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(54) **MODULAR CONTAINER SYSTEM**

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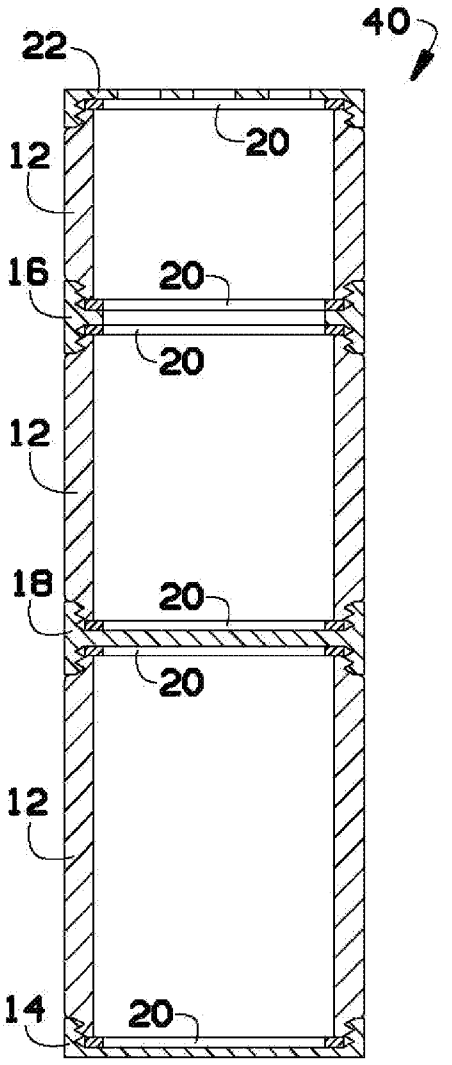
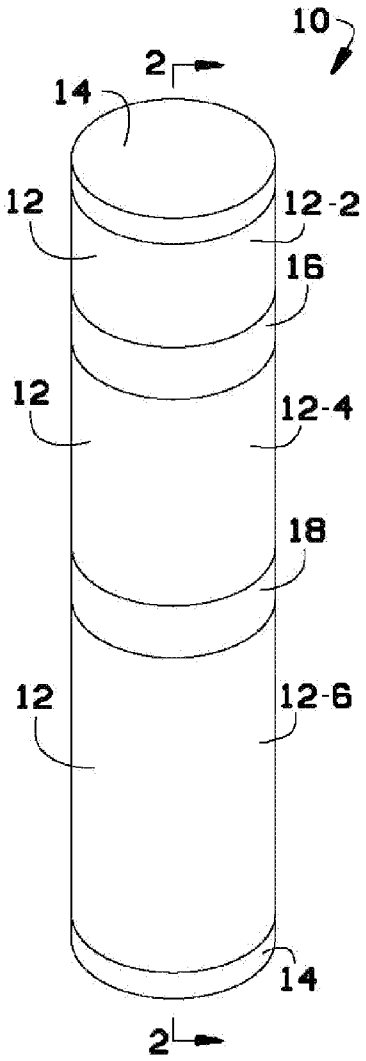
(57) **ABSTRACT**

A modular container system may enable a user to create a set of interconnected containers to organize and pack small items. The modular container system may be assembled in various ways to hold one or more items in separate compartments of varying size. The modular container system may have the same diameter as a typical sports water bottle, making the container system easy to pack and readily accessible to the user. The modular container system may be useful in various situations where a person needs to organize and store items. Applications may include outdoor sports and recreation, military, automotive, arts and crafts, construction tools and materials, food storage, toy storage, and the like.




10
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2

FIG. 1

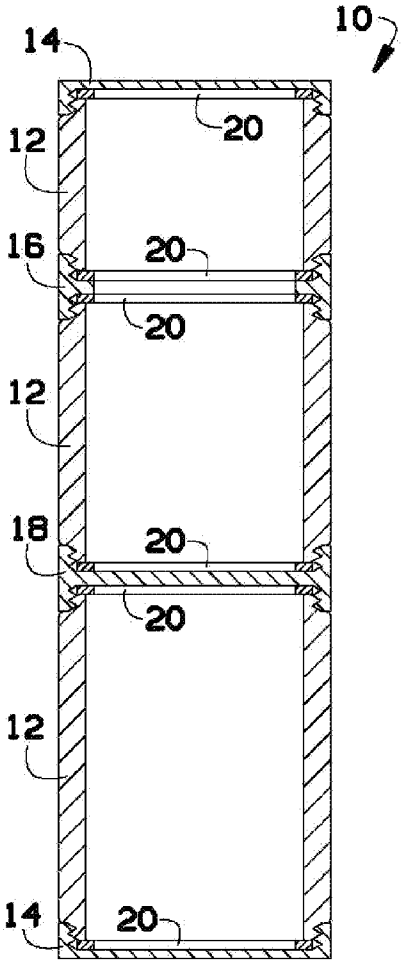
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FIG. 2

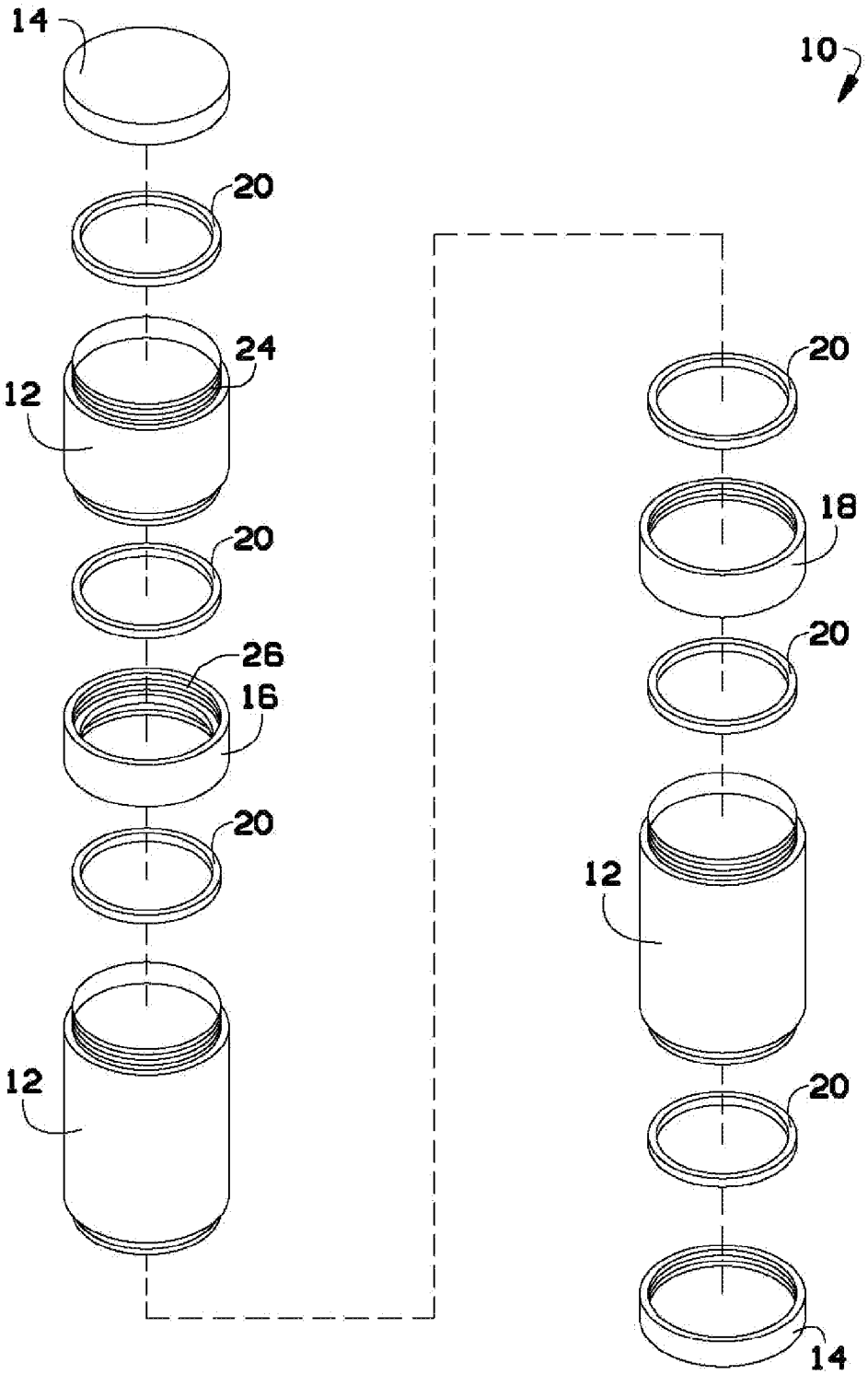


FIG. 3

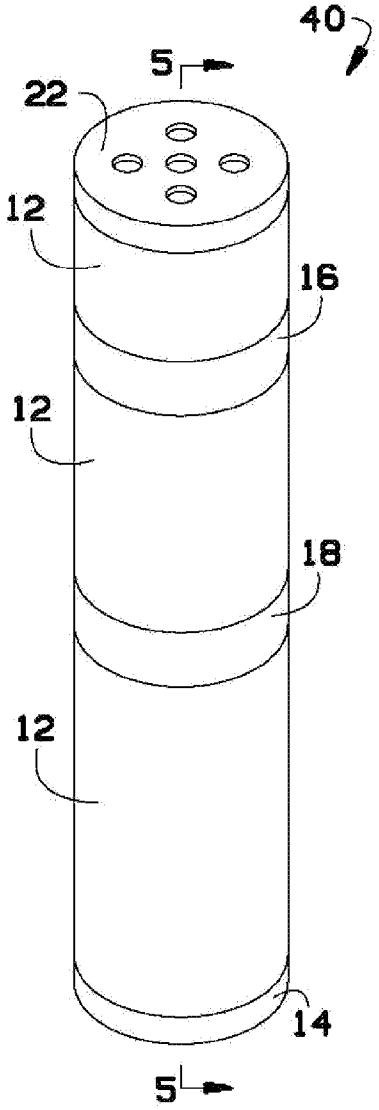


FIG. 4

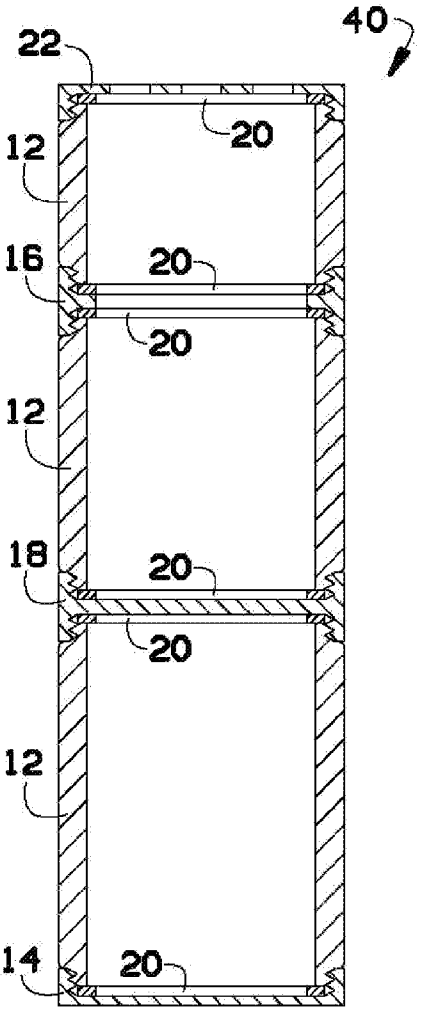


FIG. 5

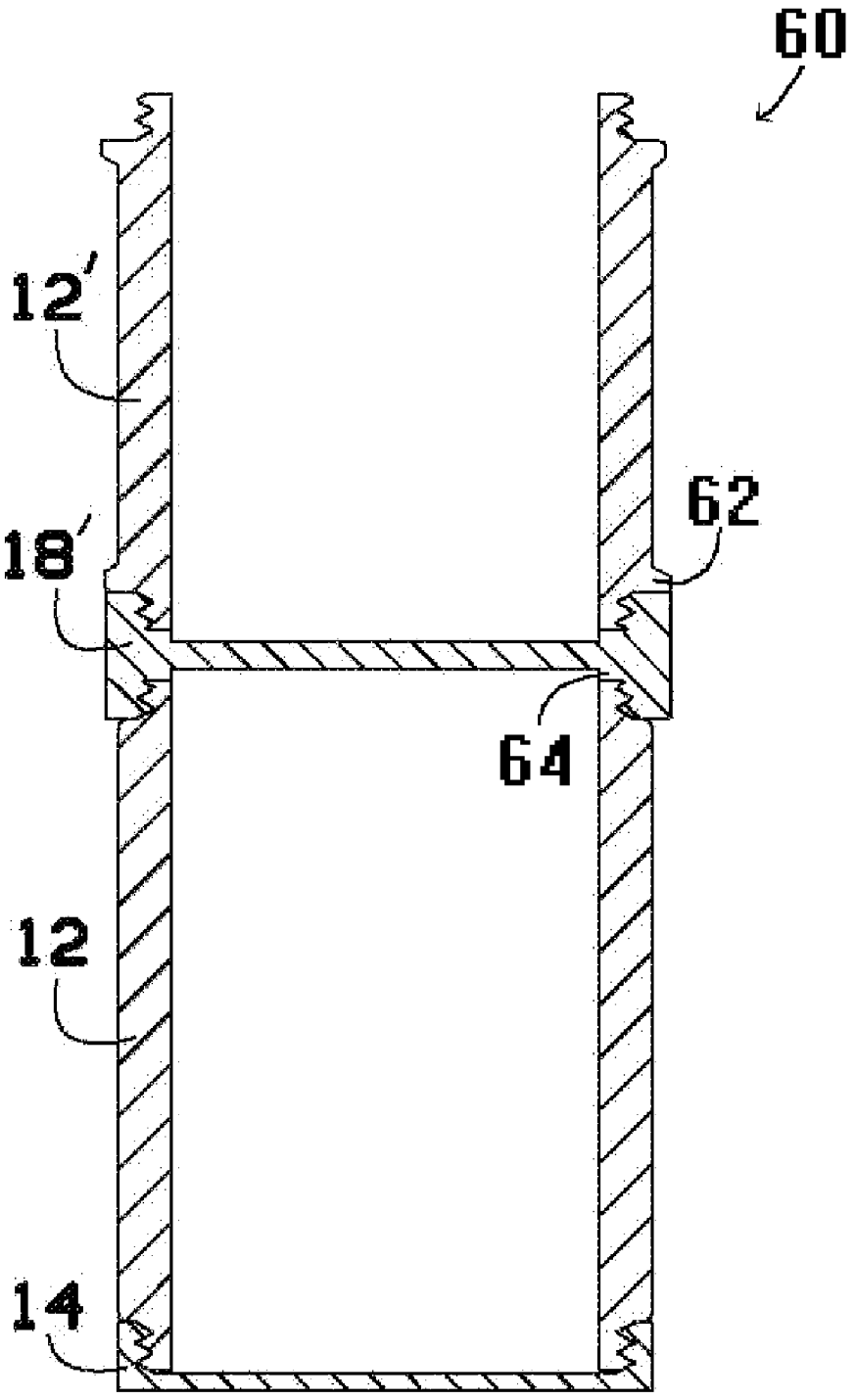


FIG. 6

# MODULAR CONTAINER SYSTEM

## CROSS-REFERENCE TO RELATED APPLICATIONS

**[0001]** This application claims the benefit of U.S. Provisional Application No. 61/151,237, filed Feb. 10, 2009.

## BACKGROUND OF THE INVENTION

**[0002]** The present invention generally relates to containers, and more specifically to modular containers and modular container systems.

**[0003]** In many activities, including outdoor sports and recreation, it is difficult to organize, pack and make accessible small items. For certain activities, water resistant storage may be desired. Often, users store items in plastic storage bags or tins stowed in various compartments in a portable carry device, such as a backpack. Plastic bags may be crushed or punctured, spilling their contents and losing water resistance.

**[0004]** As can be seen, there is a need for a container system that may organize, store and make accessible items stored therein.

## SUMMARY OF THE INVENTION

**[0005]** In one aspect of the present invention, a container comprises at least one open ended container, each open ended container having a first open end and a second open end; at least one end cap adapted to cover at least one of the first open end and the second open end; and at least one connecting part adapted to interconnect adjacent ones of the open ended container when the at least one open ended container is at least two open ended containers.

**[0006]** In another aspect of the present invention, a container system comprises multiple open ended containers, each open ended container having a first open end and a second open end; at least one connecting part adapted to interconnect adjacent ones of the open ended containers; and a first end cap and a second end cap covering ends of the container system, wherein the connecting part is selected from the group consisting of a floorless connecting part and a divided connecting part.

**[0007]** In a further aspect of the present invention, a kit comprises a container comprising at least one open ended container, each open ended container having a first open end and a second open end; at least one end cap adapted to cover at least one of the first open end and the second open end; and at least one connecting part adapted to interconnect adjacent ones of the open ended container when the at least one open ended container is at least two open ended containers; and supplies stored within the container.

**[0008]** These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description and claims.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0009]** FIG. **1** is a perspective view of a modular container system according to an embodiment of the present invention;

**[0010]** FIG. **2** is a cross-sectional view of the modular container system taken along line **2-2** in FIG. **1**;

**[0011]** FIG. **3** is an exploded perspective view of the modular container system of FIG. **1**;

**[0012]** FIG. **4** is a perspective view of a modular container system according to an alternate embodiment of the present invention;

**[0013]** FIG. **5** is a cross-sectional view of the modular container system taken along line **5-5** of FIG. **4**; and

**[0014]** FIG. **6** is a cross-sectional view of a portion of a modular container system according to a further embodiment of the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

**[0015]** The following detailed description is of the best currently contemplated modes of carrying out exemplary embodiments of the invention.

**[0016]** The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

**[0017]** Broadly, an embodiment of the present invention generally provides a modular container system that may enable a user to create a set of interconnected containers to organize and pack small items. In one embodiment of the present invention, the modular container system may have the same diameter as a typical sports water bottle, making the container system easy to pack and readily accessible to the user. The modular container system may be useful in various situations where a person needs to organize and store items. Applications may include outdoor sports and recreation, military, automotive, arts and crafts, construction tools and materials, food storage, toy storage, and the like.

**[0018]** Referring to FIG. **1**, there is shown a perspective view of a modular container system **10** according to an embodiment of the present invention. As described in greater detail below, the container system **10** may include at least one open ended container **12**. Multiple open ended containers **12-2**, **12-4**, **12-6** may be coupled together by, for example, either a floorless connecting part **16** or a dividing connecting part **18**. End caps **14** may be removably disposed on each end of the container system **10**.

**[0019]** The floorless connecting part **16** may connect two adjacent open ended containers **12-2**, **12-4** to provide a single storage section. The divided connecting part **18** may connect two adjacent open ended containers **12-4**, **12-6** to provide two separate container sections coupled together.

**[0020]** Each of the open ended containers **12-2**, **12-4**, **12-6** may have the same or different heights. The diameter of each of the open ended containers **12-2**, **12-4**, **12-6** making up a container system **10** may be the same and may approximate the diameter of a sports water bottle (for example, from about 2 to about 3 inches). The container system **10** may be manufactured with various standard diameters. For example, the container system **10** may have a diameter between 10 and 12 inches.

**[0021]** The container systems **10** may be manufactured from various materials and with various colors. Typically, the open ended containers **12**, the end caps **14**, the floorless connecting parts **16** and the divided connecting parts **18** may be made of plastic or metal. In one embodiment of the present invention, the open ended containers **12** may be made of a clear plastic. In another embodiment of the present invention, the various colors may correspond with various standard diameters, thereby aiding matching components of the same diameter.

**[0022]** Referring to FIG. **2**, there is shown a cross-sectional view of the container system **10** of FIG. **1**. Gaskets **20** may be included between adjacent components of the container system **10**. For example, the gasket **20** may be included between the end cap **14** and the open ended container **12-2**. The gasket

**20** may also be included between open ended container **12-2** and floorless connection part **16**. The gaskets **20** may provide enhanced water resistance or watertightness. The gaskets **20** may be optional, as water resistance may be provided by a mechanical seal between the components, as described in greater detail below.

**[0023]** Referring now to FIG. **3**, there is shown an exploded perspective view of the container system **10** of FIG. **1**. Male threads **24** may be disposed on each end of the open ended containers **12**. Female threads **26**, mating with the male threads **24**, may be disposed in the end caps **14**, the floorless connecting parts **16** and the divided connecting parts **18**. The male threads **24** and the female threads **26** may permit assembly of the container system **10** to yield the assembled container assembly as shown in FIG. **1**. The threads **24**, **26** may be any type of threads known in the art. For example, the threads **24**, **26** may have undulations cut at mating angles to help provide water resistance within the threads.

**[0024]** While FIGS. **1** and **2**, for example, show a uniform width container, variable widths may within the scope of the present invention. For example, the open ended containers **12** may have a taper at the necks of the container, near the threads. In one embodiment of the present invention, regardless of varying diameters and tapered necks, the container system **10** may still be a modular system, having mating threads between the open ended containers **12** and the connection parts **16**, **18** and the end caps **14**.

**[0025]** While threads are shown as the connecting means between various components, various connecting means are contemplated within the scope of the present invention. For example, a peg may be provided in lieu of the female threads and a slot may be provided in lieu of the mail threads to assemble the components. In alternate embodiments, the components may be assembled by a friction fit. In other possible embodiments the male and female threads may be reversed, e.g., the ends of the open ended containers may have female threads and the end caps and/or connecting parts may have male threads.

**[0026]** As can be appreciated from the exploded perspective view of FIG. **3**, the container system **10** may be a modular system, permitting interchange of components. For example, multiple open ended containers **12** may be joined together either with floorless connecting parts **16**, to form a single long container system **10**, or with divided connecting parts **18**, to form multiple individual chambers within the container system **10**. Alternatively, a single open ended container **12** may be fitted with end caps **14** to provide a single chambered container system **10**. The container system **10** may provide the user with flexibility in organizing and storing items. Flexibility may include options for container size and the combination of different sized containers when the open ended containers **12** are connected together.

**[0027]** The container system **10** may be assembled as part of a kit. The kit may contain various supplies stored within each of the open ended containers **12**. The supplies within a container system **10** may be drawn to a common purpose. For example, the kit may be a first aid kit containing first aid supplies, a survival kit containing wilderness survival supplied, a shelter kit containing emergency shelter supplied, a cooking kit containing cooking supplies or the like. Multiple kits may be joined together. For example, end caps **14** from a first aid kit and a survival kit may be removed and a divided connecting part **18** may join these two kits together to form a single container system **10** containing multiple kits.

**[0028]** Referring to FIGS. **4** and **5**, there are shown perspective and cross-sectional views of a container system **40** according to an alternate embodiment of the present invention. In this embodiment, the container system **40** may include a perforated end cap **22**. The perforated end cap **22** may be useful in indications where a water resistant end cap is not required. For example, the perforated end cap may be useful as a cooking strainer or to allow air to pass about damp items stored within the storage section **12-2**. The other components of the container system **40**, such as the open ended containers **12**, the floorless connecting part **16**, the divided connecting part **18** and the end cap **14** may be the same as those described with reference to FIGS. **1-3**.

**[0029]** Referring now to FIG. **6**, there is shown a cross-sectional view of a container system **60** according to an alternate embodiment of the present invention. In this embodiment, additional water resistance may be provided by a mechanical seal formed between adjacent components of the container system **60**. For example, an external flange **62** on open ended containers **12'** may provide mechanical sealing when the connecting parts (such as divided connecting part **18'**) are mated with the open ended containers **12'**. The external flange **62** may also provide contour to the outer surface of the container system **60**. In addition, an internal flange **64** may be present on the connecting parts **16**, **18** or the end caps **14** to provide an alternate mechanical seal. For example, in FIG. **6**, the internal flange **64** is present on divided connecting part **18'**.

**[0030]** It should be understood, of course, that the foregoing relates to exemplary embodiments of the invention and that modifications may be made without departing from the spirit and scope of the invention as set forth in the following claims.

What is claimed is:

**1**. A container comprising:
- at least one open ended container, each open ended container having a first open end and a second open end;
- at least one end cap adapted to cover at least one of the first open end and the second open end; and
- at least one connecting part adapted to interconnect adjacent ones of the open ended container when the at least one open ended container is at least two open ended containers.

**2**. The container of claim **1**, wherein the at least one open ended container includes at least a first open ended container and a second open ended container.

**3**. The container of claim **2**, wherein the connecting part is a floorless connecting part fluidly connecting the first open ended container with the second open ended container.

**4**. The container of claim **2**, wherein the connecting part is a divided connecting part providing separate chambers within the first open ended container and the second open ended container.

**5**. The container of claim **2**, wherein:
- the first open end of the first open ended container and the first open end of the second open ended container are interchangeably connected with either a floorless connecting part or a divided connecting part; and
- the second open end of the first open ended container and the second end of the second open ended container are each covered by the end cap.

**6**. The container of claim **2**, further comprising at least one gasket positioned between adjacent components of the container.

**7**. The container of claim **1**, further comprising:
threads on each first open end and second open end; and
mating threads on each end cap and each connecting part.

**8**. The container of claim **7**, wherein the threads and mating threads provide water resistance against water passing through the threads and mating threads when in an interconnected position.

**9**. The container of claim **1**, wherein at least one end cap includes perforations.

**10**. The container of claim **1**, wherein adjacent components are joined together to form a mechanical seal therebetween.

**11**. The container of claim **10**, wherein the mechanical seal comprises a flange on the open ended container.

**12**. The container of claim **1**, wherein the open ended containers are transparent.

**13**. A container system comprising:
multiple open ended containers, each open ended container having a first open end and a second open end;
at least one connecting part adapted to interconnect adjacent ones of the open ended containers; and
a first end cap and a second end cap covering ends of the container system, wherein
the connecting part is selected from the group consisting of a floorless connecting part and a divided connecting part.

**14**. The container system of claim **13**, further comprising:
threads on each first open end and second open end; and
mating threads on each end cap and each connecting part.

**15**. The container system of claim **13**, wherein at least one end cap includes perforations.

**16**. The container system of claim **13**, wherein:
adjacent components are joined together to form a mechanical seal therebetween; and
the mechanical seal comprises a flange on the open ended container.

**17**. The container of claim **16**, wherein the mechanical seal increases water resistance of the container system.

**18**. A kit comprising:
a container comprising:
at least one open ended container, each open ended container having a first open end and a second open end;
at least one end cap adapted to cover at least one of the first open end and the second open end; and
at least one connecting part adapted to interconnect adjacent ones of the open ended container when the at least one open ended container is at least two open ended containers; and
supplies stored within the container.

**19**. The kit of claim **18**, wherein the supplies are related to a common purpose.

**20**. The kit of claim **18**, further comprising:
threads on each first open end and second open end; and
mating threads on each end cap and each connecting part.

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