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(54) **MODULAR UTILITY ASSEMBLY**

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(57) **ABSTRACT**

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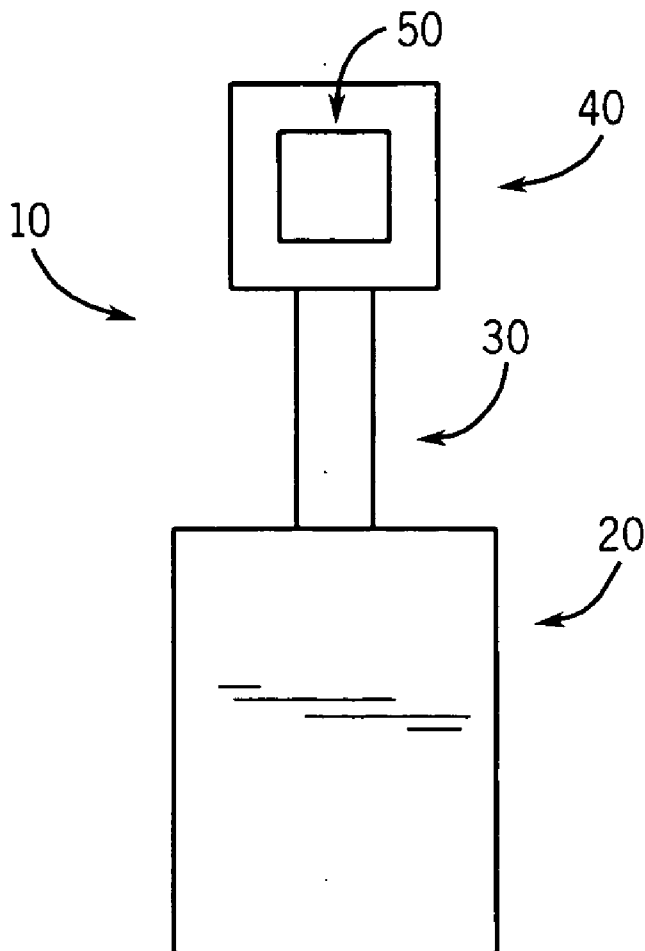
(21) Appl. No.: **11/036,602**

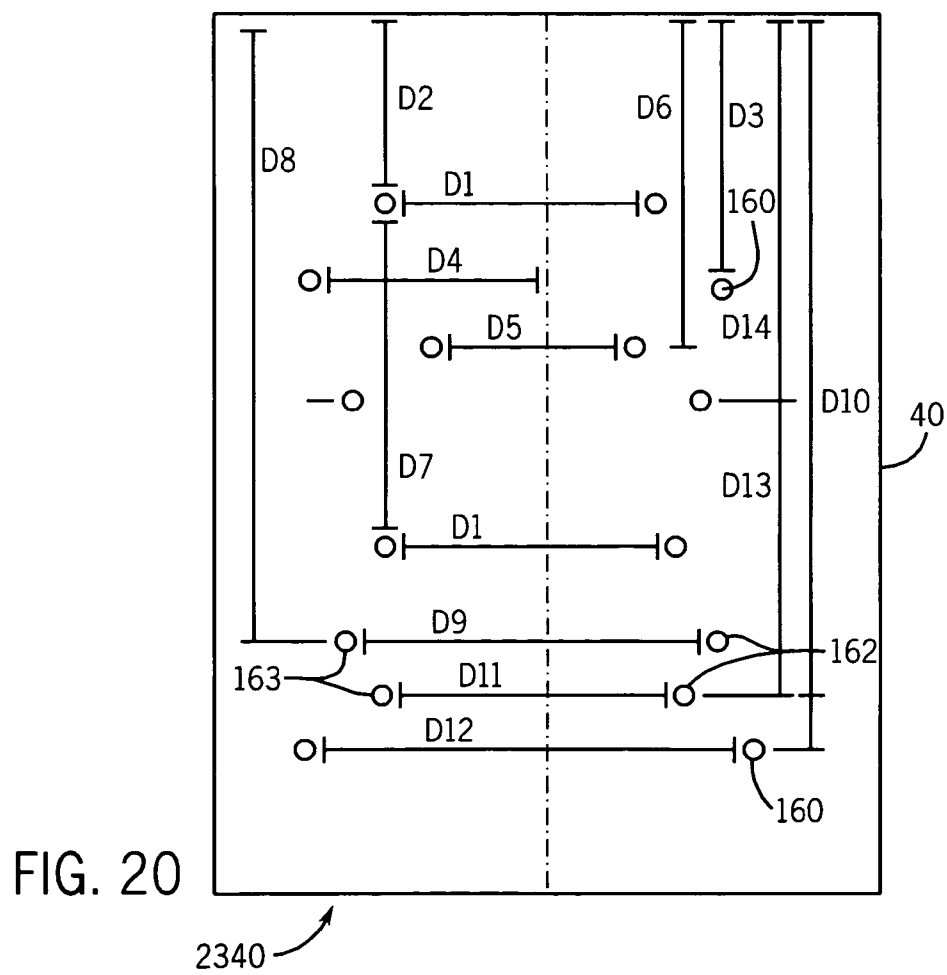
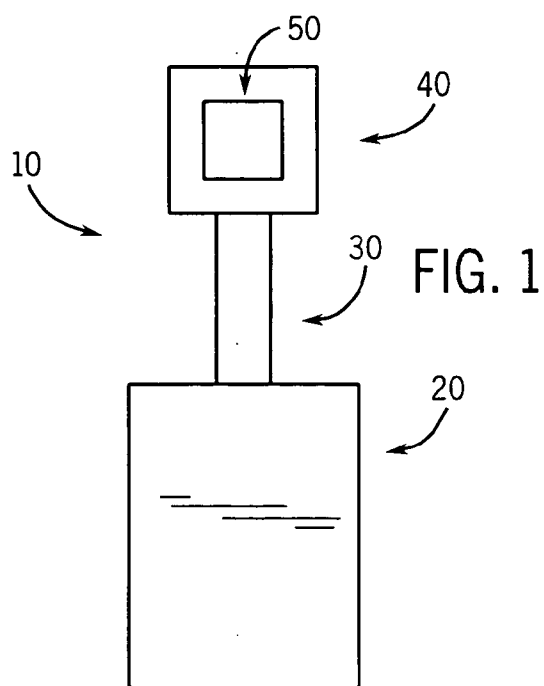
(22) Filed: **Jan. 14, 2005**

Related U.S. Application Data

(63) Continuation-in-part of application No. 10/252,025,
filed on Sep. 20, 2002, now Pat. No. 6,905,039.

An apparatus for use with a plurality of interchangeable modules comprising a frame and a plate provided on the frame and comprising a plurality of mounting locations for mounting interchangeable modules relative to the plate. The mounting locations are configured to allow for selective attachment of a first interchangeable module to the plate, removal of the first interchangeable module from the plate after the selective attachment to the plate, and selective attachment of a second interchangeable module to the plate after the removal of the first interchangeable module without reconfiguring the mounting locations of the plate.





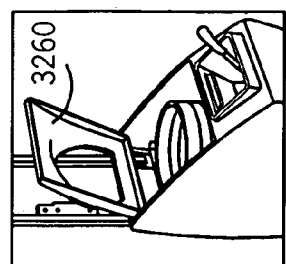


FIG. 2B

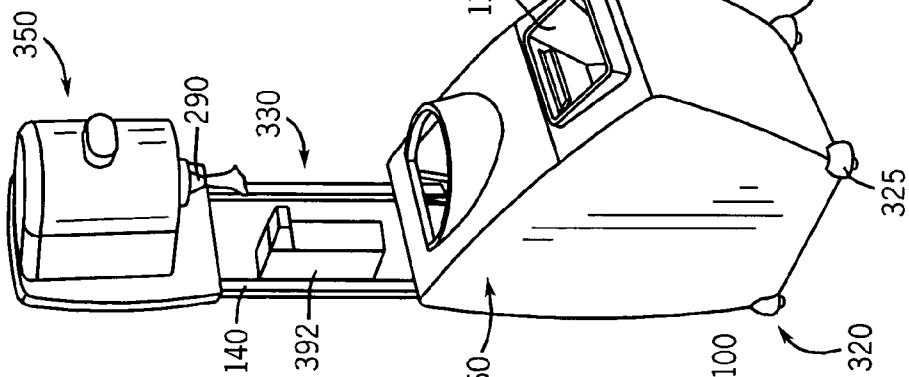


FIG. 2A

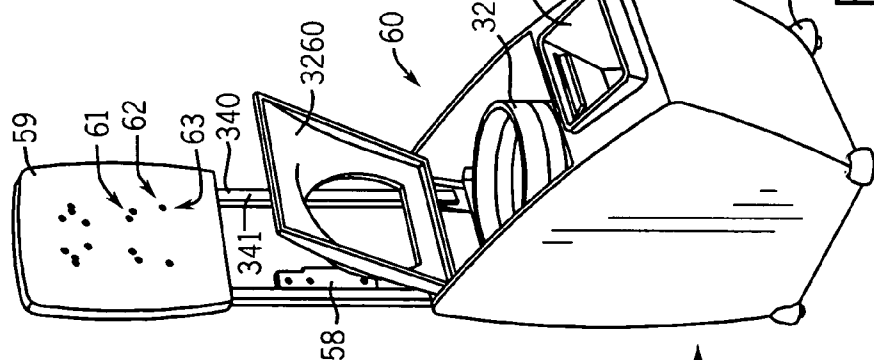


FIG. 3C

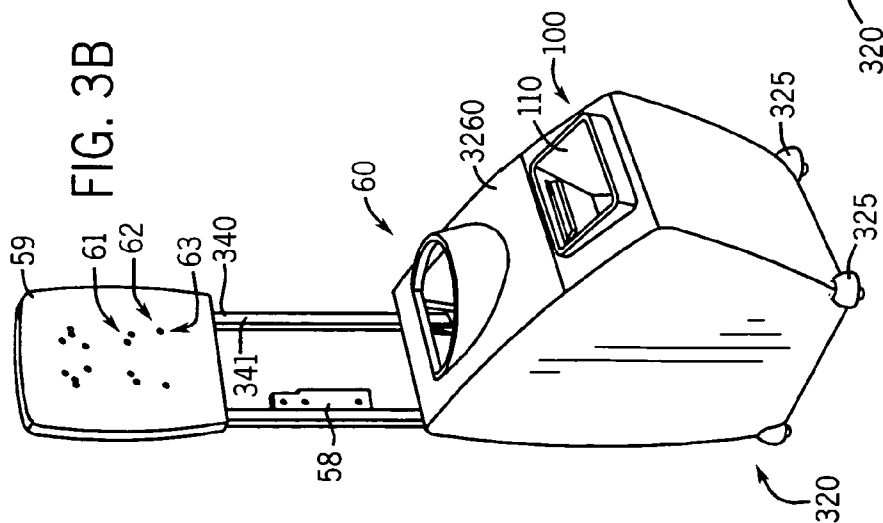
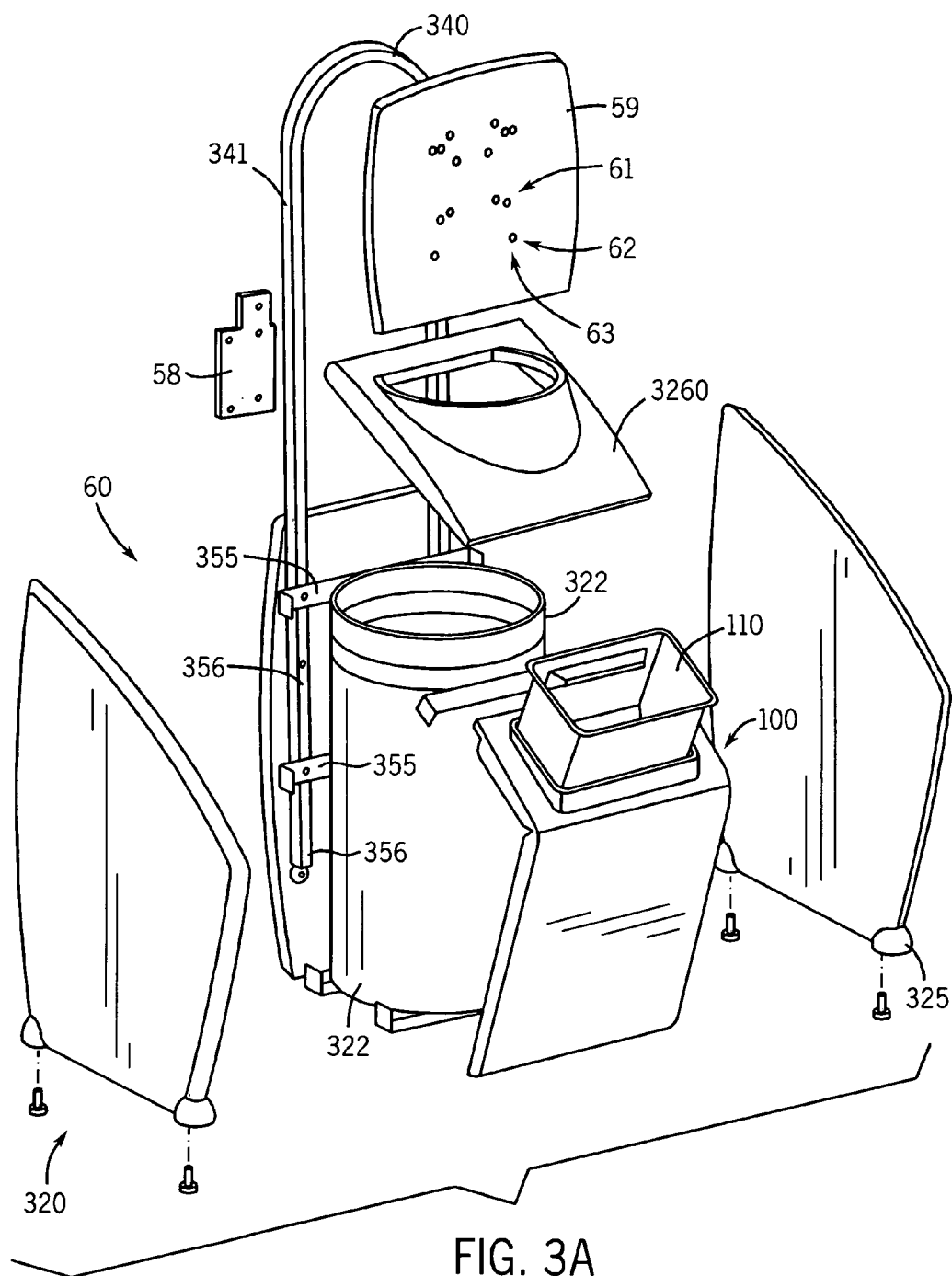


FIG. 3B



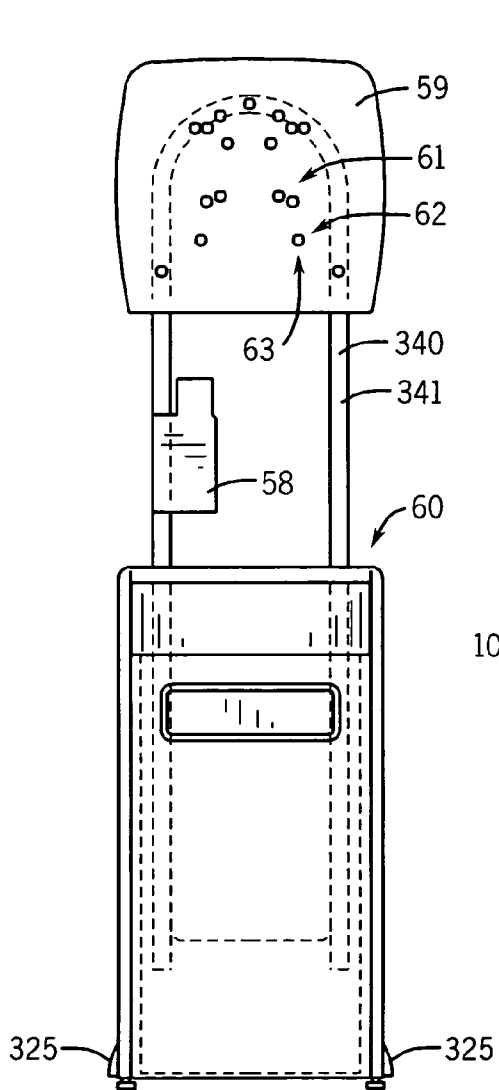
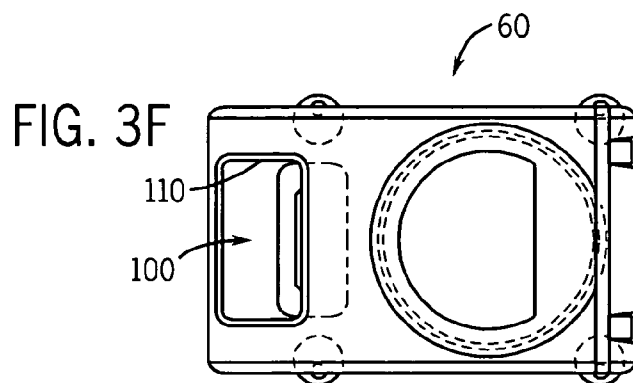


FIG. 3D

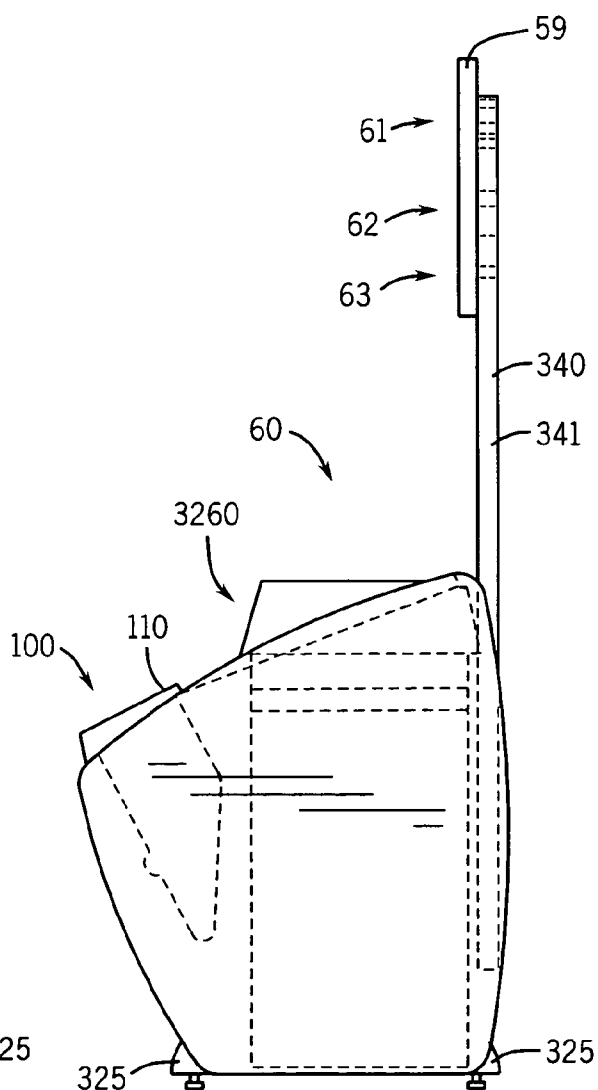
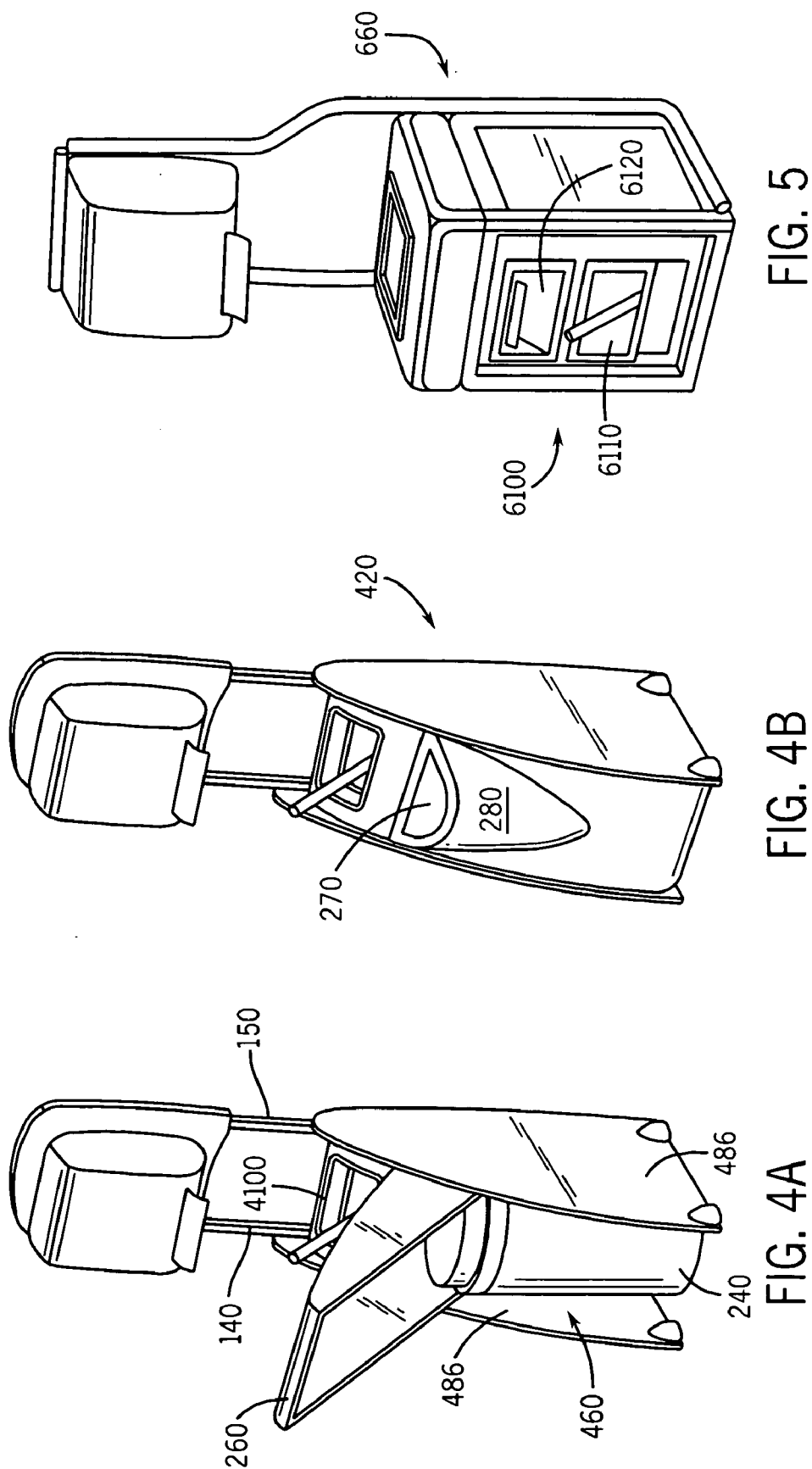
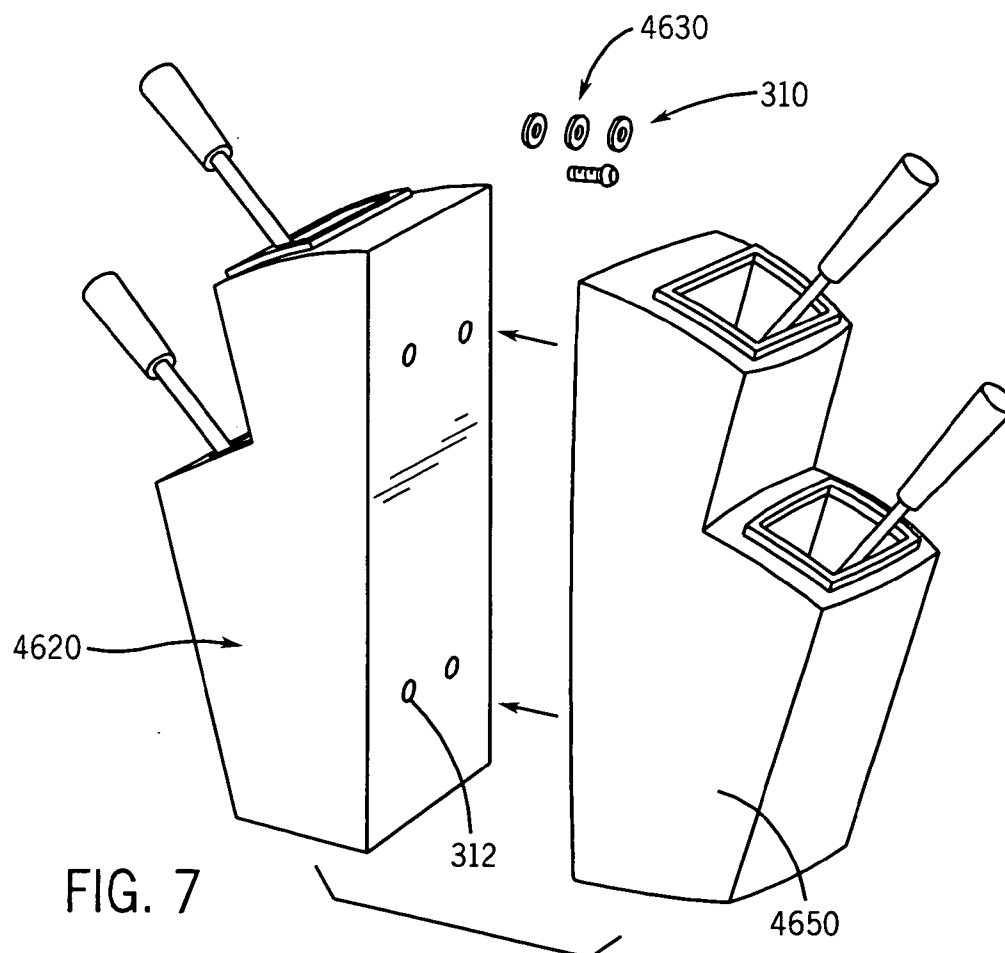
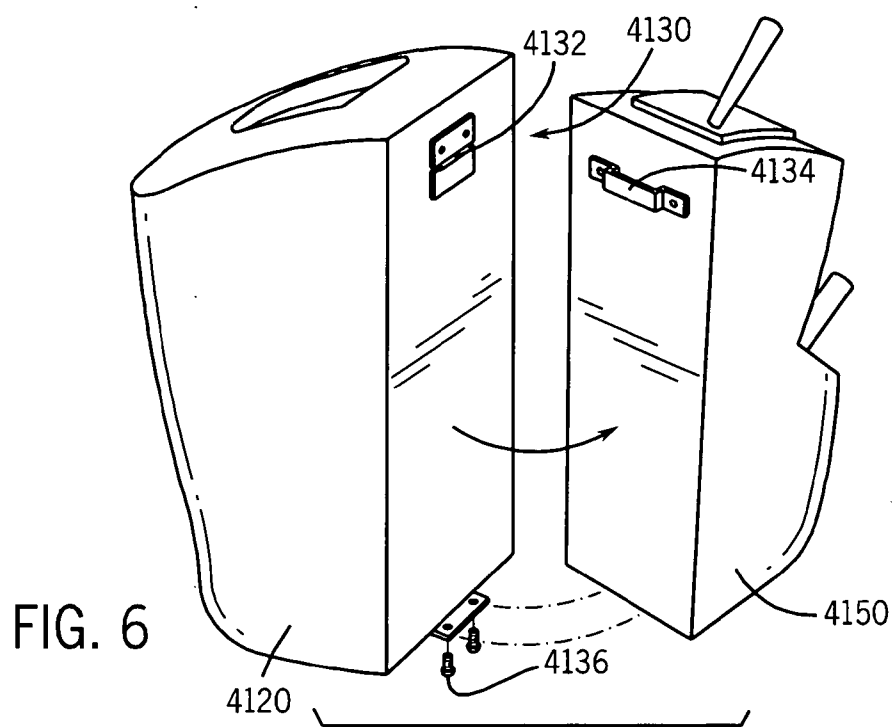
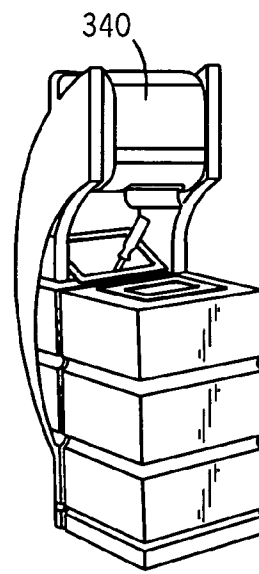
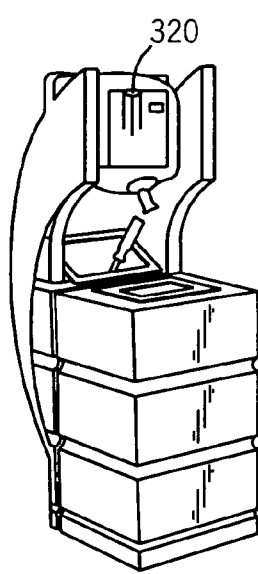
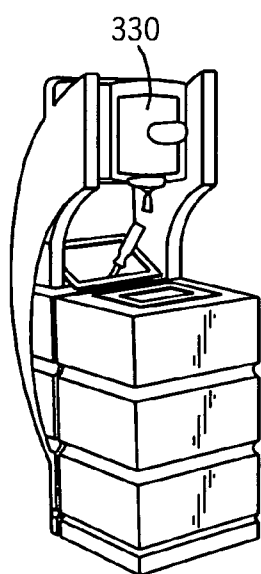
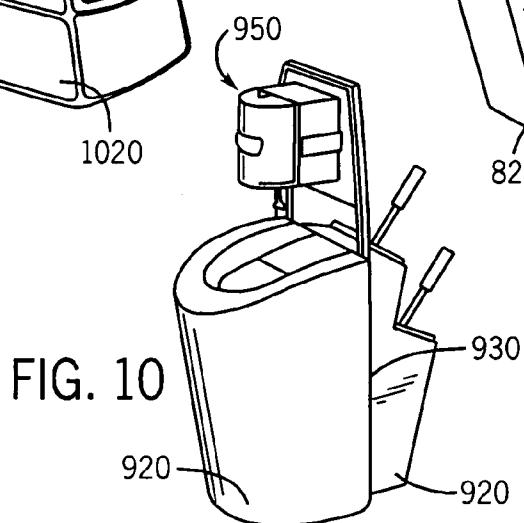
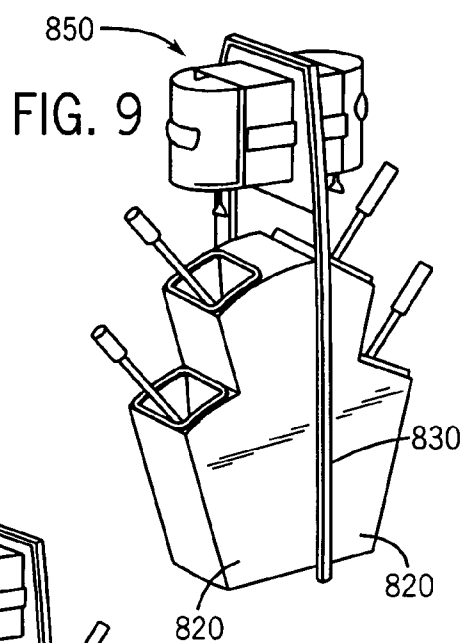
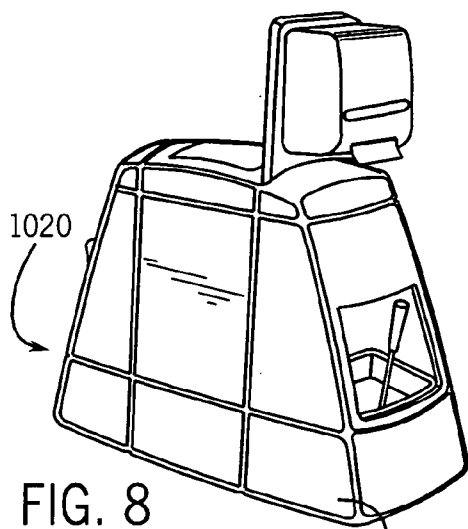


FIG. 3E







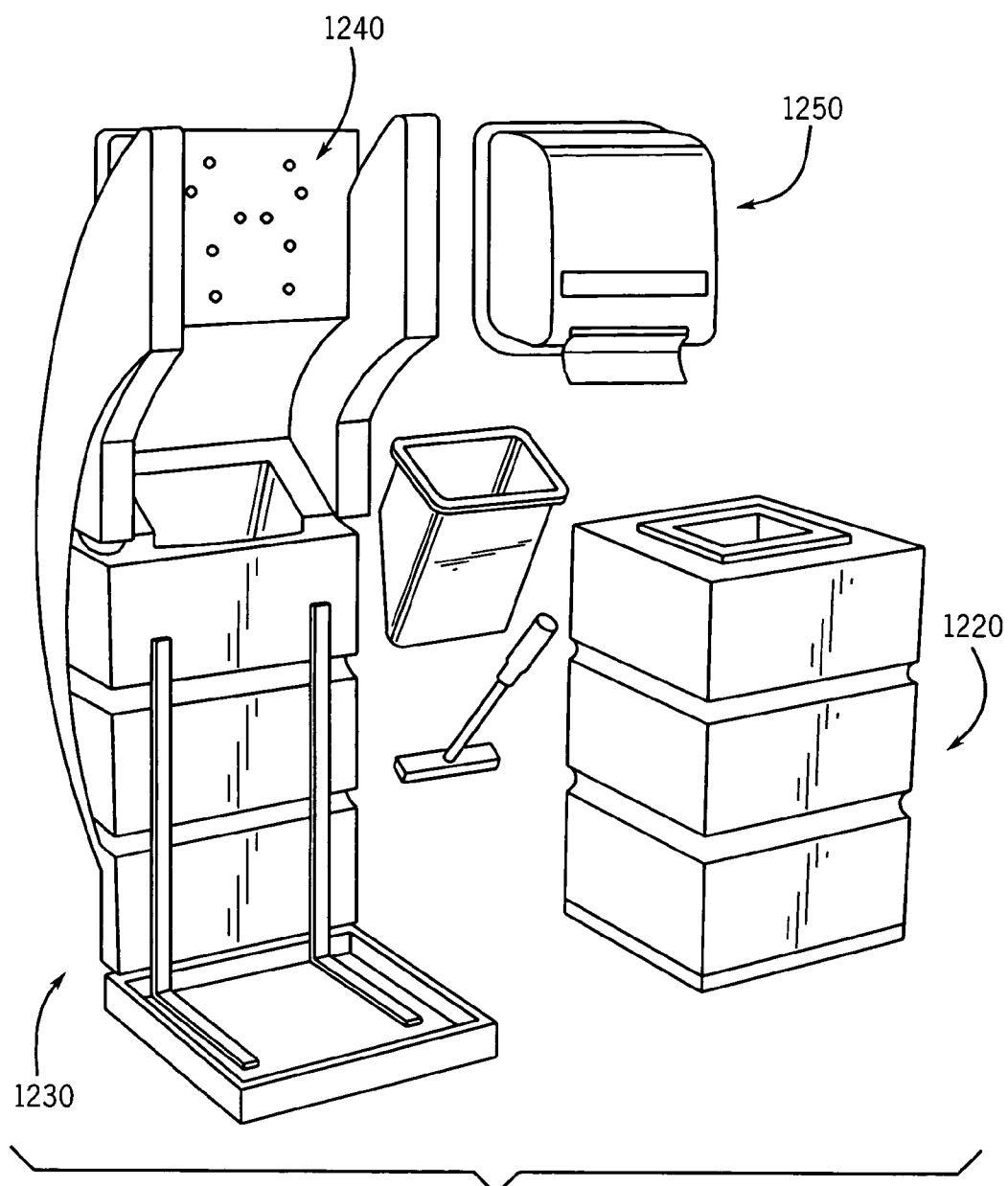
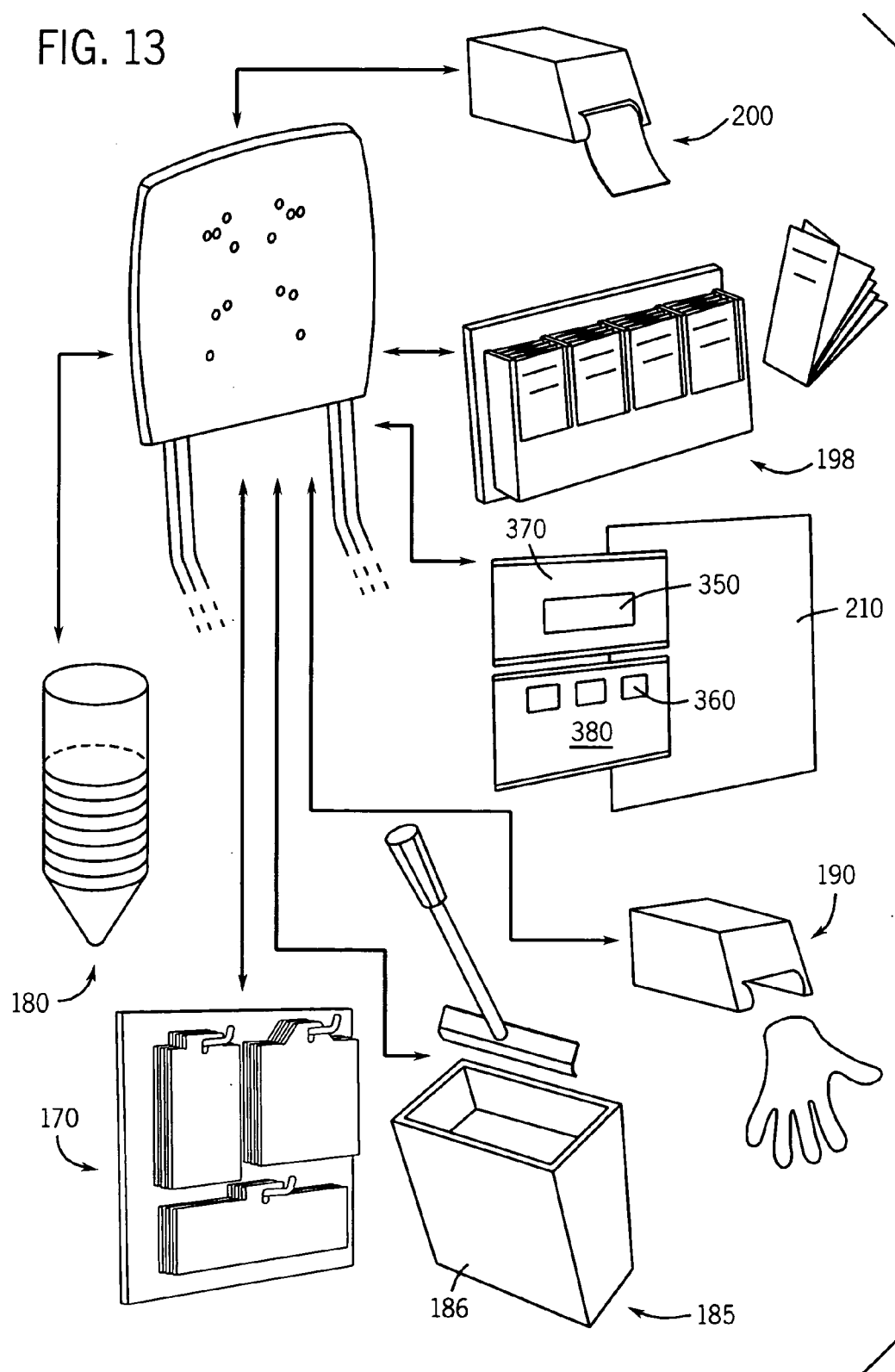
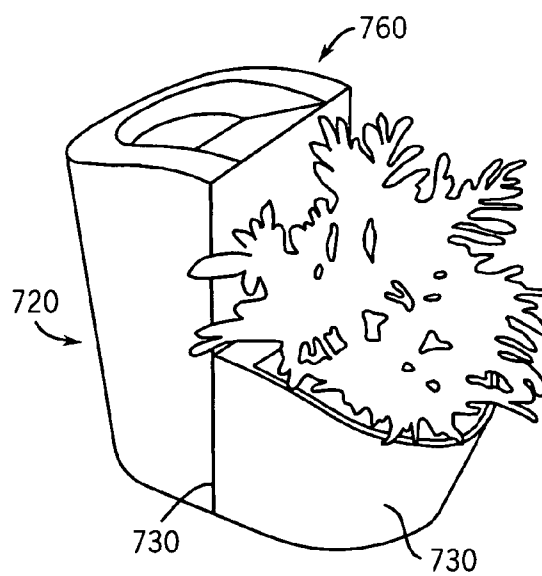
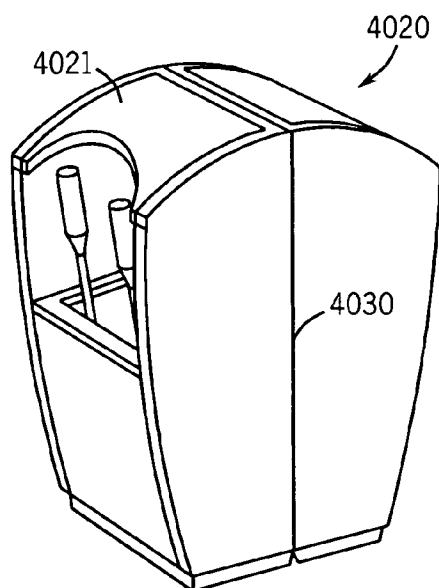
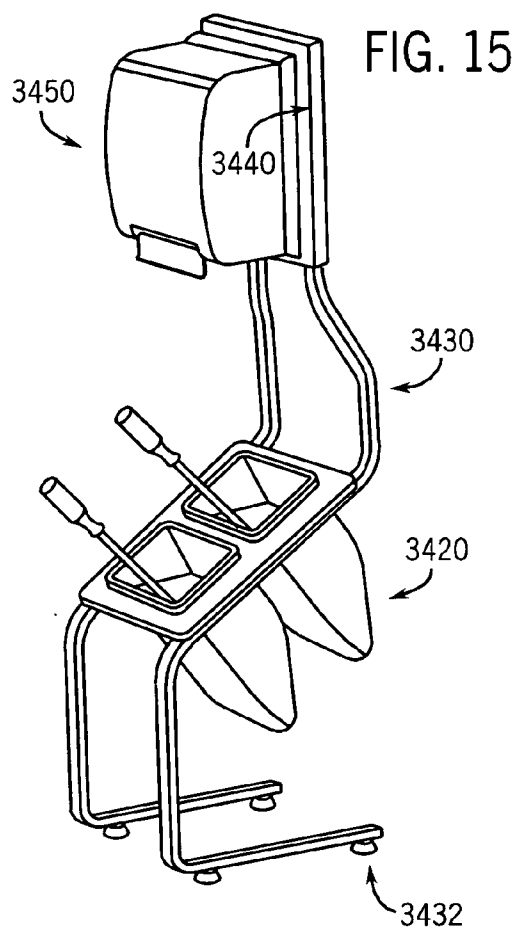
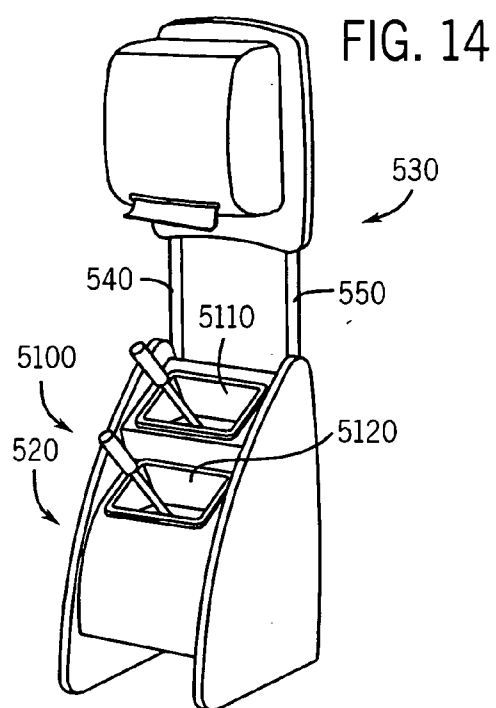


FIG. 12





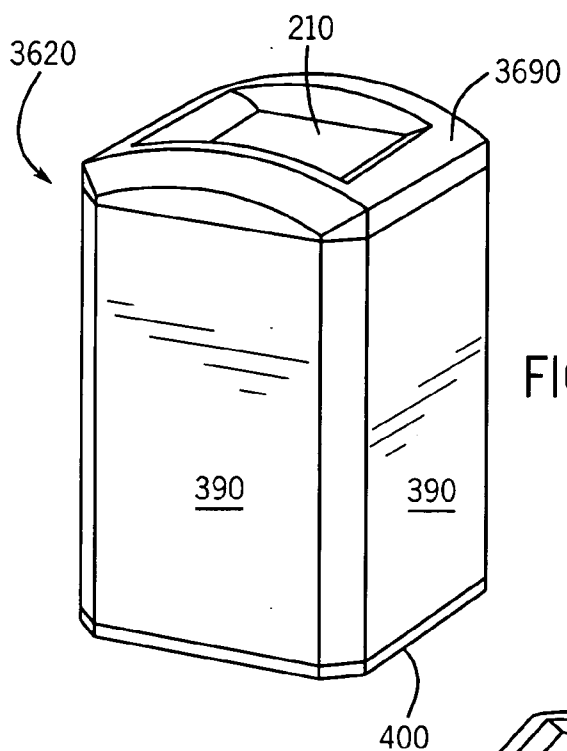


FIG. 16A

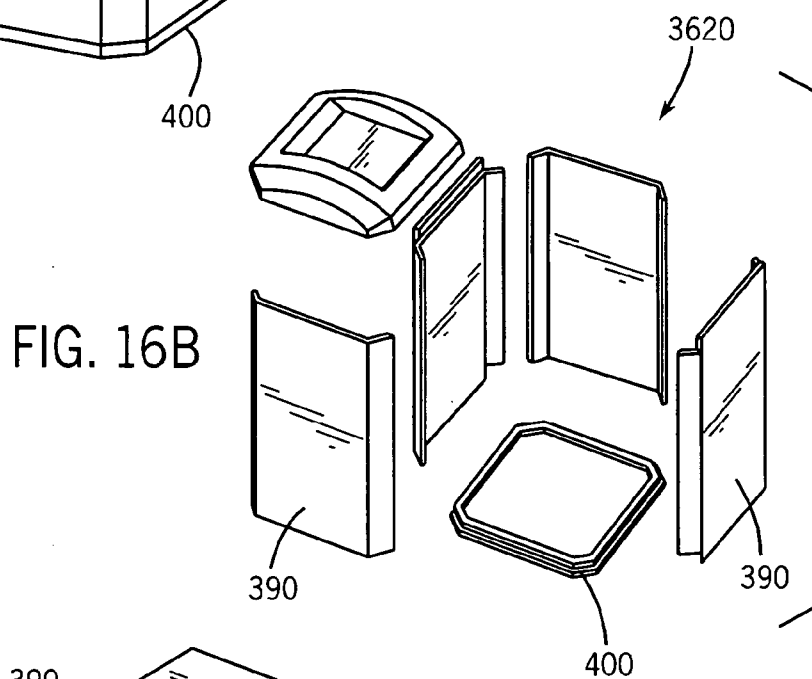


FIG. 16B

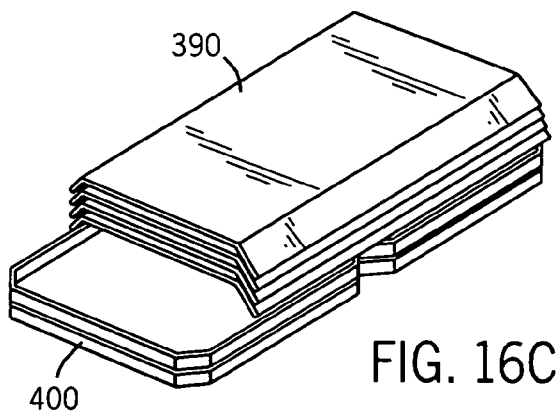
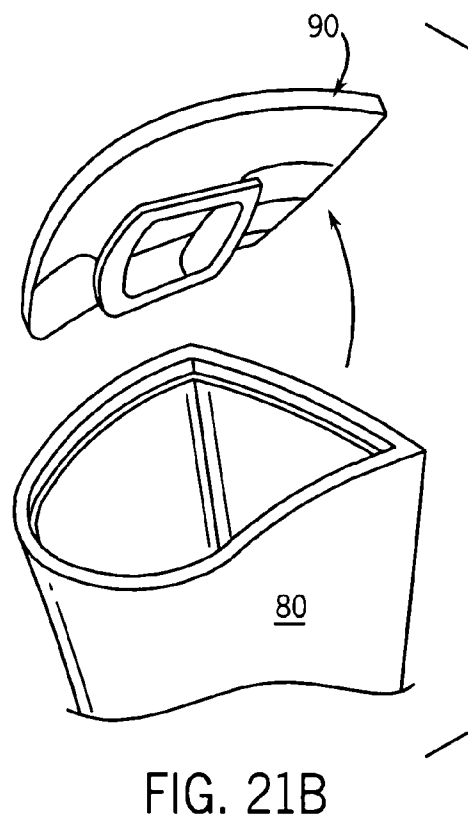
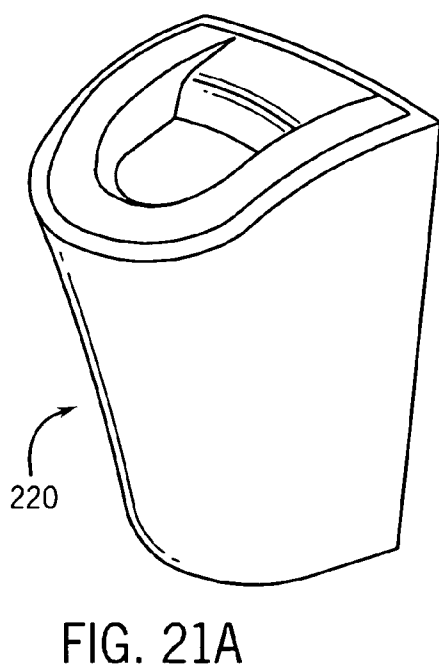
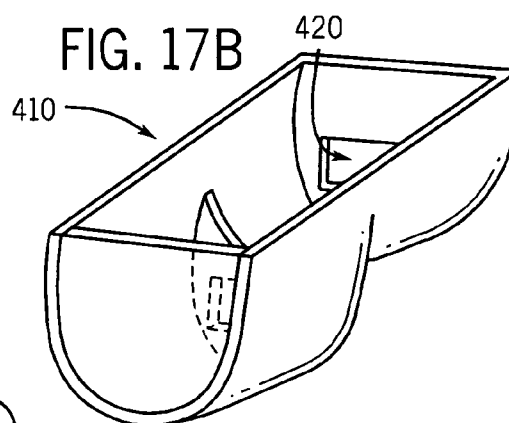
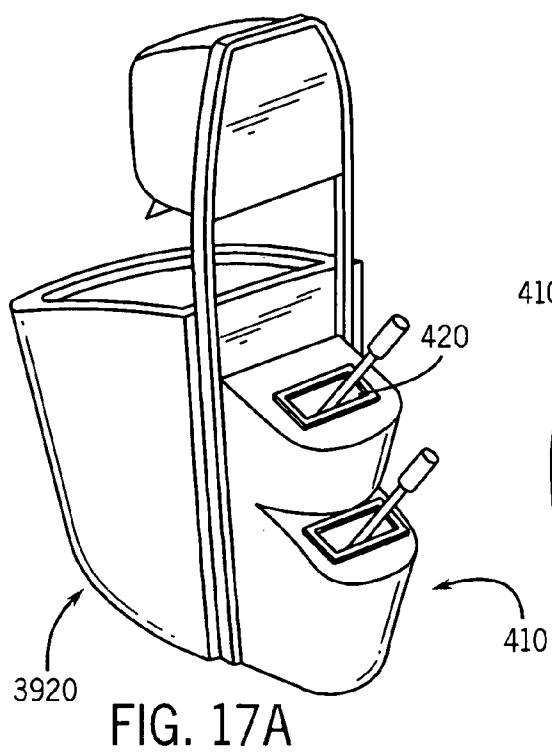


FIG. 16C



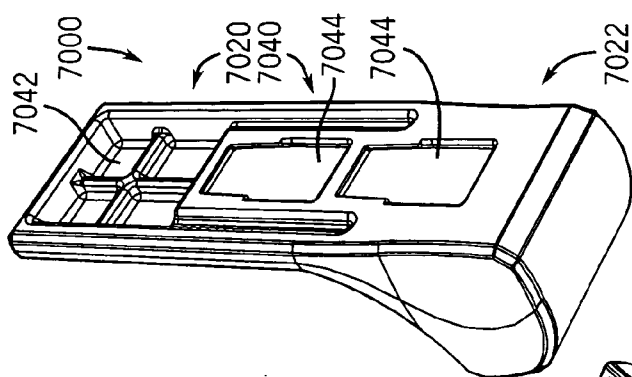


FIG. 24

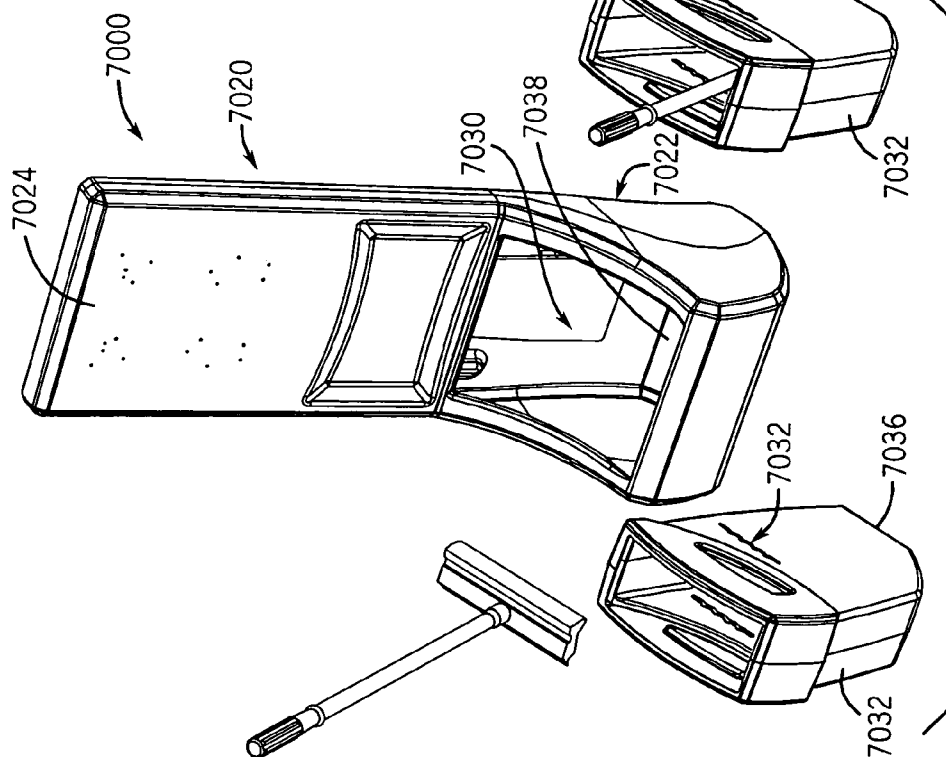


FIG. 23

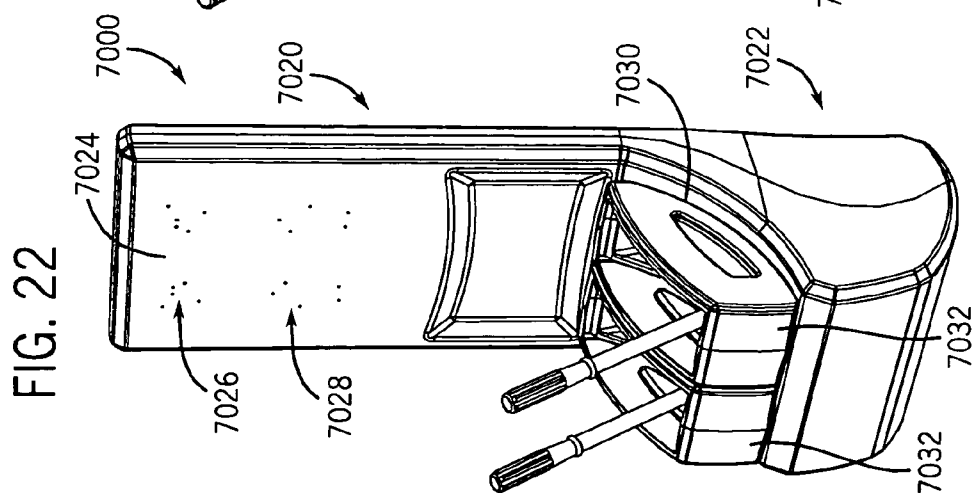


FIG. 22

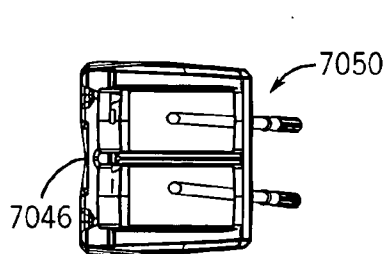


FIG. 29

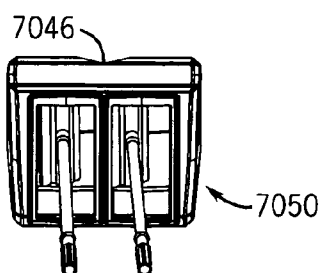


FIG. 27

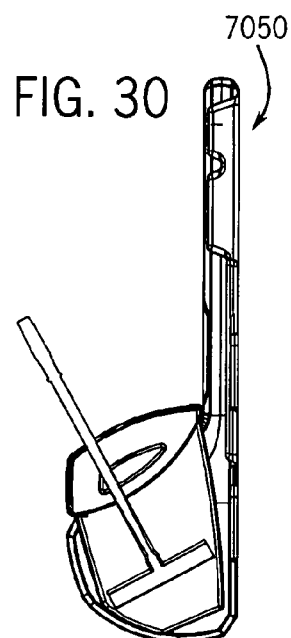


FIG. 31

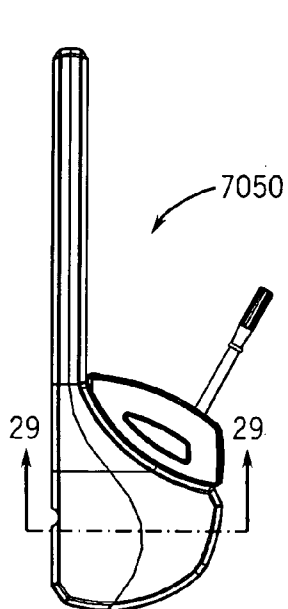


FIG. 28

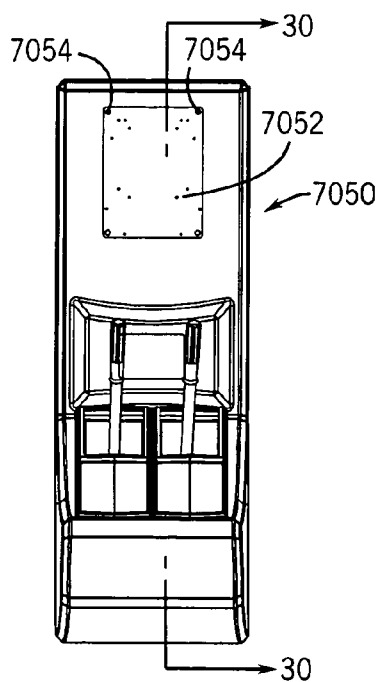


FIG. 25

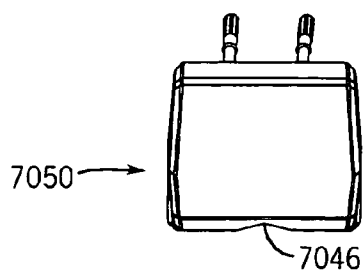
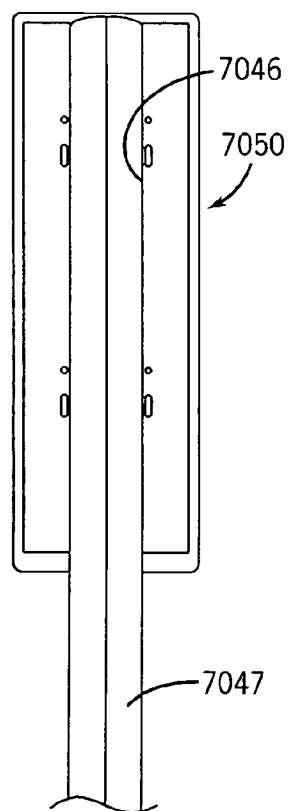
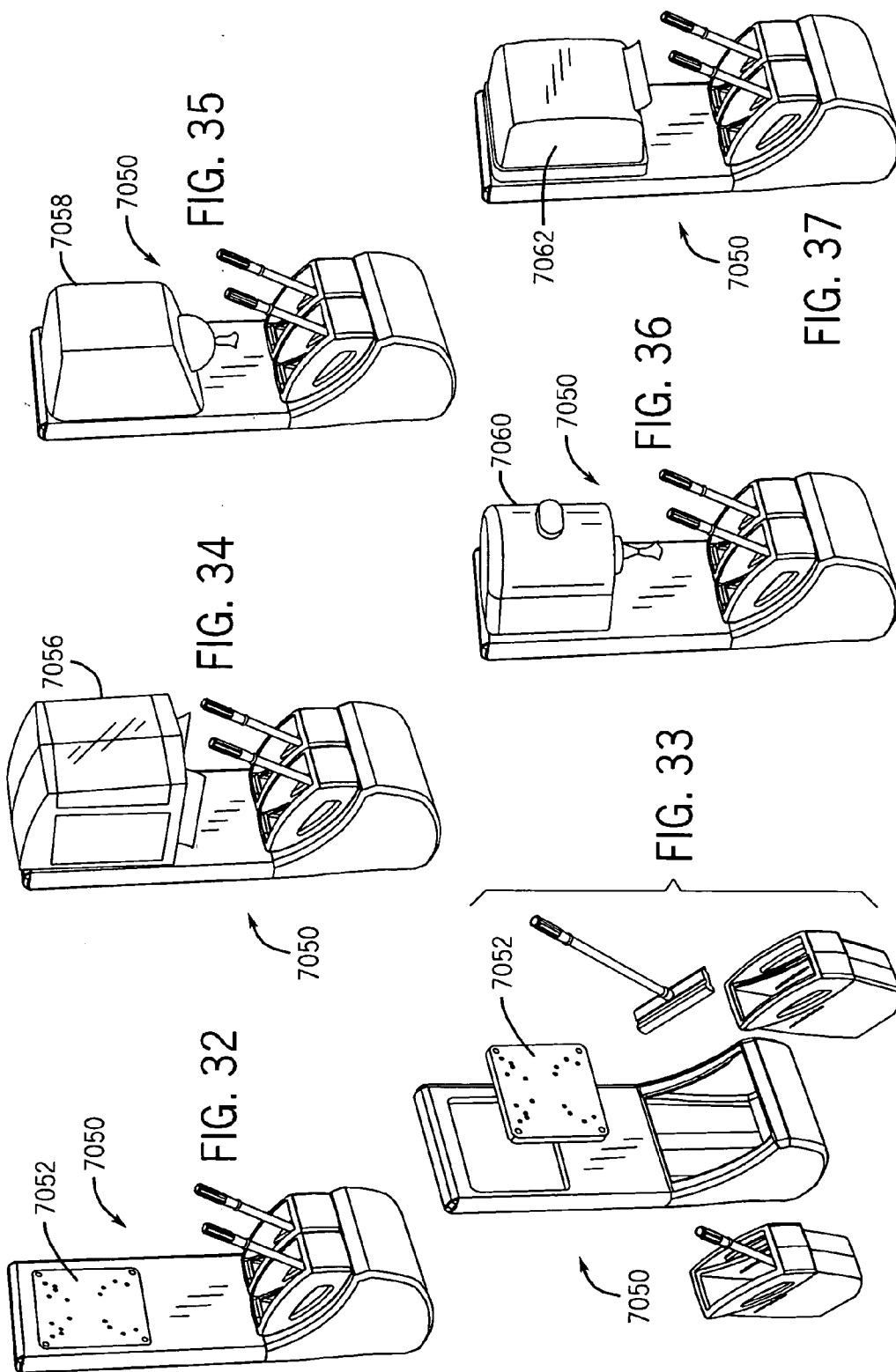


FIG. 26





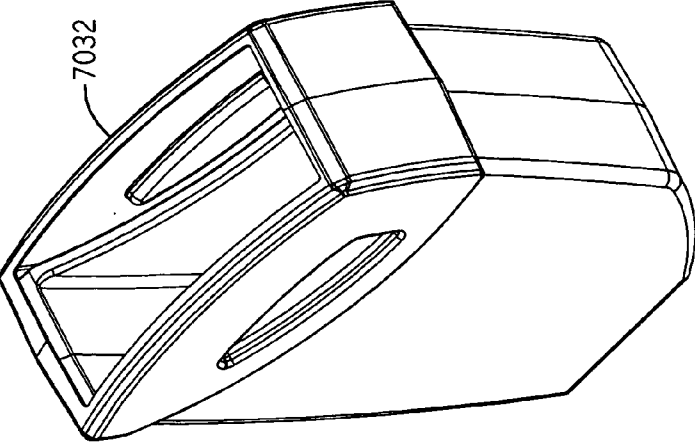
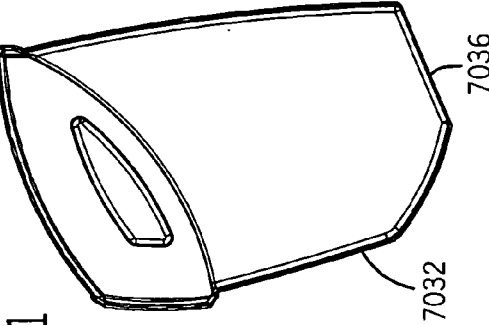
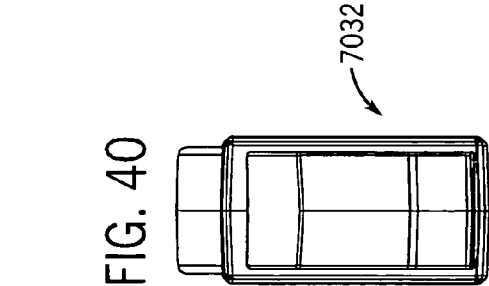
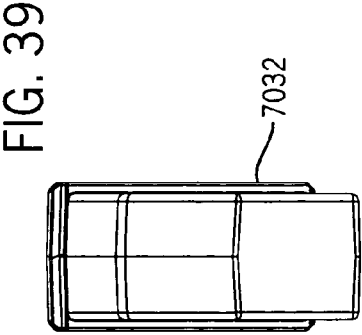
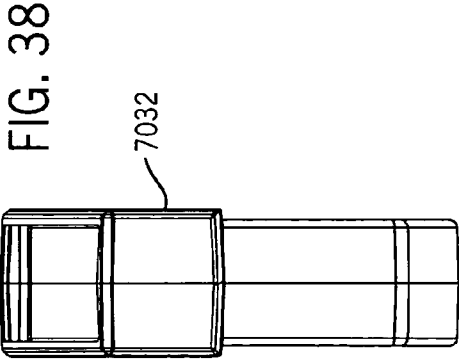


FIG. 42

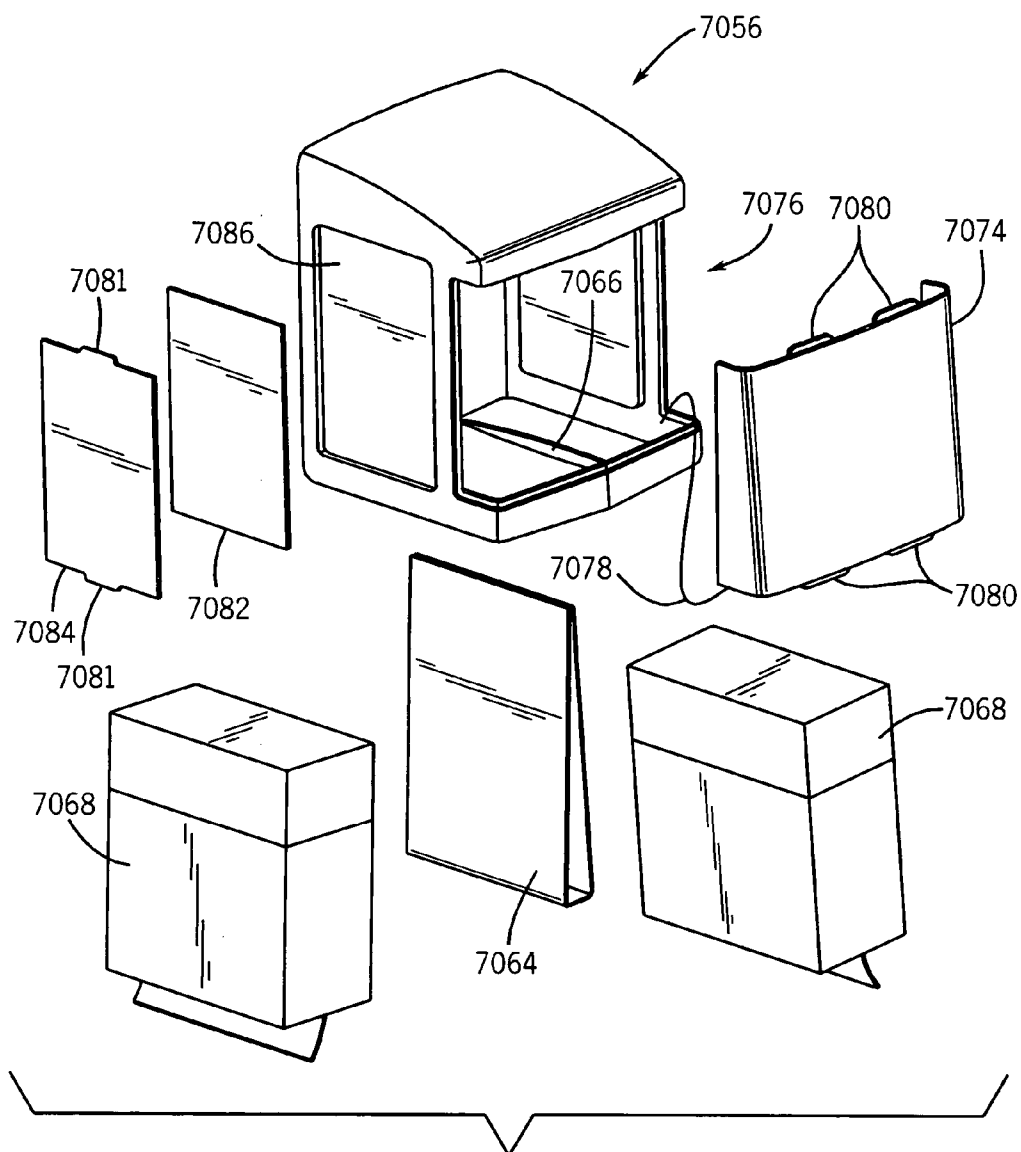


FIG. 43

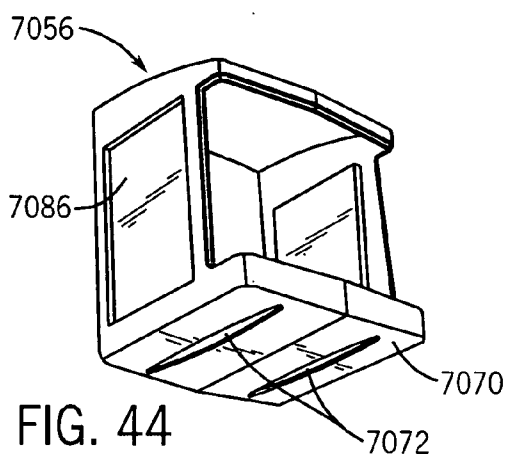


FIG. 46

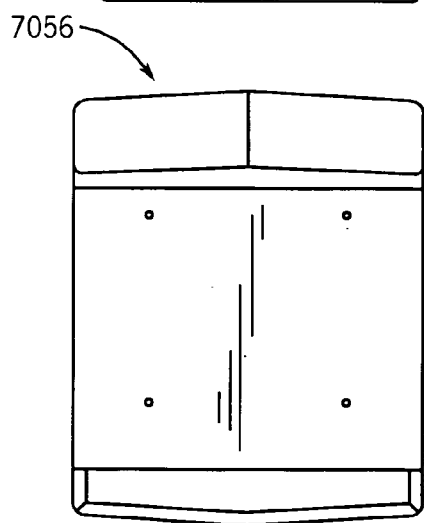
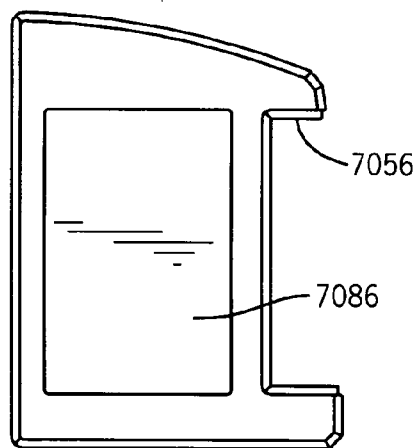


FIG. 48

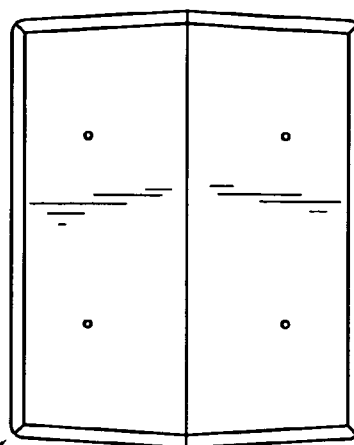


FIG. 47

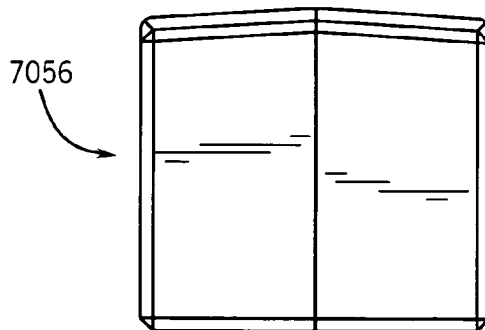
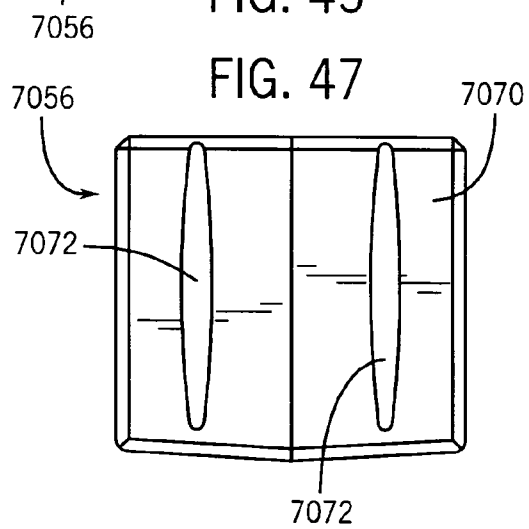
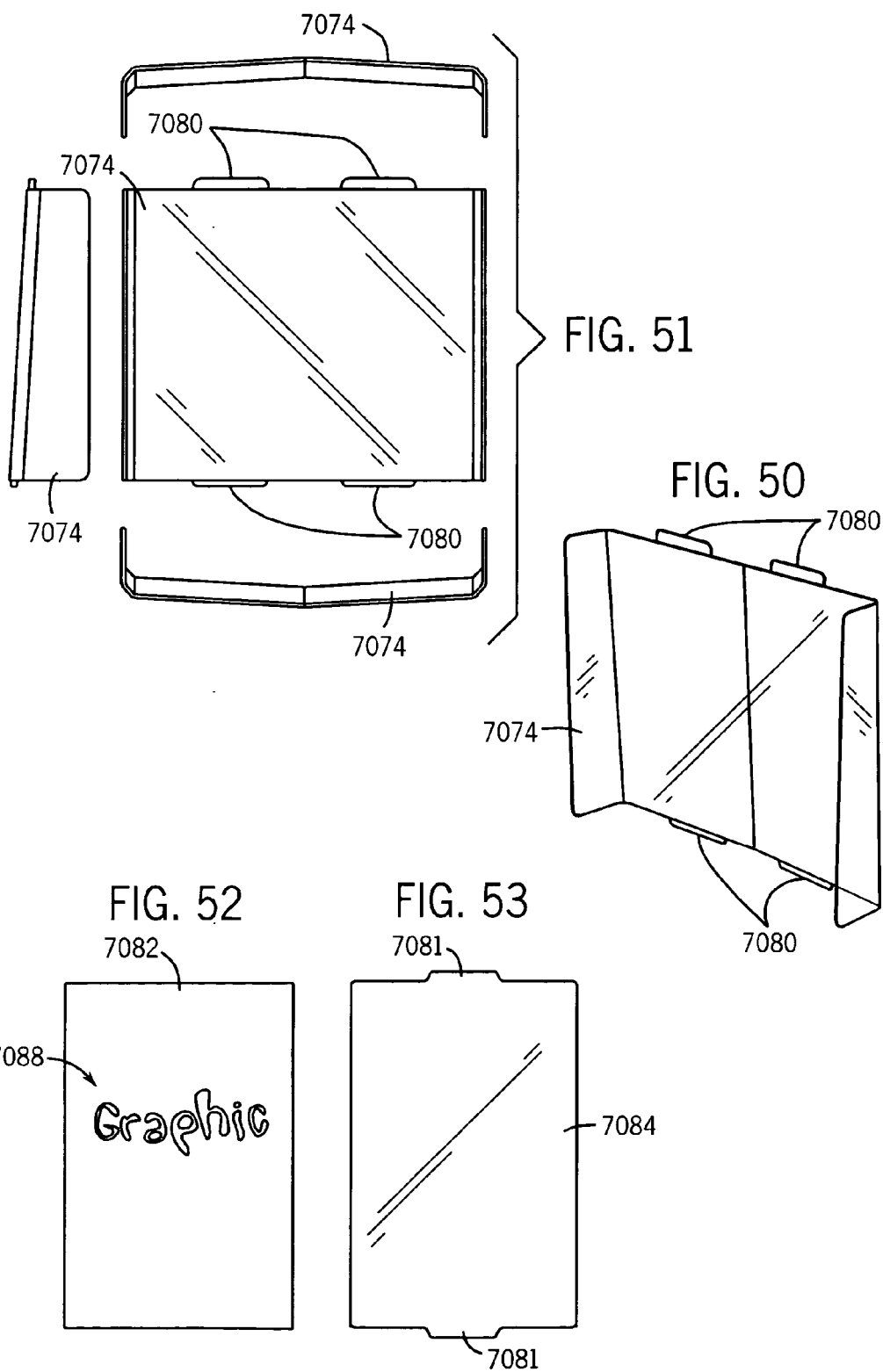


FIG. 49



MODULAR UTILITY ASSEMBLY

CROSS REFERENCE TO RELATED PATENT APPLICATIONS

[0001] This Application is a continuation-in-part of co-pending U.S. Application Ser. No. 10/252,025, filed on Sep. 20, 2002, which claims the benefit of priority of U.S. Application Ser. No. 60/324,315, filed on Sep. 24, 2001; U.S. Application Ser. No. 60/330,394, filed on Oct. 18, 2001; and U.S. Application Ser. No. 60/351,617, filed Jan. 24, 2002.

[0002] This Application claims the benefit of priority as available under 35 U.S.C. §§ 119-121 to the following Patent Applications (which are hereby incorporated by reference in the present Application): U.S. Application Ser. No. 10/252,025, filed on Sep. 20, 2002; U.S. Application Ser. No. 60/324,315, filed on Sep. 24, 2001; U.S. Application Ser. No. 60/330,394, filed on Oct. 18, 2001; and U.S. Application Ser. No. 60/351,617, filed Jan. 24, 2002.

FIELD

[0003] The present invention relates to modular utility assemblies such as storage and waste receptacles. The present invention also relates to modular utility assemblies having one or more functional modules or stations.

BACKGROUND

[0004] It is known to provide storage and/or waste receptacles for use in industrial, commercial and/or other applications. Such receptacles may provide utilities to a user, such as a waste container, a windshield service stations, a towel dispenser, etc. However, such systems do not readily allow one or more different utility modules to be reconfigured, or have the arrangement altered. Such receptacles do not realize certain advantageous features and/or combinations of features realized by the present invention.

[0005] It would be advantageous to provide a system that provides one or more assemblies of stations or functional modules, or combinations of modules or stations. It would also be advantageous to provide an assembly that allows for configurability, interchangeability, flexibility, reconfigurability, etc. in constructing the assembly with a variety of modules for use in service stations, near portable toilets, convenience stores, or other environments. It would further be advantageous to provide an assembly that would allow changes in configuration according to changing desires or needs by an end user. It would further be advantageous to provide an assembly including modular receptacles, sub-assemblies, sub-cabinets, and other associated modules, such as trash bags, paper towel hoppers, windshield washing service units, towel dispensers, planters, or the like.

[0006] It would further be advantageous to provide an assembly including a modular aspect, such that various sub-cabinets may be coupled to a support panel or frame that includes a mounting plate to form a receptacle system such as a cabinet or service stand. It would further be advantageous to provide an assembly including a mounting plate or mounting structure for the attachment of various dispensers, racks or the like produced by different manufacturers and having varying designs and/or mounting points or configurations. It would further be advantageous to provide an

assembly that includes a mounting plate coupled to or integrated into an elevated portion of a support panel or frame so that attached dispensers, racks or the like, and/or signage or printed materials, may be placed near the eye-level of a standing individual. It would further be advantageous to provide an assembly that is (height) adjustable relative to a base or other structure.

[0007] It would be desirable to provide a utility assembly or the like that includes any one or more of these or other advantageous features.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a schematic view of a modular utility assembly according embodiment.

[0009] FIG. 2A is a perspective view of a modular utility assembly exemplary embodiment.

[0010] FIG. 2B is a partial view of the modular utility assembly of FIG. 2A in greater detail according to an exemplary embodiment.

[0011] FIG. 3A is an exploded perspective view of a modular utility assembly according to an exemplary embodiment.

[0012] FIG. 3B is a perspective view of the modular utility assembly of FIG. 3A according to an exemplary embodiment.

[0013] FIG. 3C is a perspective view of the modular utility assembly of FIG. 3A according to an exemplary embodiment.

[0014] FIG. 3D is a front elevation view of the modular utility assembly of FIG. 3A according to an exemplary embodiment.

[0015] FIG. 3E is a side elevation view of the modular utility assembly of FIG. 3A according to an exemplary embodiment.

[0016] FIG. 3F is a top plan view of the modular utility assembly of FIG. 3A according to an exemplary embodiment.

[0017] FIG. 4A is a perspective view of a modular utility assembly according to an exemplary embodiment.

[0018] FIG. 4B is a perspective view of the modular utility assembly of FIG. 4A according to an exemplary embodiment.

[0019] FIG. 5 is a perspective view of a modular utility assembly according to an exemplary embodiment.

[0020] FIG. 6 is an exploded perspective view of a modular utility assembly according to an exemplary embodiment.

[0021] FIG. 7 is an exploded perspective view of a modular utility assembly according to an exemplary embodiment.

[0022] FIG. 8 is a perspective view of a modular utility assembly according to an exemplary embodiment.

[0023] FIG. 9 is a perspective view of a modular utility assembly according to an exemplary embodiment.

[0024] FIG. 10 is a perspective view of a modular utility assembly according to an exemplary embodiment.

[0025] FIGS. 11A through 11C are perspective views of modular utility assemblies according to various exemplary embodiments.

[0026] FIG. 12 is an exploded perspective view of a modular utility assembly according to an exemplary embodiment.

[0027] FIG. 13 is an exploded perspective view of a module and interface for use with a modular utility assembly according to an exemplary embodiment.

[0028] FIG. 14 is a perspective view of a modular utility assembly according to an exemplary embodiment.

[0029] FIG. 15 is a perspective view of a modular utility assembly according to an exemplary embodiment.

[0030] FIG. 16A is a perspective view of a module for use with a modular utility assembly according to an exemplary embodiment.

[0031] FIG. 16B is an exploded view of the module of FIG. 16A according to an exemplary embodiment.

[0032] FIG. 16C is a perspective view of the module of FIGS. 16A and 16B according to an exemplary embodiment.

[0033] FIGS. 17A and 17B are perspective views of a modular utility assembly according to an exemplary embodiment.

[0034] FIG. 18 is a perspective view of a modular utility assembly according to an exemplary embodiment.

[0035] FIG. 19 is a perspective view of a modular utility assembly according to an exemplary embodiment.

[0036] FIG. 20 is a top plan view of an interface for use with a modular utility assembly according to an exemplary embodiment.

[0037] FIGS. 21A and 21B are perspective views of a module for use with a modular utility assembly according to an exemplary embodiment.

[0038] FIG. 22 is a front perspective view of a modular utility system according to an exemplary embodiment.

[0039] FIG. 23 is an exploded view of the of the modular utility system of FIG. 22 according to an exemplary embodiment.

[0040] FIG. 24 is a rear perspective view of a modular utility system according to an exemplary embodiment.

[0041] FIG. 25 is a front elevation view of a modular utility system according to an exemplary embodiment.

[0042] FIG. 26 is a bottom plan view of a modular utility system according to an exemplary embodiment.

[0043] FIG. 27 is a top plan view of a modular utility system according to an exemplary embodiment.

[0044] FIG. 28 is a side elevation view of a modular utility system according to an exemplary embodiment.

[0045] FIG. 29 is a cross-sectional view of the modular utility system of

[0046] FIG. 28 taken along line 29-29 according to an exemplary embodiment.

[0047] FIG. 30 is a cross-sectional view of the modular utility system of

[0048] FIG. 25 taken along line 30-30 according to an exemplary embodiment.

[0049] FIG. 31 is a rear elevation view of a modular utility system according to an exemplary embodiment.

[0050] FIG. 32 is a front perspective view of a modular utility system according to an exemplary embodiment.

[0051] FIG. 33 is an exploded perspective view of the modular utility system of FIG. 32 according to an exemplary embodiment.

[0052] FIGS. 34 through 37 are front perspective views of modular utility systems according to exemplary embodiments.

[0053] FIG. 38 is a front elevation view of the receptacle of FIG. 42 according to an exemplary embodiment.

[0054] FIG. 39 is a bottom plan view of the receptacle of FIG. 42 according to an exemplary embodiment.

[0055] FIG. 40 is a top plan view of the receptacle of FIG. 42 according to an exemplary embodiment.

[0056] FIG. 41 is a side elevation view of the receptacle of FIG. 42 according to an exemplary embodiment.

[0057] FIG. 42 is a front perspective view of a receptacle according to an exemplary embodiment.

[0058] FIG. 43 is an exploded view of a towel dispenser for a modular utility system according to an exemplary embodiment.

[0059] FIG. 44 is front perspective view of the towel dispenser of FIG. 43 according to an exemplary embodiment.

[0060] FIG. 45 is a rear elevation view of the towel dispenser of FIG. 43 according to an exemplary embodiment.

[0061] FIG. 46 is a side elevation view of the towel dispenser of FIG. 43 according to an exemplary embodiment.

[0062] FIG. 47 is a bottom plan view of the towel dispenser of FIG. 43 according to an exemplary embodiment.

[0063] FIG. 48 is front elevation view of the towel dispenser of FIG. 43 according to an exemplary embodiment.

[0064] FIG. 49 is a top plan view of the towel dispenser of FIG. 43 according to an exemplary embodiment.

[0065] FIGS. 50 and 51 are views of a towel cover for a towel dispenser according to an exemplary embodiment.

[0066] FIG. 52 is a front elevation view of a graphics panel according to an exemplary embodiment.

[0067] FIG. 53 is a front elevation view of a graphics panel cover according to an exemplary embodiment.

DETAILED DESCRIPTION

[0068] As shown in the FIGURES, various exemplary embodiments of the present invention provide an assembly allowing the reconfiguration, rearrangement, modularity, and flexibility in constructing arranging, and reconfiguring various functional utility modules. The assembly provides flexibility in constructing and assembling, for example, a service station or service island. The modularity of the assembly allows for the repair, reconstruction, and adaptation of the modules before or after the initial installation. The assembly also allows for the construction of stations with a variety of structural and functional configurations and combinations. Modules and stations are interchangeable for reasons such as form, function, appearance, size, etc.

[0069] A variety of first modules or utility stations (e.g., a waste container, trash receptacle, bin, storage cabinet, container, windshield service stations, housing, etc.) may be selected for use in the assembly. The selection may be made according to individual preferences and/or other functional considerations. For example, in a service station (e.g., gas station), a waste receptacle may be useful, and desired as the first, lower module. An interface (e.g., a riser, extension, frame or member(s), coacting elements, fasteners, etc.) may then be coupled to the first module. The interface may include a surface (e.g., a mounting member, mounting plate, universal mounting plate, etc.) or other configurations for attaching a variety of selected second modules. As shown in the FIGURES, a variety of second modules or stations (e.g., an upper module, portion, station or cabinet, or a side module, portion having a variety of different sizes and mounting configurations including mounting points, apertures, hooks, brackets, etc.) may be selected for use in the assembly. The various modules may be replaced or reconfigured relatively easily with other selected modules.

[0070] Various configurations of assemblies may be used in commercial, residential, or industrial facilities, including gas stations, service stations, garages, warehouses, public areas, parks, near rest-room facilities, etc. The assemblies may be adapted for indoor or outdoor use.

[0071] Referring to the FIGURES, exemplary embodiments of a modular assembly are shown. The modular assembly provides one or more assemblies, stations, functional modules, or utility modules, or combinations of modules or stations. The modular assembly allows for changing the configuration according to changing desires, needs or functional concerns. As shown in the FIGURES, exemplary embodiments of the modular assembly provide assemblies including modular receptacles, sub-assemblies, sub-cabinets, and other associated modules, such as trash bags, paper towel hoppers, windshield washing service units, towel dispensers, planter or the like.

[0072] Referring to FIG. 1, an exemplary embodiment of the modular assembly 10 comprises a first module 20, an interface 30, a mounting member (shown as surface 40) and a second module 50. Interface 30 is coupled to first module 20. Surface 40 is provided on interface 30. Second module 50 is coupled to surface 40. As shown in the FIGURES, a first module may be provided as a lower module, lower portion, lower station, or as a base for the assembly. The first module may be a variety of different functional modules, structures, and/or stations. According to exemplary embodiments, the interface is configured to interchangeably receive

one of a plurality of different sized modules (e.g., modules of different size and/or having different mounting points or mounting configurations). The interface comprises a plurality of differently spaced indentations or apertures (e.g., openings, mounting or attachment points, fasteners, inserts, molded in inserts, etc.) that provide mounting or attachment points for interchangeable module attachment or mounting.

[0073] The first module may include a waste container, trash receptacle, bin, storage cabinet, container, housing, etc. as shown in FIGS. 2A to 6, 16A, 16B, 16C, 17A, 17B and 19. As shown in FIGS. 21A and 21B, first module 220 (shown as a waste container) may be a single unitary body. According to an alternative embodiment as shown in FIGS. 21A and 21B, the first module may have a base 80 and a lid 90 that is removable. A removable lid 90 facilitates the removal of the waste contained in the base 80.

[0074] First module 20 may include a service center (such as a windshield service center, oil service center, maintenance service center, etc.). A windshield service center may include a support structure or framework for supporting and receiving receptacles, containers, or buckets (see FIGS. 2A, 2B and 4A to 12). These receptacles may be for holding fluid such as water or windshield washing fluid. The windshield service center may further include a towel dispenser (see FIG. 5).

[0075] According to an exemplary embodiment as shown in FIGS. 2A and 2B, a windshield service center 100 may include a single bucket 110. According to an alternative embodiment shown in FIG. 14, windshield service center 5100 may include dual buckets 5110, 5120. According to other alternative embodiments, any number, combinations, and configurations of buckets may be used.

[0076] According to an exemplary embodiment as shown in FIGS. 2A and 2B, first module 320 may also be a combination of waste container 60 and windshield service center 100. In an exemplary embodiment shown in FIG. 5, a windshield service center 6100 is provided on a side of the waste container 660. Windshield service center 6100 has a bucket 6110 for holding fluid and a towel dispenser 6120.

[0077] According to an embodiment as shown in FIGS. 8 to 10, first modules 820, 920, 1020 may be provided as one or more side modules, side portions, or as a side-by-side members for the assembly. The side module may be a variety of different functional modules such as receptacles, service centers, etc.

[0078] In an exemplary embodiment as shown in FIGS. 16A through 16C, first module 3620 may comprise a multiple piece waste container assembled from a plurality of panels 390, a base 400 and lid 3690 with opening 210 that may be shipped in a disassembled state, and assembled on-site using a variety of fasteners or other interconnection means (e.g., screws, nuts/bolts, corner pieces, tongue-in-groove connections, locking clips and the like).

[0079] In an exemplary embodiment shown in FIGS. 3A through 3F, a rigid liner 322, such as a bucket or an open-faced box, may be housed in first module 320 as a waste receptacle. Alternatively, a flexible liner such as a trash bag may be housed in the module as a waste receptacle. The flexible liner may be secured within the waste container by retention clips, by an inwardly directed flange that is

laterally flared or notched along an outer face in combination with an elastic retention band or by a set of hinged retainer rings.

[0080] In an exemplary embodiment as shown in **FIGS. 17A and 17B**, first module **3920** may comprise a single piece chassis **410** including one or more openings **420**. The rear portion of chassis **410** may be omitted if chassis **410** will consistently be coupled to support panels or other sub-cabinets with similar or larger profiles. Windshield washing service units or similar bin-like receptacles may be supported within the chassis by an exterior flange that overlaps a perimeter edge of the chassis opening. In another exemplary embodiment as shown in **FIG. 18**, first module **4020** may comprise a container-like chassis that includes a partial side opening and a cover portion **4021**, as shown in **FIG. 18**. Windshield washing service units or similar bin-like receptacles that are inserted into the chassis may rest on a the bottom of the chassis or be supported by a combination of simple engagement with an inner surface of the chassis and a flange portion that overlaps a lower edge of the container side opening. A flange may still be provided in either case to ease removal of the receptacle from the container.

[0081] According to an exemplary embodiment as shown in **FIG. 19**, first module **720** may comprise waste container **760** and a planter **730**. Soil may be placed in planter **730** for growing plants, shrubs, bushes, flowers, etc. to improve the aesthetics surrounding the assembly.

[0082] According to various exemplary embodiments, the first module may be constructed from polymer concrete, polyethylene, cast aluminum, steel, various metal and steel alloys, plastics, and other polymers. According to a particularly preferred embodiment, the first module is constructed from a suitable plastic.

[0083] According to an exemplary embodiment as shown in **FIG. 1**, an interface **30** may be provided between first module **20** and second module **50**. The interface provided between the first module and second module may be a riser, extension, frame (e.g., rectangular tube frame **341** in **FIGS. 3A through 3F**), or member as shown in **FIGS. 3A through 5, 8 through 12, 14, 15** and **17**. According to an alternative embodiment, the interface may be fasteners, clips, etc. as shown in **FIGS. 6 and 7**.

[0084] According to an exemplary embodiment, the interface may be configured to have an adjustable height. For example, the interface may be provided with multiple mounting points at multiple heights at which it may be coupled to the first and/or second module. Alternatively, the interface may be configured similar to an extension pole having a number of preset heights which may be adjusted by depressing a locking element from engagement in one aperture, adjusting the height of the interface, and releasing the locking element to engage in another aperture at a different height. It should be noted that a variety of different adjustment positions, at a variety of intervals, and any number of adjustment positions may be provided with the system.

[0085] According to an exemplary embodiment as shown in **FIG. 14**, interface **530** may comprise two vertically extending members **540** and **550** extending away from the first module **520**. Interface **530** may be fastened to first

module **520** using a variety of fasteners including screws, bolts, fasteners that are co-molded or molded into the body of module **520**, etc. According to an alternative embodiment, the interface may be molded into the body of first module during the construction of the first module.

[0086] In an exemplary embodiment shown in the **FIG. 15**, interface **3430** may be a frame work or an open frame work arrangement which in part serves as a base, having supports such as feet **3432**. First module **3420** is received in interface **3430**, and a second module **3450** may be received or coupled to surface **3440**. Modules may be selectively attached to and removed from the framework (by bolting, etc.).

[0087] According to a particularly preferred embodiment, the interface is constructed from steel tubing. Alternatively, the interface may be constructed from stainless steel, aluminum steel alloy, aluminum alloy, polymers, composites, fiberglass, plastics, mechanical fasteners, etc.

[0088] The interface provided between the first module and second module may be an interface or frame provided between the modules. In an exemplary embodiment as shown in **FIGS. 9 and 10**, the interface **830** or **930** is provided between modules **820** or **920** and **850** or **950** to provide a member to which both modules may be attached/fastened/coupled, etc. In an exemplary embodiment as shown in **FIG. 7**, first module **4620** and second module **4650** are coupled with an interface **4630** comprising fasteners such as bolts **310** and one or more mounting points shown as apertures **312**. In alternative embodiments, the first and second modules are placed "back to back" with each other. The first and second modules may or may not be attached to each other. The first and second modules may be simply proximate one another. In an alternative embodiment as shown in **FIG. 6**, a latch or hook assembly **4130** (comprising member **4132** which coacts with member **4134** and fasteners **4136** which coact with fasteners provided on module **450**) or other selectively attachable mechanism may be provided between the first and second modules and/or provided on a frame. Alternatively, pins or bolts may be provided between the first and second modules to connect the two modules.

[0089] According to an exemplary embodiment as shown in **FIG. 1**, a mounting member **40** may be provided on or coupled to interface **30**. Mounting member **40** may be a mounting plate, a mounting surface, or a support surface (e.g., interface). Mounting member or interface **59** comprising fasteners **62**, inserts **61** (e.g., fastener inserts, molded-in inserts, fasteners, etc.) mounting or attachment points **63** is provided as shown in **FIGS. 3A through 3E**. According to a particularly preferred embodiment as shown in **FIG. 20**, mounting member or interface **2340** is configured such that it provides a "universal" interface or mounting surface for selected second modules. For example, mounting member **2340** is configured to receive two or more differently sized second modules (e.g., modules of different size and/or having different mounting or attachment points or mounting configurations). In a particularly preferred embodiment as shown in **FIG. 20**, mounting member or interface **2340** includes pre-positioned molded-in inserts **160** (e.g., fastener inserts or fasteners) and fasteners **162** to provide attachment or mounting points **163**. Mounting member **2340** is configured to allow for interchangeability between or support of or providing mounting points for a variety of configuration of

paper towel dispensers having different mounting points. Various distances (D1-D14) between pre-positioned molded-in inserts 160 are shown in FIG. 20. In the particularly preferred embodiment, D1 is 3.50 inches, D2 is 2.75 inches, D3 is 3.50 inches, D4 is 3.00 inches, D5 is 2.50 inches, D6 is 4.50 inches, D7 is 5.00 inches, D8 is 9.4375 inches, D9 is 5.25 inches, D10 is 10.50 inches, D11 is 5.00 inches, D12 is 6.00 inches, D13 is 5.00 inches, and D14 is 5.125 inches. According to various alternative embodiments, a variety of dimensions and/or spacings may be used that provide mounting points for one or two or more modules. A variety of paper towel models may be mounted to mounting member 2340. This allows for the paper towel dispensers to be changed according to preferences or desires without requiring reconstruction of the unit, re-drilling of holes, etc. Paper towel dispensers may be quickly and easily changed due to the interchangeability and "universal" design of the mounting member. According to an alternative embodiment, the mounting member or plate or surface may be configured to allow the selective interchangeability of any of a variety of selected second modules. According to an alternative embodiment, the mounting member or plate or surface may provide one or more adjustable brackets, frames, etc. for mounting second modules.

[0090] In an exemplary embodiment, the surface on the interface may be constructed from polymer concrete, polymers, plastics, etc. According to other alternative embodiments, a variety of materials may be used including metals, alloys, composites, etc.

[0091] The second module may be a variety of different functional modules, structures, utility assemblies, and/or stations. As shown in FIGS. 2A and 2B, second module 350 may be a utility station such as a paper towel dispenser 290. In exemplary embodiments as shown in FIGS. 11A through 11C, a center-pull towel dispenser 320, a roll towel dispenser 330, or a folded towel dispenser 340 may be mounted to the mounting member. Various configurations and types of paper towel dispensers may be mounted to the mounting member or to the interface.

[0092] According to an exemplary embodiment, the second module may be provided as an upper module, portion, station or cabinet or as a side module, portion, station or cabinet for the assembly. The second module may comprise a variety of different functional modules such as a soap dispenser, sanitizer dispenser, hand cleaner, waterless hand cleaner dispensers, etc. According to an exemplary embodiment, the second module and/or interface is configured for the attachment of functional modules such as a soap dispensers, sanitizer dispensers, hand cleaners, waterless hand cleaner dispensers, etc.,

[0093] According to alternative embodiments, the second module may be configured for the attachment of functional modules such as various paper towel dispensers commercially available from von Drehle Corporation of Hickory, N.C., Georgia Pacific of Augusta, Ga., SCA of Sweden, or other suitable supplier.

[0094] As shown in FIG. 13, the second module may be any number and variety of modules, utilities, or assemblies. The second module may be merchandising units such as displays, cabinets, storage units, etc. for holding, storing and displaying goods and merchandise. The merchandising units may include shelves, wire racks, display hooks, clips, etc.

for use in displaying merchandise. As shown in FIG. 13, the second module may be or include a product merchandiser 170. Product merchandiser 170 may be used for displaying good, products, merchandise etc.

[0095] According to an exemplary embodiment, the second module may comprise a utility device 180 for providing amenities to a user and/or vehicle (e.g., an oil service center that provides oil related products such as towels, funnels, etc.) 180. As shown in FIG. 13, the oil service center 180 may include a dispenser for oil funnels, paper towels, etc. The second module may be or include a windshield service center 185. Windshield service center 185 may include a container or bucket 186 for holding windshield washing fluid, squeegees, etc. Windshield service center 185 may further include a paper towel dispenser (not shown). The second module may be or include a glove dispenser 190 for use in car maintenance. The second module may be or include a dispenser (shown as dispensers 198 and 200). The dispenser may be used to distribute promotional materials, including coupons, flyers, brochures, etc.

[0096] The second module may be or include a display or display surface 210 for information graphics or advertising. The second module may be a frame 370, surface 380, etc. for receiving graphics 350 or advertising 360. In an exemplary embodiment, the graphics or advertising material may be removable, interchangeable, or temporarily affixed to the upper module. In an exemplary embodiment, the graphics or advertising materials may be permanently attached the upper module.

[0097] In alternative embodiments, the various modules described above may be provided in a variety of different combinations and orientations. For example, the modules may be provided next to each other, in a side-by-side configuration as shown in the FIGURES, as well as being provided in a variety of other vertical and horizontal combinations, including modules on top of each other, etc. The assembly may be formed or assembled from one or two or more modules or stations in various arrangements and configurations.

[0098] According to an exemplary embodiment, the modular assembly 10 includes two or more structures that may be assembled or constructed to form a service stand, service center or assembly. These structures may be cabinets. The structures may receive one or more receptacles within a substantially closed area such as an interior area. The structures may also receive one or more receptacles within a substantially open structure, or as support panels or frames that include an elevated mounting plate.

[0099] An exemplary embodiment of a modular utility assembly according to the present invention is shown in FIGS. 4A and 4B. First module 420 includes waste receptacle portion 460 and windshield service station 4100. Waste receptacle portion 460 includes liner 240 (such as a waste can, bin, receptacle, bucket, trash bag liner and/or trash bag frame, etc.) and a cover portion 260. Liner 240 is received in a space between two panels 486 that are attached to an interface or frame work. Cover 260 is hinged to first module 420. This configuration allows cover 260 to be moved out of the way, allowing access to liner 240 for emptying, etc. without disassembling the system. As shown in FIG. 4A through 4B, cover 260 is hinged along an upper edge. According to an alternative embodiment, the cover may be

hinged along either side edge, or a bottom edge, which would allow for the selective access to the liner. According to an alternative embodiment, the cover may be completely removable from the lower module, i.e. it may clip on, be fastened on with a variety of fasteners, screws, bolts, etc. In an exemplary embodiment, cover **260** may include an aperture or opening **270** such that waste may be inserted through cover **260**, and be received in liner **240**. According to a particularly preferred embodiment, cover **260** may include a bulge or protrusion **280** which accommodates the space required for liner **240**. According to this particularly preferred embodiment, aperture **270** is provided in a portion of this bulge **280**.

[0100] According to another exemplary embodiment shown in FIGS. 2A and 3A through 3F, the placement orientation, and configuration of one or more stations within a module may be altered. As shown, the waste receptacle portion **60** is provided toward the back of the assembly, and windshield service station **100** is provided toward the front of the assembly. Waste receptacle portion **60** may be provided with lid **3260** which is moveable, allowing easier access to the waste receptacle portion. In other alternative embodiments, the lid may be provided on the back side of the system, may hinge from the front, or side, may be completely removable, etc. First module **320** may be provided with feet **325** (e.g., levelers, casters, rollers, etc.) to allow easier movement, placement or leveling of the assembly. As shown in FIG. 2A, a first sized hand towel dispenser **290** is shown attached as part of second module **350**. According to a particularly preferred embodiment, the assembly allows for 6 inches of vertical adjustment for hand towel dispenser **290**. Alternatively, a wide range of adjustment positions may be used.

[0101] A dispenser **392** (e.g., sanitizer dispenser, soap dispenser, towel dispenser, sanitary wipe dispenser, etc) may be coupled to interface **58** shown in FIGS. 2A and 3A through 3D.

[0102] According to the particularly preferred embodiment shown in FIGS. 2A and 3A through 3F, the height of second module **350** relative to first module **320** may be adjusted. Interface **340** (including members **140** and **150**) is provided with two or more sets of apertures (or bolting positions shown as points **355** and **356**) to provide interface **340** and second module **350** at different heights relative to first module **320** (see FIG. 2A). According to various alternative embodiments, any number of adjustment positions may be provided to adjust the height of the interface (and second module) relative to the first module. According to an alternative embodiment, the interface or frame may be provided with a variety of adjustment positions.

[0103] Referring to FIGS. 22 through 24, an exemplary embodiment of a system **7000** (e.g., service center, utility station or center, module, unit, base, apparatus, etc.) for use with a plurality of interchangeable modules and a plurality of frames is shown. System **7000** includes an upper portion **7020** and a lower portion **7022**. Upper portion **7020** comprises an interface or plate **7024** (e.g., mounting plate, member, etc.). Plate **7024** is intended to comprise a universal mounting interface for mounting or attaching a plurality of interchangeable modules to system **7000**. As shown in FIG. 22, plate **7024** is configured to interchangeably receive one of a plurality of different sized modules (e.g., modules of

different size and/or having different mounting points or mounting configurations). Plate **7024** comprises a plurality of differently spaced indentations or apertures **7026** (e.g., openings, mounting or attachment points, fasteners, inserts, molded in inserts, etc.). Apertures **7026** provide mounting or attachment points for interchangeable module attachment or mounting. Apertures **7026** may be configured to allow a user to drill through for installation of a module such as a towel dispenser. According to an exemplary embodiment, plate **7024** may comprise differently spaced molded in inserts **7028** (e.g., openings, mounting or attachment points, apertures, fasteners, inserts, molded in inserts, etc.) for attaching or mounting modules. According to various alternative embodiments, a variety of dimensions and/or spacings may be used that provide mounting or attachment points (e.g., apertures, openings, fasteners, inserts, molded in inserts, etc.). According to an exemplary embodiment, plate **7024** is configured to support a variety of different towel dispensers and/or other containers and their contents without reconfiguring system **7000** or plate **7024** (e.g., drilling holes).

[0104] As shown in FIGS. 22-24, system **7000** comprises lower portion **7022**. Lower portion **7022** comprises a cavity or compartment **7030** (e.g., opening, aperture, etc.). According to an exemplary embodiment, compartment **7030** provides an area to receive one or more receptacles **7032** (e.g., buckets, liners, containers, windshield washing fluid containers, blow molded reservoirs, debris modules, etc.). As shown in FIG. 23, receptacles or reservoirs **7032** comprise a molded-in water fill level indicator **7034** for users to easily identify a suitable water or fluid level in a reservoir **7032**. As shown in FIG. 41, receptacles **7032** may also comprise a flat bottom surface **7036**. Flat bottom surface **7036** allows a user to remove a receptacle **7032** from system **7000**, place receptacle **7032** on the ground or other suitable flat surface, and refill receptacle **7032**. According to an exemplary embodiment, compartment **7030** comprises a lower (e.g., bottom) surface **7038** to provide support to receptacles **7032**. Compartment **7030** is configured to receive and support receptacles **7032**. According to various embodiments, the compartment may be configured to receive and support any number of receptacles.

[0105] Referring to FIG. 24, system **7000** comprises a back portion or area **7040** (e.g., surface). Back area **7040** comprises various portions configured to couple system **7000** to one of a number of different sized frames (e.g., poles, rods, posts, beams, buildings, walls, and/or other suitable structures) shown as a pole **7047** in FIG. 31. According to an exemplary embodiment shown in FIG. 24, back area **7040** comprises an indentation or recess **7042** (e.g., mounting recess, groove, channel, cut-out, notch, etc.) configured to support system **7000** when mounting to another structure such as a frame. According to an exemplary embodiment, area **7040** may comprise bracket receivers **7044**. According to an exemplary embodiment shown in FIGS. 26, 27, 29 and 31, back portion **7040** comprises a notch or recess **7046** for narrow pole mounting. According to various exemplary embodiments, any suitable attachment means may be used to couple system **7000** to another structure such as bolts, screws, fasteners, collars, adhesives, and/or other suitable devices.

[0106] FIGS. 25 through 33 show a system **7050** according to an alternative embodiment. System **7050** is similar to system **7000**, but includes a plate **7052** that attaches to

system **7050**. Plate **7052** may couple to system **7050** according to any suitable method (e.g., adhesives, fasteners, welding, etc.). As shown in **FIG. 25**, plate **7052** is attached to system **7050** with screws **7054**. According to various exemplary embodiments, the system may comprise any parts and/or features described herein. According to a preferred embodiment, plate **7052** comprises a plastic “universal” dispenser mounting plate (e.g., universally adaptable to differently sized modules having different mounting configurations).

[**0107**] **FIGS. 34 through 37** show various different modules (e.g., towel dispensers) attached to system **7050** of **FIGS. 32 and 33**. **FIG. 34** shows a double folded towel dispenser **7056**, **FIG. 35** shows a tork dispenser **7058**, **FIG. 36** shows a von Drehle dispenser **7060** (available from von Drehle Corporation of Hickory, N.C.), and **FIG. 37** shows a standard dispenser **7062**.

[**0108**] Referring to **FIGS. 43 through 53**, double folded towel dispenser **7056** is shown in greater detail. Dispenser **7056** comprises a towel divider **7064** that is configured to be inserted (e.g., wedged, placed, provided, etc.) into aperture **7066** (e.g., opening, slot, channel, etc.). Towel holders **7068** (e.g., containers, receptacles, etc.) may be provided on each side of divider **7064**. As shown in **FIG. 47**, a bottom portion **7070** of dispenser **7056** comprises double towel slots **7072** for dispensing towels. A towel door **7074** may be coupled to a front portion **7076** of dispenser **7056** to cover and prevent undesired removal of holders **7068** from dispenser **7056**. Door **7074** may be tethered (e.g., with a tether **7078**) to dispenser **7056** so that a user may hang door **7074** from dispenser **7056** while stocking towels and/or other supplies in dispenser **7056**. Door **7074** may couple to dispenser **7056** according to any suitable method. According to an exemplary embodiment, door **7074** comprises projections **7080** (e.g., tabs, inserts, portions, members, etc.) that fit or snap into openings on dispenser **7056** to couple door **7074** to dispenser **7056**. Dispenser **7056** may comprise a graphics panel **7082** and graphics panel cover **7084** which are couplable to a portion or side **7086** of dispenser **7056**. Graphics panel cover **7084** is couplable to dispenser **7056** according to any suitable method. According to an exemplary embodiment, graphics panel cover **7084** comprises projections **7081** (e.g., tabs, inserts, portions, members, etc.) that fit or snap into openings on dispenser **7056** to couple cover **7084** to dispenser **7056**. According to an exemplary embodiment, cover **7084** may have a clear or colored lens. A graphic **7088** may be provided on graphics panel **7082** which is provided in an optional graphics recess area (on one or both sides of the dispenser). According to various exemplary embodiments, the construction and materials of the parts of the dispenser may vary. According to an exemplary embodiment, the dispenser may be rotomolded for structural integrity and appropriate detailing. According to an exemplary embodiment, the towel door may be heat bent tinted acrylic (e.g., translucent smoke acrylic), routed and heat bent, injection molded, etc. According to an exemplary embodiment, the towel divider matches the dispensing angle and is riveted to the dispenser housing.

[**0109**] The systems described can be configured for many different types of uses. The “universal” plate or interface can be used to hold a variety of popular towel dispensers available to users. The “universal” plate allows a user to mount one of a variety of different types of modules on the

system (e.g., for folded towels, for roll towels, etc.). The systems provide increased capacity for fluid in the receptacles and greater capacity for towels. The towel dispensers may be clear or at least partially clear so that a user may observe a towel level.

[**0110**] It is also important to note that the construction and arrangement of the elements of the system as shown in the preferred and other exemplary embodiments is illustrative only. Although only a few embodiments of the present inventions have been described in detail in this disclosure, those skilled in the art who review this disclosure will readily appreciate that many modifications are possible (e.g., variations in sizes, dimensions, structures, shapes and proportions of the various elements, values of parameters, mounting arrangements, use of materials, colors, orientations, etc.) without materially departing from the novel teachings and advantages of the subject matter recited. For example, elements shown as integrally formed may be constructed of multiple parts or elements shown as multiple parts may be integrally formed, the operation of the assemblies may be reversed or otherwise varied, the length or width of the structures and/or members or connectors or other elements of the system may be varied, the nature or number of adjustment or attachment positions provided between the elements may be varied. It should be noted that the elements and/or assemblies of the system may be constructed from any of a wide variety of materials that provide sufficient strength or durability, in any of a wide variety of colors, textures and combinations. It should also be noted that the system may be used in association with adjustable, or fixed and non-movable systems or any of a wide variety of other modules in any of a wide variety of other applications. Accordingly, all such modifications are intended to be included within the scope of the present inventions. Other substitutions, modifications, changes and omissions may be made in the design, operating conditions and arrangement of the preferred and other exemplary embodiments without departing from the spirit of the present inventions.

What is claimed is:

1. An apparatus for use with a plurality of interchangeable modules comprising:

a frame; and

a plate provided on the frame and comprising a plurality of mounting locations for mounting interchangeable modules relative to the plate;

wherein the mounting locations are configured to allow for

selective attachment of a first interchangeable module to the plate in a first configuration

removal of the first interchangeable module from the plate after the selective attachment to the plate and

selective attachment of a second interchangeable module to the plate in a second configuration after the removal of the first interchangeable module without reconfiguring the plurality of mounting locations of the plate.

2. The apparatus of claim 1 wherein the first configuration comprises a different mounting location on the plate than the second configuration.

3. The apparatus of claim 1 wherein the frame comprises a compartment configured to receive at least one receptacle.

4. The apparatus of claim 3 wherein a removable receptacle is provided in the compartment.

5. The apparatus of claim 3 wherein the plate is provided above the compartment.

6. The apparatus of claim 1 wherein the plate is integrally formed with the frame.

7. The apparatus of claim 1 wherein the plate comprises an interface.

8. The apparatus of claim 1 wherein the mounting locations of the plate comprise a plurality of apertures.

9. The apparatus of claim 1 wherein the mounting locations of the plate comprise fasteners provided in the plate.

10. The apparatus of claim 9 wherein the fasteners comprise fastener inserts molded in the plate.

11. The apparatus of claim 1 wherein the plate comprises fastener inserts provided on the plate.

12. The apparatus of claim 1 wherein the frame comprises a mounting area configured to couple to a base in a first configuration to provide the plate at a first position and couple to the base in a second configuration to provide the plate at a second position.

13. A service center configured for use with a plurality of interchangeable modules comprising:

a frame comprising an interface and a compartment;

wherein the interface is configured for

selective attachment of a first interchangeable module to the interface in a first mounting configuration

removal of the first interchangeable module from the interface after the selective attachment to the interface and

selective attachment of a second interchangeable module to the interface in a second mounting configuration after the removal of the first interchangeable module; and

wherein the first mounting configuration comprises a different mounting location on the interface than the second mounting configuration.

14. The service center of claim 13 wherein the compartment comprises at least one removable receptacle provided in the compartment.

15. The service center of claim 13 wherein the interface comprises a plate comprising apertures for mounting interchangeable modules having different mounting points.

16. The service center of claim 13 wherein the interface comprises means for interchanging a plurality of different modules.

17. The service center of claim 13 wherein the frame is configured to couple to a base in a first configuration to provide the interface at a first position and couple to the base in a second configuration to provide the interface at a second position and wherein the first position comprises a first height and the second position comprises a second height which is greater than the first height.

18. An apparatus for use with a plurality of interchangeable modules comprising:

a base comprising a member and an opening;

wherein an interchangeable module is attached to the member;

wherein the member comprises a plurality of attachment points configured for attachment of one of a plurality of interchangeable modules;

wherein at least one bucket is provided in the opening;

wherein the attachment points are configured for

selective attachment of a first interchangeable module to the member in a first configuration

removal of the first interchangeable module from the member after the selective attachment to the member and

selective attachment of a second interchangeable module to the member in a second configuration after the removal of the first interchangeable module without reconfiguring the attachment points of the member;

wherein the first configuration comprises at least one different attachment point on the member than the second configuration.

19. The apparatus of claim 18 wherein the attachment points comprise apertures provided in the member.

20. The apparatus of claim 18 wherein the member comprises a mounting plate.

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