

PORTABLE WATER SUPPLY

FIELD OF THE DISCLOSURE

[0001] The present invention relates to fluid storage and more specifically relates to water storage and portability.

BACKGROUND

[0002] As fluid storage tanks are filled, mobility becomes difficult by human force alone as weight increases. In times of emergencies, such as after natural disasters, a small scale, mobile, dedicated, and rapidly fillable source of potable water is often required. Storage tanks having sufficient capacity allowing users to prepare an emergency water supply may be too heavy to easily move from a water source to shelter. FEMA suggests that a family of four requires one liter of water per person, per day, to comfortably survive for two weeks. The volume of such a tank sufficient to hold this amount of water, roughly 56 liters, can be heavy and difficult to keep sanitary. Filling a tank with such a substantial amount of water can be time consuming. In some cases, water sources available to citizens that can fill a storage tank are limited to a faucet or spigot. Filling tanks from such sources may be time consuming. Filling tanks from such sources may also limit the size of the storage means capable of receiving water from such as source, for example a bucket. In emergency situations, however, time may be limited.

[0003] What is needed is a readily available apparatus for storing an emergency supply of potable water extracted from a common household faucet or spigot. What is also needed is for such an apparatus to be fillable in a relatively short period of time.

[0004] In situations commonly requiring emergency water provisions, such as before a bad weather event, citizens often buy large stores of bottled water in anticipation. This can

be expensive, and may distract from other needs when preparing for an impending emergency.

[0005] What is needed is a storage means mitigating the substantial time, money and storage space required to procure and store flats of water that are purchased in anticipation of disasters and water interruption.

[0006] Storage means known in the art, such as bathtub water bladders and large water tanks, are susceptible to waste, spillage and mess. Known storage means for storing emergency water supplies are often located at a great distance from where the majority of water is consumed for drinking and cooking, such as the kitchen or dining room. In known storage tools, repeated instances of mobilizing the water from storage areas to consumption areas often invites spillage and/or contamination.

[0007] In emergency situations, high-rise apartment homes that lose power can also lose electricity-driven water pressure. For residents of high-rise apartment homes, particularly those who live on higher-floors, it may be impracticable to move the requisite amount of water quickly, safely, and without contaminating the water supply.

[0008] For residents of suburban and rural communities, when natural disasters strike local water supplies can be temporarily unavailable or contaminated. Often alternative water sources are not possible due to road closures, floods, snow, distances, and/or debris.

[0009] In some cases, it may even be useful for municipalities and other government agencies to distribute storage tanks to its citizens following natural disasters. Such large-scale water distribution may reduce the amount of time lost to provide potable water rations and reduce that amount of water spilled by distributing water in small, makeshift water

receptacles. Municipalities and other government agencies may distribute the present invention to groups of citizens to provide temporary and safe supplies of water to their citizens.

[0010] What is needed is a means for providing an emergency potable water supply that is easily movable. What is needed is a collapsible and/or storable apparatus for transporting, storing, and dispensing water. What is needed a storable apparatus that is readily assembled and filled with potable water before, during, and/or after natural disasters or other emergency scenarios. What is needed is a water storage apparatus providing large scale liquid storage that can be easily moved, in a compact, stable format, from the filling source to other areas despite the large weight of an apparatus that is filled with potable water.

SUMMARY

[0011] Embodiments described herein may include a wheeled apparatus suitable for storing liquids, such as potable water for consumption, during periods when ordinary drinking water may be less available or unavailable. Embodiments of the apparatus may be collapsed and stored in a small profile arrangement. Embodiments of the apparatus may be assembled in one location and rolled to a water source using enclosed wheels. Some embodiments may provide for a detachable coupling with a hose to connect embodiments of a water storage apparatus to a water source, such as a household faucet.

[0012] In one embodiment, a water storage apparatus comprises a base comprising a lower horizontal surface, one or more wheels removably attached to the base, a plurality of walls extending upwardly from edges of the lower horizontal surface, thereby forming a recess in the base defined by the walls and the lower horizontal surface, wherein at least one of the plurality of walls has a hole configured to be detachably coupled to a fluid dispenser;

an upper portion comprising an upper horizontal surface having a plurality of walls extending downwardly from edges of the upper horizontal surface, thereby forming a recess in the upper portion defined by the walls of the upper portion and the upper horizontal surface, wherein the upper horizontal surface comprises a hole; a plurality of removable panels extending from the base to the upper portion forming a chamber defined by the plurality of removable panels, the base, and the upper portion, wherein the removable panels are configured to fit in a housing defined by the recess of the base and the recess of the upper portion when the base is adjacent to the upper portion; and a flexible bladder comprising an orifice substantially aligned with the hole in the upper horizontal surface.

[0013] In another embodiment, a water storage apparatus comprises a base comprising a lower horizontal surface, one or more wheels removably attached to the base, a plurality of walls extending upwardly from edges of the lower horizontal surface, thereby forming a recess in the base defined by the walls and the lower horizontal surface, wherein at least one of the plurality of walls has a hole configured to be detachably coupled to a fluid dispenser; an upper portion comprising an upper horizontal surface having a plurality of walls extending downwardly from edges of the upper horizontal surface, thereby forming a recess in the upper portion defined by the walls of the upper portion and the upper horizontal surface, wherein the upper horizontal surface comprises a hole; a plurality of removable panels extending from the base to the upper portion forming a chamber defined by the plurality of removable panels, the base, and the upper portion, wherein the removable panels are configured to stack upon one another between the base and the upper portion whereby the base is adjacent to a first end of the stack and the upper portion is adjacent to an opposing second end of the stack; and a flexible bladder comprising an orifice substantially aligned with the hole of the upper horizontal surface.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The present disclosure can be better understood by referring to the following figures. The components in the figures are not necessarily to scale, emphasis instead being placed upon illustrating the principles of the disclosure. In the figures, reference numerals designate corresponding parts throughout the different views.

[0015] **FIG. 1** shows an exemplary embodiment of a water storage apparatus.

[0016] **FIG. 2A** shows an interior perspective view from a back side of an exemplary embodiment of a base for a water storage apparatus.

[0017] **FIG. 2B** shows an interior perspective view from a front side of an exemplary embodiment of a base for a water storage apparatus.

[0018] **FIG. 3** shows an exterior perspective view of an exemplary embodiment of an upper portion for a water storage apparatus.

[0019] **FIG. 4** shows components defining a chamber of an exemplary embodiment of a water storage apparatus.

[0020] **FIG. 5** shows an exemplary embodiment of a flexible bladder for a water storage apparatus.

[0021] **FIG. 6** shows a perspective view of an exemplary embodiment of a water storage apparatus.

[0022] **FIG. 7** shows a rear view of an assembled exemplary embodiment of a water storage apparatus.

[0023] **FIG. 8** shows a front perspective view of an assembled exemplary embodiment of a water storage apparatus.

[0024] **FIG. 9** shows a side view of an assembled exemplary embodiment of a water storage apparatus.

[0025] **FIG. 10** shows a top view of an assembled embodiment of a water storage apparatus.

[0026] **FIG. 11** shows a perspective front view of an assembled exemplary embodiment of a water storage apparatus.

[0027] **FIG. 12** shows an exemplary embodiment of a water storage apparatus in a disassembled configuration.

[0028] **FIG. 13** shows an exemplary embodiment of a water storage apparatus having an alternative configuration comprising wheels protruding from side walls of a base.

[0029] **FIG. 14** shows an exemplary embodiment of the a water storage apparatus having an alternative configuration.

[0030] **FIG. 15** shows an exemplary embodiment of a water storage apparatus in a disassembled configuration.

DETAILED DESCRIPTION

[0031] The present invention is here described in detail with reference to embodiments illustrated in the drawings, which form a part here. Other embodiments may be used and/or other changes may be made without departing from the spirit or scope of the

present disclosure. The illustrative embodiments described in the detailed description are not meant to be limiting of the subject matter presented here.

[0032] Embodiments may provide a readily available capability to store an emergency supply of potable water from any house faucet or spigot, in a short period of time. In some embodiments, the capacity of this supply may meet or exceed the FEMA-suggested 14-liter per person amount (56 liters for a family of four), and without sacrificing mobility or safety.

[0033] Embodiments may provide a rapidly fillable source of potable water that municipalities or other government agencies may distribute to citizens following disasters and in other emergencies. Such embodiments may facilitate water distribution to citizens in larger amounts thereby reducing waste and contamination in makeshift receptacles (e.g., buckets).

[0034] Reference will now be made to the exemplary embodiments illustrated in the drawings, and specific language will be used here to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended. Alterations and further modifications of the inventive features illustrated here, and additional applications of the principles of the inventions as illustrated here, which would occur to one skilled in the relevant art and having possession of this disclosure, are considered within the scope of the invention.

[0035] **FIG. 1** shows an exemplary embodiment of a water storage apparatus **100** having a base **101**, an upper portion **109**, and panels **114** extending from the base **101** to the upper portion **109** forming a chamber **115** for housing a bladder **117** capable of storing fluids.

[0036] The base **101** has side walls **102** and wheels **103**. A side wall **102** of the base may comprise a hole **105** through which a fluid dispensing attachment may be detachably coupled, such as a hose **107** or a spigot. As shown in **FIG. 1**, the exemplary hose **107** may comprise corners so as to have substantially rectangular shape, but it is to be appreciated that embodiments of such dispensing hose **107** may be rounded or be otherwise shaped so as to be capable of dispensing fluid.

[0037] The base **101** may comprise a number of wheels **103**. In some embodiments, wheels **103** may be removably attached and rotatably coupled to an exterior facing, or lower side, of the base **101**. In some embodiments, such as the embodiment shown in **FIG. 13**, wheels **103** may be removably attached and rotatably coupled to axles protruding from side walls **102** of the base **101**. In some embodiments, such axles may be removably coupled to the side walls of the base. Embodiments of the wheels **103** may be a size capable of mobilizing a water storage apparatus **100** through application of human-generated force. As detailed below, in some embodiments, the wheels **103** may be stored within a housing defined by the base **101** and the upper portion **109** when the side walls **102** of the base **101** are placed adjacent to side walls **110** of the upper portion **109**. In some embodiments, the wheels **103** may be a size capable of being stored in a housing between the base **101** and the upper portion **109** with the other components of the water storage apparatus **100**.

[0038] A water storage apparatus **100** may comprise an upper portion **109**. Embodiments of an upper portion **109** may comprise side walls **110** and an upper horizontal surface **111**. In some embodiments, a hole **112** may be formed in the upper horizontal surface **111**. In some embodiments, a cap **118** may be removably placed in the hole **112**. In some embodiments, handles **113a, b** may be removably attached to the upper portion **109**.

[0039] In the exemplary embodiment of the handles **113a, b**, shown in **FIG. 1**, the handles **113a, b** are attached to an upper horizontal surface **111** of the upper portion **109**. One of the exemplary handles **113a** is shown having two posts attached to the upper horizontal surface **111** of the upper portion **109**. Another of exemplary handles **113b** is shown as having a first post attached to an upper horizontal surface **111** with the handle extending downward to have a second post attached to a column **116** of the chamber **115**. It is to be appreciated that embodiments of handles **113a, b** may be attached to the water storage apparatus **100** at any number of locations such that the handles **113a, b** are capable of aiding human grip and comfort when moving the water storage apparatus **100** by human-applied force. In some embodiments, the handles **113a, b** may be stored in a housing between the base **101** and the upper portion **109**. In some embodiments, the handles **113a, b** may be actuated so to provide carrying capabilities when the water storage apparatus **100** is collapsed and stored in the housing. In some embodiments, the handles **113a, b** may be moved to another location on the water storage apparatus **100**, or detached and reattached to another location on the water storage apparatus **100** to provide carrying capabilities when the water storage apparatus **100** is collapsed and stored in the housing.

[0040] A water storage apparatus **100** may comprise a chamber **115** housing a bladder **117** for storing fluids. The chamber **115** may comprise one or more panels **114** extending from a base **101** to an upper portion **109** and thereby defining the shape of the water storage apparatus **100** and the chamber **115**. Embodiments of the chamber **115** may be collapsible or otherwise disassembled. In some embodiments, the panels **114** may be detached from abutting components (e.g., base **101**, upper portion **109**). In some embodiments, the chamber **115** may comprise columns **116** extending from a base **101** to the upper portion **109** forming corners of the chamber **115**, the corners of the columns may have angles based on a number

of sides. Embodiments of the columns **116** may be detachably coupled to one or more abutting components (e.g., panels **114**, base **101**, upper portion **109**).

[0041] The exemplary embodiment of the water storage apparatus **100** shown in **FIG. 1** is a cube having six sides. However, it is to be appreciated that embodiments of the water storage apparatus **100** may comprise any number of sides capable of forming a chamber **115** housing a bladder **117** for fluid storage. In other words, it is to be appreciated that some embodiments of the potable water storage apparatus **100** may be substantially triangular, pyramidal, pentagonal, octagonal, or any other shape. It is to be appreciated that some embodiments of the water storage apparatus **100** may be substantially cylindrical in shape. It is also to be appreciated that the components of the water storage apparatus **100** described herein (i.e., a base **101**, an upper portion **109**, a chamber **115**) may comprise a number of sides dependent upon the shape of the embodiment of the water storage apparatus **100**. Thus, it is to be understood that the term "sides" used to describe embodiments of the water storage apparatus **100** is not intended to limit the shape of the water storage apparatus **100**, base **101**, upper portion **109**, or chamber **115**. For example, in embodiments forming a substantially cylindrical shape, the base **101** and the upper portion **109** may each form a circular shape. The chamber **115** may comprise one or more panels **114** extending from the base **101** to the upper portion **109** forming a substantially tubular shape.

[0042] **FIG. 2A** shows an interior perspective view from a back side of an exemplary embodiment of a base **200** for a water storage apparatus. **FIG. 2B** shows an interior perspective from a front side of an exemplary embodiment of a base **200** for a water storage apparatus. A base **200** may comprise side walls **201** and a lower horizontal surface **202**, together defining a recess **203** on the interior of the base **200**.

[0043] The base **200** may comprise a lower horizontal surface **202** having an interior side, or upper side, facing a chamber of the water storage apparatus, and an exterior side, or lower side, facing away from the chamber. The base **200** may comprise side walls **201**. The number of side walls may be based on a number of sides of an embodiment of the water storage apparatus. The side walls **201** of the base **200** may protrude upwards towards a chamber of the water storage apparatus. The lower horizontal surface **202** and the protrusion of the sides walls **201** away from the lower horizontal surface **202**, may define a recess **203** of the base **200**. In some embodiments, side walls **201** may comprise grooves **204** defined by an inner side wall **201a** and an outer side wall **201b**. These grooves **204** may receive an end of a panel or column of the chamber, and the side walls may protrude upwards an amount needed for supporting and controlling components defining the chamber.

[0044] In some embodiments of the base **200**, as shown in **FIG. 2A**, bumpers **206** may be attached to a side wall on the back of the base **200**.

[0045] In some embodiments of the base **200**, as shown in **FIG. 2B**, a hole **205** may be formed in a side wall **201** on the front side of the base **200**. In some embodiments, the hole **205** is may be airtight preventing fluids from escaping. In some embodiments, a bladder for storing fluids and resting in the recess **203** may comprise an orifice removably coupled to the hole **205** at an interior side of the side wall **201**. In some embodiments, a water dispenser (e.g., hose, spigot) may be attached to the hole **205** on an exterior side of the side wall **201**. In some embodiments, an outer ring **205a** comprising a grommet, threaded ring, or other means for removably coupling the water dispenser may circumscribe the hole **205**. That is, embodiments of an outer ring **205a** may provide a means for attaching, screwing, or otherwise removably coupling the water dispenser to the hole **205**.

[0046] **FIG. 3** shows an exterior perspective view of an exemplary embodiment of an upper portion **300** for a water storage apparatus. The exemplary embodiment of the upper portion **300** comprising side walls **301** and an upper horizontal surface **302** defining a recess (not shown) in the upper portion **300**.

[0047] Embodiments of an upper portion **300** may comprise an upper horizontal surface **302** having an interior side, or lower side, facing a chamber of the water storage apparatus, and an exterior side, or upper side, facing away from the chamber. In some embodiments, the upper horizontal surface **302** may comprise a filling hole **303** that extends through the upper portion **300** to a bladder storing fluids on the interior side of the upper portion **300**. In some embodiments, the bladder may comprise an orifice that may be removably attached to the hole on an interior side of the upper portion **300** for receiving fluids to fill the bladder and/or for dispensing the contents of the bladder. In some embodiments, a cap **304** may seal the filling hole **303** formed in the upper horizontal surface **302**. The cap **304** may prevent loss of the contents of the bladder and may also prevent contamination of the contents of the bladder. As detailed later, in some embodiments, a filling hose, pipe, funnel, or other means for delivering fluids may be attached to an exterior side of the filling hole **303** and may deliver fluids to an orifice of a bladder attached at the interior side of the upper portion **300**.

[0048] In some embodiments, an upper horizontal surface **302** may comprise a means for attaching handles to the upper horizontal surface **302**, for example, holes **305** for receiving posts of handles. However, other means for attaching handles to the water storage apparatus may be utilized.

[0049] Embodiments of an upper portion **300** may comprise a number of side walls **301** protruding downward, toward the interior of a water storage apparatus. The side walls **301** and the upper horizontal surface **302** may form a recess (not shown) on the interior side of the upper portion **300**. In some embodiments, the side walls **301** may comprise grooves **306** defined by an interior side wall **306a** and an exterior side wall **306b**. The grooves **306** may receive an end of a panel or column of a chamber, and the side walls may protrude downwards an amount needed for supporting and controlling the components defining the chamber.

[0050] **FIG. 4** shows components defining a chamber **405** of an exemplary embodiment of a water storage apparatus **400** having a chamber **405** defined by a base **401**, an upper portion **403**, panels **406** and columns **407**.

[0051] The water storage apparatus **400** may comprise a chamber **405** partitioning an interior space from an exterior space. The chamber **405** may be formed by the erection of the components of the water storage apparatus **400**. In some embodiments, a first end of side panels **406** and columns **407** may be inserted into grooves formed in a base **401**. In some embodiments, a flexible fluid bladder (not shown) may be placed in the interior space of the chamber **405** and an orifice of the bladder may be removably coupled to a hole **402** in the base **401** at the interior side of the hole **402**. The side panels **406** and columns **407** may provide a structure for containing a flexible fluid bladder while the bladder is being filled. In some embodiments, a second end of each of the side panels **406** and columns **407** may be inserted into grooves in an upper portion **403**. In some embodiments, once the orifice of the bladder is coupled to a filling hole (not shown) of the upper horizontal surface, the upper portion **403** may be adjoined to the side panels **406** and columns **407** of the chamber **405**,

fitting the side panels **406** and columns **407** into the grooves of the upper portion **403**, thereby forming the chamber **405**.

[0052] In some embodiments, the chamber **405** of the water storage apparatus **400** may be secured together by bungees (not shown) clipped to the upper portion **403** and base **401**, with a bungee wrapping around the chamber **405**. In some embodiments, clips, snaps, screws, or bolts may be used for securing joints of the water storage apparatus **400**.

[0053] It is to be appreciated that the exemplary embodiment of the water storage apparatus **400** is shown having skeletal side panels **406** to exemplify the various features of the water storage apparatus **400**. Some embodiments may comprise components having a different skeletal pattern. Some embodiments may comprise components that are entirely solid. Some embodiments may comprise chemical compositions rendering the components clear and see through. Some embodiments may comprise chemical compositions rendering the components solid and unable to be seen through.

[0054] **FIG. 5** shows an exemplary embodiment of a flexible bladder **500** for a water storage apparatus comprising a first orifice **501** and a second orifice **502**.

[0055] The flexible bladder **500** may comprise one or more orifices **501**, **502** for filling the bladder **500** with fluids and/or extracting fluids from the bladder **500**. In some embodiments, a first orifice **501** may correspond with a hole in a chamber containing the bladder **500**. In some embodiments, the first orifice **501** may be detachably coupled to the corresponding hole in the chamber. In some embodiments, the first orifice **501** may be located near a top of the bladder **500** and correspond to a hole in an upper portion of the chamber.

[0056] Some embodiments of a bladder **500** may comprise a second orifice **502** for filling the bladder **500** with fluids and/or extracting fluids from the bladder **500**. In some embodiments, the second orifice **502** may correspond to a hole in a chamber containing the bladder **500**. In some embodiments, the second orifice **502** of the bladder **500** may be detachably coupled to the corresponding hole in the chamber. In some embodiments, the second orifice **502** may be located near a bottom of the bladder **500** and correspond to a hole in a base of the chamber.

[0057] It is to be appreciated that the exemplary embodiment of **FIG. 5** shows the flexible bladder **500** as a cube merely to display the flexibility of the bladder **500**, i.e., embodiments of a bladder **500**, when substantially filled with a fluid, may appear to take the shape of the containing chamber. The bladder **500** in **FIG. 5** is shown as being substantially cubed in shape due to the exemplary embodiment shown in the figures. However, it is to be appreciated that embodiments of the bladder **500** are not limited to the shapes shown in the exemplary embodiment of **FIG. 5** or any other exemplary embodiment described herein. It is to be appreciated that embodiments of the bladder **500** may have no pre-defined shape, embodiments of the bladder **500** may have any pre-defined shape, and/or embodiments of the bladder **500** may have a fluidly changing shape.

[0058] **FIG. 6** shows a perspective view of an exemplary embodiment of a water storage apparatus **600** from an exterior bottom-side underneath a base **601**. The water storage apparatus **600** has a base **601**, a chamber **611** housing a bladder **613**, and an upper portion **609**. The base **601** has side walls **603** and a lower horizontal surface **605**.

[0059] As earlier described, a base **601** may comprise side walls **603** protruding upwards toward an upper portion **609**. In some embodiments, a rear side wall **603a** may

comprise bumpers **604** or some other useful attachments. A base **601** may comprise a lower horizontal surface **605** having a face on an interior side, or upper side, and a face on an exterior side, or lower side. In some embodiments, an exterior side of the lower horizontal surface **605** may comprise a means for attaching wheels **607** to the base **601**. In some embodiments, the lower horizontal surface **605** may comprise holes (not shown) for receiving posts attached to wheels **607**. In other embodiments, however other means for removably attaching rotatable wheels **607** are possible.

[0060] It is to be appreciated that any number of rotatably coupled wheels **607** may be attached to the water storage apparatus **600** at locations other than the base **601** or the lower horizontal surface **605**. It is to be appreciated that the wheels **607** may be of any size.

[0061] **FIG. 7** shows a rear view of an assembled exemplary embodiment of a water storage apparatus **700** comprising a chamber **701** housing a bladder **711**, a base **703**, and an upper portion **705**.

[0062] As shown in the exemplary embodiment of **FIG. 7**, a chamber **701** may be defined by a base **703** on a lower end of the water storage apparatus **700** and an upper portion **705** on an upper end of the water storage apparatus **700**. In some embodiments, sides of the chamber **701** may be defined by side panels **709** and columns **707** extending from the base **703** to the upper portion **705**.

[0063] An upper portion **705** may comprise an upper horizontal surface **706** having an interior facing side, or lower side, and an exterior facing side, or upper side. In some embodiments, the upper portion **705** may comprise a filling hole **717** for accessing an orifice of a bladder **711** housed within the chamber **701**. The filling hole may be sealed with a cap **718** on the exterior side of the upper horizontal surface **706**. In some embodiments, the upper

portion may comprise handles **715**. In some embodiments, the exterior side of the upper horizontal surface **706** may comprise holes or other means for attaching the handles **715**. Some embodiments of a water storage apparatus **700**, may comprise a base **703** having rotatable wheels **713** detachably coupled to the base **713**. In some embodiments, a hose **719** may be detachably coupled to the water storage apparatus **700** for dispensing fluid from the bladder **711**.

[0064] **FIG. 8** shows a front perspective view of an assembled exemplary embodiment of a water storage apparatus **800** comprising a chamber **801** housing a bladder **811**, a base **803**, and an upper portion **805**.

[0065] As shown in the exemplary embodiment of **FIG. 8**, a chamber **801** may be defined by a base **803** on a lower end of the water storage apparatus **800** and an upper portion **805** on an upper end of the water storage apparatus **800**. In some embodiments, sides of the chamber **801** may be defined by side panels **809** and columns **807** extending from the base **803** to the upper portion **805**.

[0066] An upper portion **805** may comprise an upper horizontal surface **806** having an interior facing side, or lower side, and an exterior facing side, or upper side. In some embodiments, the upper portion **805** may comprise a filling hole **817** for accessing an orifice of a bladder **811** housed within the chamber **801**. The filling hole may be sealed with a cap **818** on the exterior side of the upper horizontal surface **806**. In some embodiments, the upper portion may comprise handles **815**. In some embodiments, the exterior side of the upper horizontal surface **806** may comprise holes or other means of attaching the handles **815**. Some embodiments of a water storage apparatus **800**, may comprise a base **803** having wheels **813** detachably connected to the base **803**. In some embodiments, a hose **819** may

attach to a base **803** at a hole **820** formed into the base **803** for dispensing fluid from the bladder **811**.

[0067] **FIG. 9** shows a side view of an assembled exemplary embodiment of a water storage apparatus **900** comprising a chamber **901** housing a bladder **911**, a base **903**, and an upper portion **905**.

[0068] As shown in the exemplary embodiment of **FIG. 9**, a chamber **901** may be defined by a base **903** on a lower end of the water storage apparatus **900** and an upper portion **905** on an upper end of the water storage apparatus **900**. In some embodiments, sides of the chamber **901** may be defined by side panels **909** and columns **907** extending from the base **903** to the upper portion **905**.

[0069] An upper portion **905** may comprise an upper horizontal surface **906** having an interior facing side, or lower side, and an exterior facing side, or upper side. In some embodiments, the upper portion **905** may comprise a filling hole **917** for accessing an orifice of a bladder **911** housed within the chamber **901**. The filling hole may be sealed with a cap **918** on the exterior side of the upper horizontal surface **906**. In some embodiments, such as that of **FIG. 9**, the upper portion may comprise detachable handles **915** extending from the upper portion **905** to columns **907**. The handles **915** comprise a first post removably attached to the upper portion **905** and second post removably attached to the column **915**. In some embodiments, the exterior side of the upper horizontal surface **906** may comprise holes or other means of attaching the handles **915**.

[0070] Some embodiments of a water storage apparatus **900**, may comprise a base **903** having wheels **913** detachably connected to the base **903**. In some embodiments, a hose

919 may attach at the base **903** of the water storage apparatus **900** and may dispense fluid from the bladder **911**.

[0071] **FIG. 10** shows a top view of an assembled embodiment of a water storage apparatus **1000** comprising an upper portion **1001** having detachable handles **1007**, and a hose **1009**.

[0072] In some embodiments of a water storage apparatus, such as the exemplary embodiment shown in **FIG. 10**, may comprise an upper portion **1001** having a filling hole **1005** for accessing an orifice of a bladder housed within the water storage apparatus. In some embodiments, the filling hole **1005** may be sealed by a removable cap **1005a**. In some embodiments, handles **1007** may be attached to the upper portion **1001** via handle holes **1011** in the upper portion **1001**.

[0073] **FIG. 11** shows a perspective front view of an assembled exemplary embodiment of a water storage apparatus **1100** in which a bladder **1103** is being filled with a fluid. The exemplary embodiment of the water storage apparatus **1100** comprising an upper portion **1101**, and a chamber **1102** housing a bladder **1103**.

[0074] In the exemplary embodiment of **FIG. 11**, a chamber **1102** may contain a bladder **1103** being filled with a fluid through an orifice of the bladder using a delivery hose **1107**. An upper portion **1101** may comprise a filling hole **1105** that may receive a delivery hose **1107** or other means for delivering a fluid, such as a pipe or a funnel. In some embodiments, the delivery hose **1107** may be detachably coupled to the filling hole **1105**. In some embodiments, the bladder **1103** may comprise an orifice (not shown) corresponding to the filling hole **1105** of the upper portion **1101**. In some embodiments, the corresponding

orifice of the bladder **1103** may be detachably coupled to an interior side of the filling hole **1105** of the upper portion **1101**.

[0075] A water storage apparatus **1100** may comprise a dispensing hole **1111**. In some embodiments, a fluid dispenser, such as a hose **1113** or a spigot, may be detachably connected to the dispensing hole **1111** of the water storage apparatus **1100**. In some embodiments, a bladder **1103** may comprise an orifice (not shown) corresponding to the dispensing hole **1111**. That is, in such embodiments, the corresponding orifice of the bladder **1103** may be detachably coupled to an interior side of the dispensing hole **1111** of the base.

[0076] **FIG. 12** shows an exemplary embodiment of a water storage apparatus in a disassembled configuration **1200**. That is, some embodiments of the water storage apparatus disclosed herein may be capable of various configurations. Some embodiments of the water storage apparatus may comprise components capable of collapsing or otherwise disassembling. In some embodiments, some components, once collapsed or disassembled, may be capable of storing other components, which may also be collapsed or disassembled. As shown by **FIG. 12**, one exemplary embodiment of a water storage apparatus shown in a disassembled or collapsed configuration **1200** may comprise an upper portion **1201** and a base **1202**.

[0077] In some embodiments, an upper portion **1201** may comprise a filling hole **1207** for filling a bladder at times when the water storage apparatus **1200** is in an assembled configuration. In some embodiments, the filling hole **1207** may be formed into an upper horizontal surface **1205** of the upper portion **1201**.

[0078] In some embodiments, a base **1202** may comprise a hole **1206** formed into a side wall **1204**. In some embodiments, the hole **1206** may be for dispensing water, or other

liquid, that may be stored in a bladder when the water storage apparatus **1200** is in an assembled configuration.

[0079] In some embodiments, side walls **1204** of a base **1202** may protrude towards an upper portion **1201**. The upper portion **1201** may comprise side walls **1203** that may protrude towards the base **1202**, thereby forming a housing from the exemplary configuration of the disassembled water storage water storage apparatus **1200**. That is, the housing formed from the disassembled configuration of the water storage apparatus **1200** may be formed by placing the side walls **1204** of the base **1202** substantially adjacent to the side walls **1203** of the upper portion **1201**. In some embodiments, various components of the water storage apparatus in the disassembled configuration **1200** (e.g., panels, wheels, bladder) may be stored within the housing.

[0080] **FIG. 13** shows an exemplary embodiment of a water storage apparatus **1300** comprising wheels **1307** protruding from side walls **1303** of a base **1301**.

[0081] In some embodiments, removable axles **1305** may protrude from the side walls **1301** of the base **1301**. In such embodiments, removable wheels **1307** may be rotatably coupled to the axles **1305** on either side of the water storage apparatus **1300**. In some embodiments, the removable wheels **1307** may be rotatably coupled to axles **1305** that may attach to the base **1301** underneath the water storage apparatus **1300** at a lower horizontal surface of the base **1301**.

[0082] In one example, the removable wheels **1307** may be wireframe wheels, such as bicycle wheels, and these wheels **1307** may be rotatably coupled to the axles **1305**. In some embodiments, wheels **1307** on one end of the water storage apparatus **1300** may be larger than wheels on another end of the water storage apparatus **1300**.

[0083] FIG 14 shows an exemplary embodiment of a water storage apparatus 1400 comprising an upper portion 1402, a base 1404, and a chamber 1406 situated between the upper portion 1402 and the base 1404. In the exemplary embodiment of FIG. 14, the chamber 1406 comprises side panels 1408, 1409 and columns 1410, 1411 partitioned by a middle portion 1412 into upper panels 1408, upper columns 1410, lower panels 1409, and lower columns 1411.

[0084] In some embodiments, components of a chamber 1406 may be partitioned by middle portion 1412. The middle portion 1412 may be a coupling joint allowing adjoining panels 1408, 1409 and columns 1410, 1411 to be coupled together, thereby forming the chamber 1406. In some embodiments, the middle portion 1412 may be defined by a bevel at the top of lower components 1409, 1411 to which upper components 1408, 1410 may be fastened. In some embodiments, the middle portion 1412 may be defined by a bevel at the bottom of upper components 1408, 1410. to which lower components 1409, 1411 may be fastened.

[0085] In some embodiments, the middle portion 1412 may be a solid partition partitioning the chamber 1406, and allowing components 1408, 1409, 1410, 1411 to be fastened together and/or to the middle portion 1412. In such embodiments, the water storage apparatus 1400 may comprise bladders within each partition of the chamber 1406.

[0086] In some embodiments, the upper portion 1402 may comprise handles facilitating human locomotion of the water storage apparatus 1400. In some embodiments, wheels 1416 may be place on the sides of the water storage apparatus 1400 by axels protruding from the sides of the base 1404 allowing for wheels 1416 to be rotatably attached

to the axels. Additionally or alternatively, in some embodiments, pegs **1414** may be removably attached to the base **1404**.

[0087] In some embodiments, such as the embodiment shown in **FIG. 14**, the base **1404** may comprise wheels **1416** and pegs **1414** on opposing ends of the base **1404**. The wheels **1406** may be positioned underneath handles **1418** attached to an upper **1418** such that weight of the water storage apparatus **1400** may be tilted on the axels of the base **1404** toward a human operator or other means of moving the water storage apparatus **1400**. When the water storage apparatus **1400** is relocated using the wheels **1416**, the weight may be shifted by the axels onto the pegs **1414** of the base **1404**.

[0088] In some embodiments, the water storage apparatus **1400** may be disassembled in various ways for storage. In some embodiments, the components **1408**, **1409**, **1410**, **1411** may be stored within a housing, as described earlier. In some embodiments, such as the exemplary embodiment shown in **FIG. 15**, the side panels **1408**, **1409** may be stacked onto one another and then the stack of side panels **1408**, **1409** may be placed in between the side walls of the base **1404** and the upper portion **1402**.

[0089] **FIG. 15** shows an exemplary embodiment of a water storage apparatus in a disassembled configuration **1500** ready for storage. The exemplary embodiment of the disassembled or collapsed water storage apparatus **1500** may comprise an upper portion **1501** having a filling hole **1502**, a base **1503**, and a stack of side panels **1505**.

[0090] In some embodiments, the side walls of a base **1503** may be abutted to side walls of an upper portion **1501** such that a housing is formed by a recess of the base facing the recess of the upper portion **1501** for storing various components of the water storage apparatus **1500**. In some embodiments, components of the water storage apparatus **1500** may

fit within the storage housing formed by the base **1503** and the upper portion **1501**. In some embodiments, as in the exemplary embodiment of **FIG. 15**, side panels **1505** forming the collapsed chamber may be stacked on one another. In such embodiments, other components of the water storage apparatus **1500** may fit within a storage housing that may be formed by the base **1503**, upper portion **1501**, and the stackable side panels **1505**, such that the side walls of the base **1503** are adjacent to one end of the stack of side panels **1505** and the side walls of the upper portion **1501** are adjacent to the opposing end of the stack of side panels **1505**.

[0091] In some embodiments, detachable handles **1507** may be stored within the storage housing. In some embodiments, as in **FIG. 15**, detachable handles **1507** may be attached to various areas of the storage housing to allow for easier mobility of the water storage apparatus **1500** having a different shape or construction when disassembled.

[0092] The exemplary embodiments described herein relate to an apparatus capable of storing and conveying water. However, it should be appreciated that embodiments of the invention are not intended to be limited to water. It is to be appreciated that embodiments of the invention may store and/or dispense any fluids. The exemplary embodiments can relate to an apparatus for performing one or more of the functions described herein. Skilled artisans may implement the described method and apparatus in varying ways for a particular use, but such implementation decisions should not be interpreted as causing a departure from the scope of the present invention. While various aspects and embodiments have been disclosed, other aspects and embodiments are contemplated. The various aspects and embodiments disclosed are for purposes of illustration and are not intended to be limiting, with the true scope and spirit being indicated by the following claims. The preceding description of the disclosed embodiments is provided to enable any person skilled in the art to make or use the

present invention. Various modifications to these embodiments will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other embodiments without departing from the spirit or scope of the invention. Thus, the present invention is not intended to be limited to the embodiments shown herein but is to be accorded the widest scope consistent with the following claims and the principles and novel features disclosed herein.

CLAIMS

What is claimed is:

1. A water storage apparatus comprising:

a base comprising a lower horizontal surface, one or more wheels attached to the base, a plurality of walls extending upwardly from edges of the lower horizontal surface, thereby forming a recess in the base defined by the walls and the lower horizontal surface, wherein at least one of the plurality of walls has a hole configured to be detachably coupled to a fluid dispenser;

an upper portion comprising an upper horizontal surface having a plurality of walls extending downwardly from edges of the upper horizontal surface, thereby forming a recess in the upper portion defined by the walls of the upper portion and the upper horizontal surface, wherein the upper horizontal surface comprises a hole;

a plurality of removable panels extending from the base to the upper portion forming a chamber defined by the plurality of removable panels, the base, and the upper portion, wherein the removable panels are separable from one another, and are configured to fit in a housing defined by the recess of the base and the recess of the upper portion when the base is adjacent to the upper portion; and

a flexible bladder contained within the plurality of removable panels, and comprising an orifice substantially aligned with the hole in the upper horizontal surface.

2. The water storage apparatus of claim 1, further comprising at least one handle.

3. The water storage apparatus of claim 1, wherein the fluid dispenser connected to the hole in the wall of the base is selected from the group consisting of: a spigot and a hose.
4. The water storage apparatus of claim 1, further comprising a removable cap sealing the hole in the upper horizontal surface of the upper portion.
5. The water storage apparatus of claim 1, further comprising a plurality of columns extending from the base to the upper portion interposed between the plurality of panels and configured to fit with the removable panels within the housing defined by the recess of the base and the recess of the upper portion, the columns and the plurality of panels being detachably connectable along longitudinal portions thereof.
6. The water storage apparatus of claim 1, wherein the bladder further comprises an orifice detachably connected to the hole in the wall of the base.
7. The water storage apparatus of claim 1, further comprising a detachable hose connected to the hole in the upper horizontal surface of the upper portion.
8. The water storage apparatus of claim 1, wherein the wheels are removably attached at a lower side of the lower horizontal surface of the base.
9. The water storage apparatus of claim 8, wherein the wheels are configured to fit with the plurality of removable panels within the housing defined by the recess of the base and the recess of the upper portion.
10. The water storage apparatus of claim 1, wherein the base further comprises one or more axels, and wherein a wheel of the base is rotatably coupled to an axel.

11. The water storage apparatus of claim 10, wherein the axel protrudes from a first wall of the base.

12. A water storage apparatus comprising:

a base comprising a lower horizontal surface, one or more wheels attached to the base, a plurality of walls extending upwardly from edges of the lower horizontal surface, thereby forming a recess in the base defined by the walls and the lower horizontal surface, wherein at least one of the plurality of walls has a hole configured to be detachably coupled to a fluid dispenser;

an upper portion comprising an upper horizontal surface having a plurality of walls extending downwardly from edges of the upper horizontal surface, thereby forming a recess in the upper portion defined by the walls of the upper portion and the upper horizontal surface, wherein the upper horizontal surface comprises a hole;

a plurality of removable panels extending from the base to the upper portion forming a chamber defined by the plurality of removable panels, the base, and the upper portion, wherein the removable panels are separable from one another, and are configured to stack upon one another between the base and the upper portion whereby the base is adjacent to a first end of the stack and the upper portion is adjacent to an opposing second end of the stack; and

a flexible bladder contained within the plurality of removable panels, and comprising an orifice substantially aligned with the hole of the upper horizontal surface.

13. The water storage apparatus of claim 12, further comprising at least one handle.

14. The water storage apparatus of claim 12, wherein the fluid dispenser connected to the hole in the wall of the base is selected from the group consisting of: a spigot and a hose.
15. The water storage apparatus of claim 12, further comprising a removable cap sealing the hole in the upper horizontal surface of the upper portion.
16. The water storage apparatus of claim 12, further comprising a plurality of columns extending from the base to the upper portion interposed between the plurality of panels and configured to fit within the housing defined by the recess of the base, the stack of removable panels, and the recess of the upper portion, the columns and the plurality of panels being detachably connectable along longitudinal portions thereof.
17. The water storage apparatus of claim 12, wherein the bladder further comprises an orifice detachably connected to the hole in the wall of the base.
18. The water storage apparatus of claim 12, further comprising a detachable hose connected to the hole in the upper horizontal surface of the upper portion.
19. The water storage apparatus of claim 12, wherein the wheels are removably attached at a lower side of the horizontal surface of the base.
20. The water storage apparatus of claim 19, wherein the wheels are configured to fit within the housing defined by the recess of the base, the stack of removable panels, and the recess of the upper portion.
21. The water storage apparatus of claim 12, wherein the base further comprises one or more axels, and wherein a wheel of the base is rotatably coupled to an axel.

22. The water storage apparatus of claim 21, wherein the axel protrudes from a first wall of the base.

23. The water storage apparatus of claim 1, wherein the plurality of walls of the base include an inner side wall and an outer side wall defining a groove therebetween configured and dimensioned to receive a lower portion of the panels.

24. The water storage apparatus of claim 23, wherein the plurality of walls of the upper portion include an inner side wall and an outer side wall defining a groove therebetween configured and dimensioned to receive an upper portion of the panels.

25. The water storage apparatus of claim 12, wherein the plurality of walls of the base include an inner side wall and an outer side wall defining a groove therebetween configured and dimensioned to receive a lower portion of the panels.

26. The water storage apparatus of claim 25, wherein the plurality of walls of the upper portion include an inner side wall and an outer side wall defining a groove therebetween configured and dimensioned to receive an upper portion of the panels.

27. The water storage apparatus of claim 1, further comprising:

a first guide member fixedly positioned along a first wall and within the groove along the first wall;

a second guide member fixedly positioned along a second wall and within the groove along the second wall; and

a column configured to extend into the grooves along the first wall and the second wall and between the first and second guide members, thereby inhibiting the column from sliding along either the first wall or second wall.

28. The water storage apparatus of claim 27, further comprising:

first additional guide members and second additional guide members fixedly positioned along adjacent walls and within respective grooves along the adjacent walls; and

respective columns configured to extend into the grooves along the adjacent walls between the first and second additional guide members, thereby inhibiting the respective columns from sliding along either of the adjacent walls.

29. The water storage apparatus of claim 12, further comprising:

a first guide member fixedly positioned along a first wall and within the groove along the first wall;

a second guide member fixedly positioned along a second wall and within the groove along the second wall; and

a column configured to extend into the grooves along the first wall and the second wall and between the first and second guide members, thereby inhibiting the column from sliding along either the first wall or second wall.

30. The water storage apparatus of claim 29, further comprising:

first additional guide members and second additional guide members fixedly positioned along each of the adjacent walls and within respective grooves along the adjacent walls; and

respective columns configured to extend into the grooves along the adjacent walls between the first and second additional guide members, thereby inhibiting the respective columns from sliding along either of the adjacent walls.

31. The water storage apparatus of claim 1, wherein at least one of the removable panels are formed of at least one member inclusive of an opening extending vertically along the at least one of the removable panels to enable a user to visually inspect the flexible bladder to determine a level of fluid within the flexible bladder.

32. The water storage apparatus of claim 12, wherein at least one of the removable panels are formed of at least one member inclusive of an opening extending vertically along the at least one of the removable panels to enable a user to visually inspect the flexible bladder to determine a level of fluid within the flexible bladder.