, bracket **600** can be mounted onto vertical rail **400** without use of the adapted by inserting at least one hook of bracket **600** into slot **406** of vertical rail **400**.

[0073] In some embodiments, adapter **612** can be locked in a particular configuration using an engagement member. It is contemplated that an engagement member can comprise any one or more means of causing the adapter to change configurations and/or allow a user to change the configuration of the adapter. For example, changes in configurations can include, but are not limited to, locking and unlocking adapter **612** such that adapter **612** can be mounted or dismounted from bracket **600**. Some examples of engagement members include, but are not limited to, buttons, sliders, and dials.

[0074] In some embodiments, adapter **612** includes both engagement and disengagement members. For example, adapter **612** can have an engagement button and a disengagement button that fixes or releases adapter **612** from bracket **600**. Similar to engagement buttons, disengagement buttons can include any mechanisms configured to change the physical configuration of the adapter, such as, for example, buttons, sliders, and dials.

[0075] In yet other embodiments, adapter **612** only has a disengagement member. For example,

adapter **612** can use a mechanism to automatically lock the adapter into place when adapter **612** is moved into a first position. When adapter **612** is to be removed, a disengagement member can be actuated by a user to unlock adapter **612** from the bracket.

[0076] In yet another embodiment, adapter **612** lacks any engagement member and is instead secured through alternative mechanical means. For example, adapter **612** can be fixed onto bracket **600** using a friction fit. In another example, adapter **612** can be fixed onto bracket **600** using an adhesive. In yet another example, adapter **612** can be fixed onto bracket **600** using a screw fastener-based mechanism.

[0077] FIGS. **9A-9B** depict a bracket and shelf system **900** comprising bracket **902**, bracket **904**, and a track **200** used cooperatively to store containers **908**. As shown in FIG. **9A**, first bracket **902** and second bracket **904** are spaced apart such that the handles of container **908** can slide into an accessory rail on first bracket **902** and an accessory rail on second bracket **904**. FIG. **9A** also depicted a wire shelf **906** that is removably attached to a flat platform **604** on the top side of first bracket **902** and a flat platform **604** on the top side of the second bracket **904**.

[0078] FIG. **9B** shows a third bracket **910** that can be used to mount a second container. It is contemplated that additional bracket and shelf assemblies can be used to mount additional containers. Furthermore, it is contemplated that a container can be placed on top of the shelf.

[0079] As discussed above, a track can also be mounted onto a ceiling to provide overhead storage. FIGS. **10A-10B** depict two accessories that can be attached to track **200** used for overhead storage. FIG. **10A** depicts an overhead hook comprising a hook and a coupling unit. Coupling unit **402** comprises a first superior hook and a second superior hook adapted to removably couple to an overhead track. In one embodiment, the overhead hook is removably attached to coupling unit **402**. For example, the overhead hook can be coupled using a magnetic coupler, a friction fit coupler, a screw-based coupler, and a snap fit coupler. In another embodiment, the overhead hook can be permanently fixed to coupling unit **402**. For example, the overhead hook can be welded to coupling unit **402**, where both coupling unit **402** and overhead hook are made of metal. In another example, the overhead hook can be joined to coupling unit **402**, where both coupling unit **402** and the overhead hook comprise one or more plastics.

[0080] FIG. **10B** shows an overhead track system **1000** comprising a coupling unit having hooks **1004** adapted to removably couple to track **200**. A locking pin mechanism can be used to couple other items to coupling unit **402**. For example, FIG. **11** depicts perspective views of a pin lock **1006** used in an overhead shelf system.

[0081] As shown in FIG. **11**, track system **200** comprises a first coupling unit, a second coupling unit, a third coupling unit, and a fourth coupling unit (collectively “coupling unit(s) **402**”) which are coupled on a superior side to an overhead track and coupled on an inferior side to first, second, third, and fourth telescoping arms, respectively (respectively telescoping arms **1102a-d**). It should be noted that FIG. **11** does not explicitly show the fourth coupling unit and the fourth telescoping arm, but their presence is implied by the perspective view of the overhead shelf system.

[0082] Coupling units **402** can be removably attached to telescoping arms **1102**. For example, coupling units **402** can be connected to telescoping arms **1102** using a pin lock **1008** as depicted in FIG. **11**. Telescoping arms **1102** each comprise a primary arm and a secondary arm in a slidable relationship, such that the primary arm substantially encapsulates the secondary arm when telescoping arm **1102** is in a contracted configuration. In an extended configuration, an inner surface area of the primary arm and an outer surface area of the secondary arm partially overlap. It is contemplated that the primary arm comprises a locking mechanism to restrict the primary and secondary arms from sliding relative to each other. For example, the locking mechanism can comprise a fastener that is inserted into aperture **110** on the primary arm to thereby exert pressure on the secondary arm and provide friction-based restriction of movement. In another example, the locking mechanism can be a detent mechanism which catches corresponding cavities **108** in the primary and/or secondary arms. In yet another example, the locking mechanism can comprise a pin

lock mechanism whereby a pin is inserted into aperture **110** of both of the primary and secondary arms.

[0083] The bottom-most ends of telescoping arms **1102a-1102d** can be removably coupled to lateral support bars **1104**. For example, two lateral support bars **1104** can be removably coupled to the first and third telescoping arms **1102a** and **1102c**, and the second and fourth telescoping arms **1102b** and **1102d**, respectively. As shown in FIG. **11**, a shelf can be placed on top of lateral bars **1104**. It is contemplated that the shelf can be attached to the lateral arms using a magnetic coupler, a friction fit coupler, a screw-based coupler, and a snap fit coupler. In alternative embodiments, the shelf can be permanently fixed to the lateral support bars **1104**. For example, the shelf and lateral support bars **1104** could be welded together. In yet other embodiments, the shelf and lateral support bars **1104** can be formed as a single piece using a molding process.

[0084] FIG. **12** depicts a perspective view of an overhead storage system **1200** that uses a ceiling track and a vertical wall track. Overhead storage system **1200** comprises four telescoping arms, an overhead track, a support mechanism, and a vertical wall track. As shown in FIG. **12**, the four telescoping arms are each connected to the overhead track on one end and a lateral bar on an opposite end. The lateral support bars **1104** support two wire shelf units. Furthermore, two of the lateral support bars **1104** are coupled to the vertical wall track. The lateral support bars **1104** can be coupled to the vertical wall track using a separate coupling mechanism or an internal coupling mechanism to engage the rear facing hooks of the vertical wall track. For example, the lateral support bars **1104** can comprise a hook mechanism that engages hooks **404** of the vertical wall track (e.g., hooks of coupling unit of vertical rail, hooks of coupling unit shown in FIG. **10B**). Thus, it is contemplated that the lateral support bars **1104** can couple overhead tracks and/or vertical tracks to provide support for overhead storage.

[0085] As used in the description herein and throughout the claims that follow, the meaning of “a,” “an,” and “the” includes plural reference unless the context clearly dictates otherwise. Also, as used in the description herein, the meaning of “in” includes “in” and “on” unless the context clearly dictates otherwise.

[0086] In some embodiments, the numbers expressing quantities of ingredients, properties such as concentration, reaction conditions, and so forth, used to describe and claim certain embodiments of the invention are to be understood as being modified in some instances by the term “about.” Accordingly, in some embodiments, the numerical parameters set forth in the written description and attached claims are approximations that can vary depending upon the desired properties sought to be obtained by a particular embodiment. In some embodiments, the numerical parameters should be construed in light of the number of reported significant digits and by applying ordinary rounding techniques. Notwithstanding that the numerical ranges and parameters setting forth the broad scope of some embodiments of the invention are approximations, the numerical values set forth in the specific examples are reported as precisely as practicable. The numerical values presented in some embodiments of the invention may contain certain errors necessarily resulting from the standard deviation found in their respective testing measurements. Moreover, and unless the context dictates the contrary, all ranges set forth herein should be interpreted as being inclusive of their endpoints and open-ended ranges should be interpreted to include only commercially practical values. Similarly, all lists of values should be considered as inclusive of intermediate values unless the context indicates the contrary.

[0087] It should be apparent, however, to those skilled in the art that many more modifications besides those already described are possible without departing from the inventive concepts herein. The inventive subject matter, therefore, is not to be restricted except in the spirit of the disclosure. Moreover, in interpreting the disclosure all terms should be interpreted in the broadest possible manner consistent with the context. In particular the terms “comprises” and “comprising” should be interpreted as referring to the elements, components, or steps in a non-exclusive manner, indicating

that the referenced elements, components, or steps can be present, or utilized, or combined with other elements, components, or steps that are not expressly referenced.

## Claims

**1.-25.** (canceled)

**26.** A vertical rail for removably coupling a device to a track, comprising: a coupling unit comprising a first hook and a second hook that are configured to removably couple with the track such that the first hook and the second hook at least partially engage a rear surface of the track; a first wall coupled to the coupling unit; a second wall coupled to the coupling unit; a first support unit coupled to the first wall and the second wall, wherein the first support unit is disposed below the coupling unit; and a slot disposed between the coupling unit and the first support unit, wherein the slot is sized and dimensioned to receive a coupling member of the device.

**27.** The vertical rail of claim 26, wherein the coupling member of the device comprises a first device hook, and wherein the first support unit comprises a first hook that interacts with the first device hook.

**28.** The vertical rail of claim 27, wherein the coupling member of the device comprises a second device hook, and wherein the first support unit comprises a second hook that interacts with the second device hook.

**29.** The vertical rail of claim 26, further comprising: a second support unit coupled to the first wall and the second wall, and wherein the second support unit is disposed below the first support unit; and a second slot disposed between the first support unit and the second support unit.

**30.** The vertical rail of claim 26, wherein one or more of the first hook and the second hook is flexible to provide a snap-fit connection with the track.

**31.** The vertical rail of claim 26, wherein the device is a bracket, and the coupling member is a hook, and wherein the slot is sized and dimensioned to receive the hook; and wherein the slot is defined by surfaces of (i) the coupling unit, (ii) the first support unit, (iii) the first wall, and (iv) the second wall.

**32.** (canceled)

**33.** The vertical rail of claim 26, wherein the first hook is more rigid than the second hook; and wherein the first support unit is thinner than the coupling unit.

**34.** (canceled)

**35.** A bracket system that mounts onto a support structure, comprising: a bracket having a body comprising a first accessory rail and a second accessory rail disposed on opposite lateral sides of the body; a first hook disposed on a rear side of the body; and an adapter in a slidable relationship with the rear side of the body, such that (i) a ridge of the adapter and the first hook engage the support structure in a first configuration, and (ii) the ridge and the first hook disengage the support structure in a second configuration.

**36.** The system of claim 35, wherein the body comprises an adapter hook, and wherein the adapter comprises a slot sized and dimensioned to receive the adapter hook.

**37.** The system of claim 36, wherein the slot and adapter hook are sized and dimensioned to engage via friction fit.

**38.** The system of claim 35, wherein one or more of the first hook and the adapter hook is a downward-facing hook.

**39.** The system of claim 35, wherein the first and second accessory rails comprise a protrusion.

**40.** (canceled)

**41.** The system of claim 35, wherein the adapter comprises a cavity sized and dimensioned to receive a finger of a user to transition between the first and second configurations.

**42.** The system of claim 35, further comprising a shelf disposed on a top surface of the bracket; and wherein the shelf and the bracket are coupled via a fastener.

**43.** (canceled)

**44.** A bracket assembly for mounting a device onto a support structure, comprising: a first bracket comprising a first accessory rail and a first hook; a second bracket comprising a second accessory rail and a second hook; wherein the first hook and the second hook are sized and dimensioned to couple onto the support structure; and wherein the first accessory rail and the second accessory rail are sized and dimensioned to receive first and second surfaces of the device to thereby mount the device onto the support structure.

**45.** The assembly of claim 44, wherein the first and second surfaces of the device are first and second handles.

**46.** The assembly of claim 44, wherein the first bracket comprises a first platform disposed above the first accessory rail, and the second bracket comprises a second platform disposed above the second accessory rail; and wherein the first and second platforms are configured to support a shelf.

**47.** (canceled)

**48.** The assembly of claim 44, wherein the first bracket comprises a third hook and the second bracket comprises a fourth hook, and wherein the third hook and the fourth hook are sized and dimensioned to couple onto the support structure.

**49.** The assembly of claim 44, wherein the support structure is a vertical rail assembly having a first vertical rail and a second vertical rail, and wherein the first hook is sized and dimensioned to engage a slot of the first vertical rail and the second hook is sized and dimensioned to engage a slot of the second vertical rail; and wherein the support structure is a slatwall having slots sized and dimensioned to receive the first hook and the second hook.

**50.** (canceled)

**51.** The bracket of claim 44, wherein the support structure is a horizontal track having a rear-facing hook, and wherein the first hook and the second hook are configured to engage the rear-facing hook of the horizontal track.

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