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(54) WATER COLLECTION MODULE

(57) A water collection module **(200)** includes a collection container **(204)** to collect and store water. The collection container has a top portion and a bottom portion such that the collection container **(204)** defines a water outlet towards a bottom portion. At least one base module **(202)** is coupled to the collection container **(204)** towards the bottom portion. The base module **(202)** allows the collection container **(204)** to stand on the base module **(202).** The water collection module **(200)** is characterized in that the at least one base module **(202)** is fluidly coupled with the water outlet of the collection container **(204),** and the at least one base module **(202)** houses at least one water distribution component **(300)** therein.

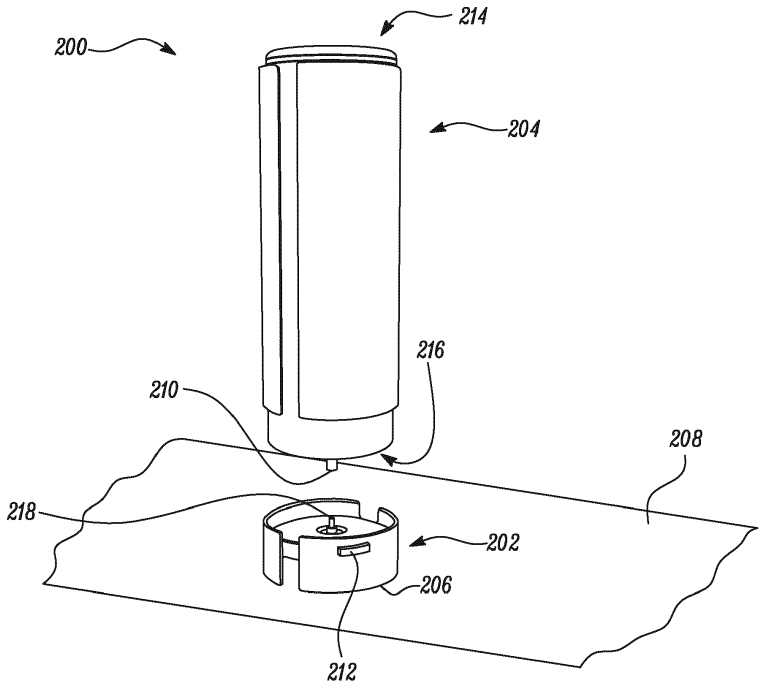

FIG. 2B

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Description

TECHNICAL FIELD

[0001] The present disclosure relates generally to water collection, and more specifically to a water collection module to allow easy access of collected water.

BACKGROUND

[0002] Increasingly, governments and local authorities around the world are treating water as a scarce commodity and water charges are being introduced as a means to cover the cost of treating and supplying water to residential and business properties. Water metering is already being carried out in numerous parts of the world and many of the remaining countries have plans to introduce water metering within the next five to ten years.

[0003] Consequently, the capture and treatment of water has become of interest in recent times, in particularly if the water is rainwater. Typically, water is captured from a roof or large planar surface area and is passed, under gravity to a storage tank at or below ground level. One of the most common means to capture water is a water tank or a water collection container which may collect and store water for future usage. However, such a water collection container typically does not facilitate easy access to the stored water such that the collected water may be easily used further for various purposes.

[0004] An example is provided by U.S. patent application US2015/08229 (hereinafter referred to as the **'229** reference). The **'229** reference discloses a device which is used to collect water from a down spout and allows excess water to exit the down spout as originally intended. The down spout is cut at the top of the device allowing the down spout to transfer water to the tank of the device through a planter and water deflector device. The water enters the tank and fills the tank until the water reaches the spill way. The lower portion of the down spout is attached to the spill way so when the water enters the spill way, it travels down the down spout as originally intended. The tank is mounted on a base to elevate the tank for access to the water. The water is extracted from the tank by opening a spigot and filling a container such as a watering can. A soaker hose can also be attached to the bottom of the tank to water nearby plants. However, the **'878** reference fails to disclose any provision for facilitating easy access to the stored water from the water tank for further usage in an ergonomic and efficient manner.

SUMMARY

[0005] In view of the above, it is an objective of the present disclosure to solve or at least reduce the drawbacks discussed above. The objective is at least partially achieved by a water collection module. The water collection module includes a collection container. The collection container is adapted to collect and store water. The collection container has a top portion and a bottom portion. The collection container defines a water outlet towards a bottom portion. The collection container further has at least one base module coupled to the collection container towards the bottom portion. The base module is adapted to allow the collection container to stand on the base module. The water collection module is characterized in that the at least one base module is fluidly coupled with the water outlet of the collection container, and the at least one base module houses at least one water distribution component therein.

[0006] Thus, the present disclosure provides an improved water collection module. The at least one water distribution component enables easy and ergonomic access of the collected water for various applications such as gardening, kitchen uses, household purposes etc. The at least one water distribution component allows accessing water from the collection container without changing structural orientation of the water collection module such as decoupling the base module and the collection container. This saves any extra effort or manpower to be used for accessing water as compared to any other (say conventional) case.

[0007] According to an embodiment of the present disclosure, the at least one water distribution component is a hose box. The hose box allows accessing the collected water through a hose coupled with the hose box. A user may unwind the hose from the hose box and use the hose to get supply of the collected water as per application purposes. For example, the water collection module may be placed on a terrace, and the user may use the hose to provide the collected water to a terrace garden.

[0008] According to an embodiment of the present disclosure, the at least one water distribution component is a pump. The pump may be used to provide water supply for household purposes, gardening purposes etc. The pump may be further suitably connected with a hose, or a pipeline system etc. to ensure supply of the collected water as per application requirements. In one embodiment of the present disclosure the base element or a part thereof could be filled with water in which the pump, preferably being a submersible pump, is inserted. In an alternative embodiment the base element or a part thereof could not be filled with water and in that empty (dry) space a pump can be located, preferably with its water inlet being fluidly coupled with the water outlet of the collection container.

[0009] According to an embodiment of the present disclosure, the at least one water distribution component is a pipeline system. The pipeline system may facilitate easy access and further supply to the collected water as per application requirements.

[0010] According to an embodiment of the present disclosure, the at least one water distribution component is a watering computer. The watering computer may provide easy access to the collected water. The watering computer may be further communicably coupled with a

mobile device which may facilitate remote access to the collected water accordingly. The watering computer may be suitably programmed as per usage requirements to access the collected water.

[0011] According to an embodiment of the present disclosure, the at least one base module can be selected from a plurality of base modules. A user may be provided with multiple base modules having different functionalities to select from. Each of the plurality of base modules may be configured with at least one of a hose box, a pump, a pipeline system, and a watering computer. The user may select one or more base modules based upon his/her application requirements. For example, a user who wishes to place the water collection module in a garden may select the base module with a hose box, and the base module with a watering computer. The user may use the two or more base modules at same or different times as per application requirements in the garden.

[0012] According to an embodiment of the present disclosure, the collection container is fluidly coupled with the at least one base module such that flow of collected water is allowed from the collection container to the base module, provided the collection container is coupled with the base module. The flow of water may also be allowed from the base module to the collection container. The base module and the collection container may be coupled together through any suitable coupling mechanism which may allow desired flow of collected water.

[0013] According to an embodiment of the present disclosure, the at least one base module includes a decoupling mechanism for uncoupling the collection container and the base module. After the collection container gets coupled with the base module, it may be difficult for a user to decouple the collection container and the base module from each other. Thus, the base module is also provided with a decoupling mechanism. The decoupling mechanism may be configured within the base module. The decoupling mechanism may have a lever or a toggle switch to uncouple the collection container and the base module.

[0014] According to an embodiment of the present disclosure, the water collection module **(200)** comprises two or more base modules at same time. Preferably these are on top of each other in a stacked configuration. In this case the functionality of the module can be further increased and by stacking the base modules on top of each other space saving can be achieved.

[0015] Other features and aspects of this disclosure will be apparent from the following description and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The disclosure will be described in more detail with reference to the enclosed drawings, wherein:

FIG. 1 illustrates a conventional water collection module;

FIG. 2A illustrates a water collection module showing a base module coupled with a collection container, according to an embodiment of the present disclosure;

FIG. 2B illustrates the water collection module showing the base module and the collection container in an exploded view, according to an embodiment of the present disclosure;

FIG. 3 illustrates a water collection module showing a base module having a hose box, according to an embodiment of the present disclosure;

FIG. 4 illustrates a water collection module showing a base module having a submersible pump, according to an embodiment of the present disclosure;

FIG. 5 illustrates a water collection module showing a base module having a pipeline system, according to an embodiment of the present disclosure;

FIG. 6 illustrates a water collection module showing a base module having a watering computer, according to an embodiment of the present disclosure;

FIG. 7A illustrates an assembled view of a water collection module having multiple base modules, according to an embodiment of the present disclosure; and

FIG. 7B illustrates an exploded view of the water collection module having multiple base modules, according to an embodiment of the present disclosure.

DESCRIPTION OF EMBODIMENTS

[0017] The present disclosure will be described more fully hereinafter with reference to the accompanying drawings, in which example embodiments of the disclosure incorporating one or more aspects of the present disclosure are shown. This disclosure may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the disclosure to those skilled in the art. For example, one or more aspects of the present disclosure may be utilized in other embodiments and even other types of structures and/or methods. In the drawings, like numbers refer to like elements.

[0018] Certain terminology is used herein for convenience only and is not to be taken as a limitation on the disclosure. For example, "upper", "lower", "front", "rear", "side", "longitudinal", "lateral", "transverse", "upwards", "downwards", "forward", "backward", "sideward", "left," "right," "horizontal," "vertical," "upward", "inner", "outer", "inward", "outward", "top", "bottom", "higher", "above",

"below", "central", "middle", "intermediate", "between", "end", "adjacent", "proximate", "near", "distal", "remote", "radial", "circumferential", or the like, merely describe the configuration shown in the Figures. Indeed, the components may be oriented in any direction and the terminology, therefore, should be understood as encompassing such variations unless specified otherwise.

[0019] **FIG. 1** illustrates a conventional water collection module 100. The conventional water collection module **100** is used to collect water during rainfall and like events. The conventional water collection module **100** may be placed at any location having access to water during rainfall. For example, the conventional water collection module **100** may be placed on a terrace of a household, in a garden area, in a lawn area or any other suitable location in accordance with various aspects of the present disclosure.

[0020] As illustrated, the conventional water collection module **100** is a singular structure. The conventional water collection module **100** has a collection container **102** which receives water. Further, the conventional water collection module **100** is provided with a water outlet **104** illustrated as a water tap to access the water collected by the collection container **102.** However, the conventional water collection module **100** does not facilitate easy access to the collected water for further usage as per application requirements.

[0021] **FIGS. 2A** and **2B** illustrate a water collection module **200** as per the present disclosure. Referring in combination to **FIGS. 2A** and **2B,** the water collection module **200** has a modular structure. The water collection module **200** has at least one base module **202** and a collection container **204.** The at least one base module **202** and the collection container **204** are both provided as separate components making up the modular structure of the water collection module **200.** The at least one base module **202** and the collection container **204** may be made of a similar or different materials such as plastics, reinforced polymer or any such material which may be suitable in accordance with various aspects of the present disclosure.

[0022] The collection container **204** is adapted to collect and store water. More specifically, the collection container **204** receives the water during rainfall and stores the water accordingly. The collection container **204** has a top portion **214** and a bottom portion **216** such that the collection container **204** defines a water outlet **210** towards the bottom portion **216.** The water outlet **210** may be any suitable type of water outlet **210** which may be shaped and sized as per application requirements.

[0023] The collection container **204** is adapted to be placed upon the base module **202.** Further, the base module **202** is adapted to be fluidly coupled with the collection container **204.** The base module **202** is coupled to the collection container **204** towards the bottom portion **216** of the collection container **204.** The base module defines a water inlet **218.** The water inlet **218** is adapted to establish fluid coupling between the collection container **204** and the base module **202.** More specifically, the water inlet **218** of the base module **202** gets coupled with the water outlet **210** of the collection container **204.** The collection container **204** may be coupled with the base module **202** through any suitable coupling means which may allow flow of water from the collection container **204** to the base module **202.** The present disclosure is not limited by any such means of coupling between the collection container **204** and the base module **202.**

[0024] The base module **202** is illustrated as a stand module **206** in **FIGS. 2A** and **2B.** The stand module **206** provides a higher elevation to the collection container **204** compared to a surface **208** over which the water collection module **200** is placed upon. Higher elevation may provide a user with better access to the surface **208** under the water collection module **200** for maintenance (say cleaning) and like purposes.

[0025] **FIGS. 2A** and **2B** further illustrate a decoupling mechanism **212.** The base module **202** includes the decoupling mechanism **212** for uncoupling the collection container **204** and the base module **202.** The decoupling mechanism **212** is illustrated as a lever which may be rotated to decouple the base module **202** and the collection container **204** with each other. The decoupling mechanism **212** may be any other type of actuator as well such as a toggle switch.

[0026] The lever may further be connected with various other components provided within the base module **202** which may actuate required parts to decouple the base module **202** and the collection container **204.** In an embodiment, the lever may also be rotated to couple the base module **202** and the collection container **204** together. The decoupling mechanism **212** provides an easy and ergonomic means to decouple the base module **202** and the collection container **204.** The decoupling mechanism **212** ay be any other type of decoupling mechanism **212** as well, and the present disclosure is not limited by any such type of mechanisms in any manner.

[0027] As per the present disclosure, the base module **202** is configured with at least one water distribution component **300** (shown in **FIG. 3** onwards) to facilitate access of the water collected by the collection container **204.** The at least one water distribution component **300** may enable easy and ergonomic access of the collected water for various applications such as gardening, kitchen uses, household purposes etc. The at least one water distribution component **300** may allow accessing the collected water without changing structural orientation of the water collection module **200** such as decoupling the base module **202** and the collection container **204.** This saves any extra effort or manpower to be used for accessing water as compared to any other (i.e., conventional) case.

[0028] **FIG. 3** illustrates the water collection module **200** with the base module **202** having the water distribution component **300** as a hose box **302** having a hose **304.** The hose box **302** allows accessing the collected water through a hose (not shown) coupled with the hose box **302.** A user may unwind the hose from the hose box

302 and use the hose to get supply of the collected water as per application purposes. For example, the water collection module **200** may be placed on a terrace, and the user may use the hose to provide the collected water to a terrace garden.

[0029] **FIG. 4** illustrates the water collection module **200** with the base module **202** having at least one water distribution component **300** as a pump **400.** In case of this specific example the pump **400** is a submersible pump that may be used to provide water supply for household purposes, gardening purposes etc. The submersible pump **400** may be further suitably connected with a hose, or a pipeline system etc. to ensure supply of the collected water as per application requirements. For example, the water collection module **200** may be placed such that the base module **202** places the submersible pump **400** submerged underwater. The submersible pump **400** may be used to supply the collected water from the base module **202.**

[0030] **FIG. 5** illustrates the water collection module **200** with the base module **202** having the at least one water distribution component **300** as a pipeline system **500.** The pipeline system **500** may facilitate easy access and further supply to the collected water as per application requirements. The pipeline system **500** may further be integrated with existing water supply lines (not shown) and may aid water supply therein. Further, it should also be contemplated that the water may flow from the base module **202** to the collection container **204** as well and the present disclosure is not limited by flow of water in one direction only. In some embodiments, the pipeline system **500** may provide water to the base module **202** and thereafter the collection container **204** and may be stored therein. The stored water may thereafter used for various purposes as per application requirements.

[0031] The water collection module **200** further includes a water tap **502** for accessing water directly from the collection container **204.** The water tap **502** may be any suitable type of water tap known in the prior art which may be suitable for application with various aspects of the present disclosure without limiting the scope of the present disclosure in any manner.

[0032] **FIG. 6** illustrates the water collection module **200** with the base module **202** having the at least one water distribution component **300** as a watering computer **700.** The watering computer **700** may provide easy access to the collected water. The watering computer **700** may be further communicably coupled with a mobile device (not shown) which may facilitate remote access to the collected water accordingly. The watering computer **700** may be suitably programmed as per usage requirements to access the collected water.

[0033] In an embodiment, the base module **202** can be selected from a plurality of base modules **202.** A user may be provided with multiple base modules **202** having different functionalities to select from. Each of the plurality of base modules **202** may be configured with at least one of the hose box **302,** the pump **400,** the pipeline system **500,** and the watering computer **700.** The user may select one or more base modules **202** based upon his/her application requirements. For example, a user who wishes to place the water collection module **200** in a garden may select the base module **202** with the hose box **302,** and the base module **202** with the watering computer **700.** The user may use the two base modules **202** at different times as per application requirements in the garden.

[0034] Another embodiment of the present disclosure is illustrated with **FIGS. 7A** and **7B. FIG. 7A** provides an assembled view of the water collection module **200** and **FIG. 7B** provides an exploded view of the water collection module **200.** The water collection module **200** includes the collection container **204.** The collection container **204** has the top portion **214** and the bottom portion **216** such that the collection container **204** defines the water outlet **210** towards the bottom portion **216.** The water collection module **200** further includes one or more base modules. In the illustrated embodiment, the water collection module **200** includes a first base module **802** and a second base module **804** coupled with the collection container **204** along a central axis **X-X'.** The water collection module **200** may include more than two base modules as well, and the present disclosure is not limited by number of base modules in any manner.

[0035] As illustrated, the first base module **802** includes a water computer **814** as the at least one water distribution component. The first base module **802** includes a first water inlet **806** and a first water outlet **808.** The first water inlet **806** is fluidly coupled with the water outlet **210** of the collection container **202.** Further, the second base module **804** includes a pipeline system **810** as the at least one water distribution component. The second base module **804** includes a second water inlet **812.** The second water inlet **812** is fluidly coupled with the first water outlet **808.** The water collected by the collection container **204** may get transferred to the first base module **802** and thereafter the second base module **804** along the central axis **X-X'**.

[0036] In some embodiments, the pipeline system **810** may transfer water to the second base module **804** and thereafter to the first base module **802** and may be stored within the collection container **204** to various usage purposes as per application requirements. It should be contemplated that various other logical combinations of the at least one water distribution component with the first base module **802** and the second base module **804** may also be envisioned well within the scope of the present disclosure.

[0037] In the drawings and specification, there have been disclosed preferred embodiments and examples of the disclosure and, although specific terms are employed, they are used in a generic and descriptive sense only and not for the purpose of limitation of the scope of the disclosure being set forth in the following claims.

LIST OF ELEMENTS

[0038]

100	Conventional Water collection module
102	Collection container
104	Water outlet
200	Water collection module
202	Base module
204	Collection container
206	Stand module
208	Surface
210	Water outlet
212	Decoupling mechanism
214	Top portion
216	Bottom portion
218	Water inlet
300	Structural feature
302	Hose box
304	Hose
400	Pump
500	Pipeline system
502	Water tap
600	Storage module
602	Water outlet
700	Watering computer
802	First base module
804	Second base module
806	First water inlet
808	Second water inlet
810	Pipeline system
812	Second water inlet
814	Water computer

Claims

1. A water collection module **(200)** comprising:

a collection container **(204)** adapted to collect and store water, the collection container having a top portion **(214)** and a bottom portion **(216)** such that the collection container **(204)** defines a water outlet **(210)** towards the bottom portion **(216);**
at least one base module **(202)** coupled to the collection container **(204)** towards the bottom portion **(216),** wherein the base module **(202)** is adapted to allow the collection container **(204)** to stand on the base module **(202);**
characterized in that:

the at least one base module **(202)** is fluidly coupled with the water outlet of the collection container **(204);** and
the at least one base module **(202)** houses at least one water distribution component **(300)** therein.

2. The water collection module **(200)** of claim **1,** wherein the at least one water distribution component **(300)** is a hose box **(302).**

3. The water collection module **(200)** of claim **1,** wherein the at least one water distribution component **(300)** is a pump **(400).**

4. The water collection module **(200)** of claim **1,** wherein the at least one water distribution component **(300)** is a pipeline system **(500).**

5. The water collection module **(200)** of claim **1,** wherein the at least one water distribution component **(300)** is a watering computer **(700).**

6. The water collection module **(200)** of claim **1,** wherein the at least one base module **(202)** can be selected from a plurality of base modules **(202).**

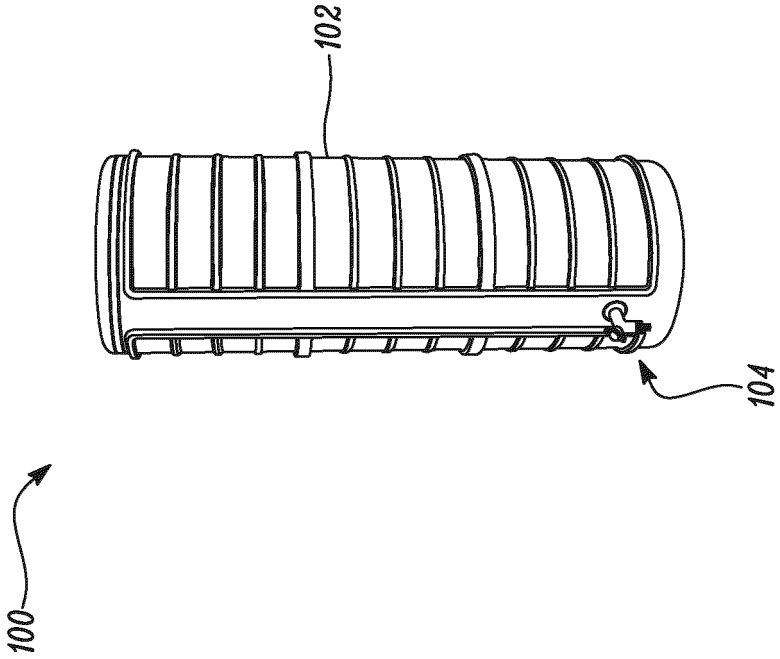
7. The water collection module **(200)** of claim **6,** wherein each of the plurality of base modules **(202)** is configured with at least one of a hose box **(302),** a pump **(400),** a pipeline system **(500),** and a watering computer **(700).**

8. The water collection module **(200)** of claims **1-7,** wherein the collection container **(204)** is fluidly coupled with the base module **(202)** such that flow of collected water is allowed from the collection container **(204)** to the base module **(202),** provided the collection container **(204)** is coupled with the base module **(202).**

9. The water collection module **(200)** of any one of the preceding claims, wherein the at least one base module **(202)** includes a decoupling mechanism **(212)** for uncoupling the collection container **(204)** and the base module **(202).**

10. The water collection module **(200)** of any one of the preceding claims, wherein the module **(200)** comprises two or more base modules **(202)** at same time.

11. The water collection module **(200)** of claim 10, wherein the base modules **(202)** are in stacked configuration on top of each other.



PRIOR ART

FIG. 1

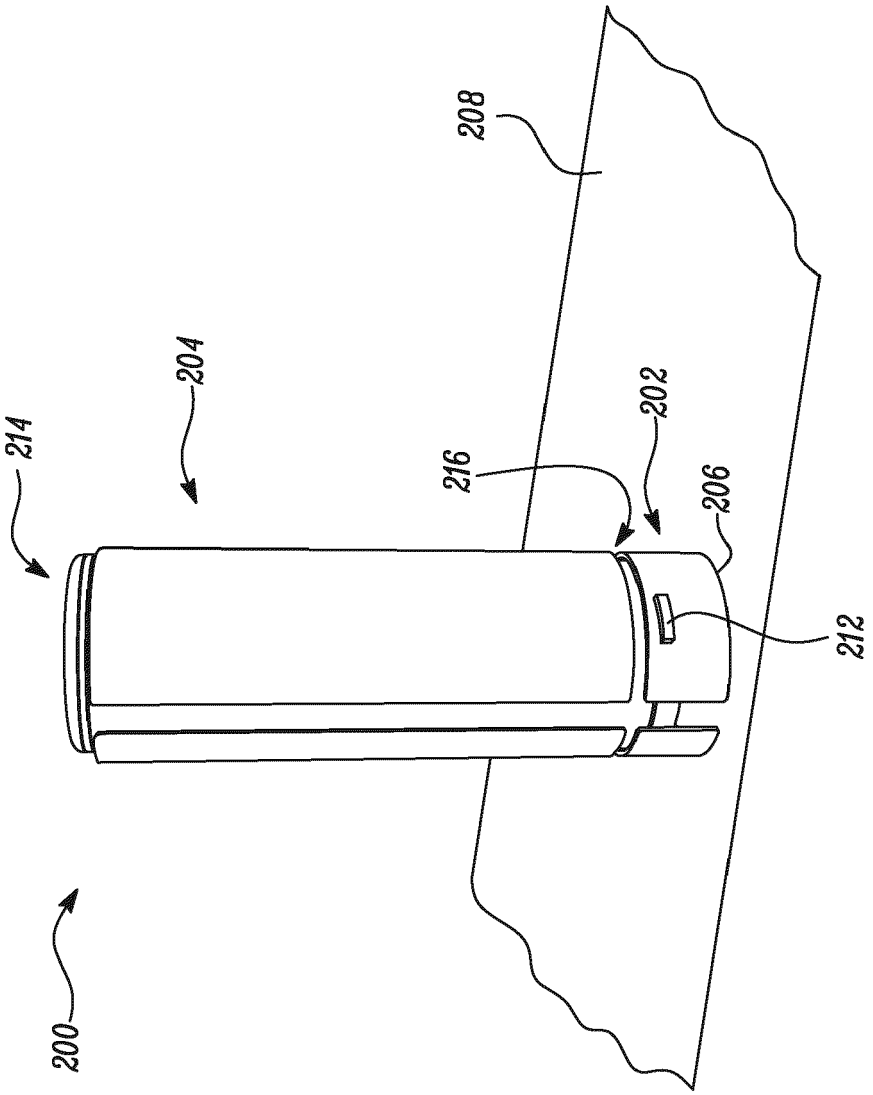


FIG. 2A

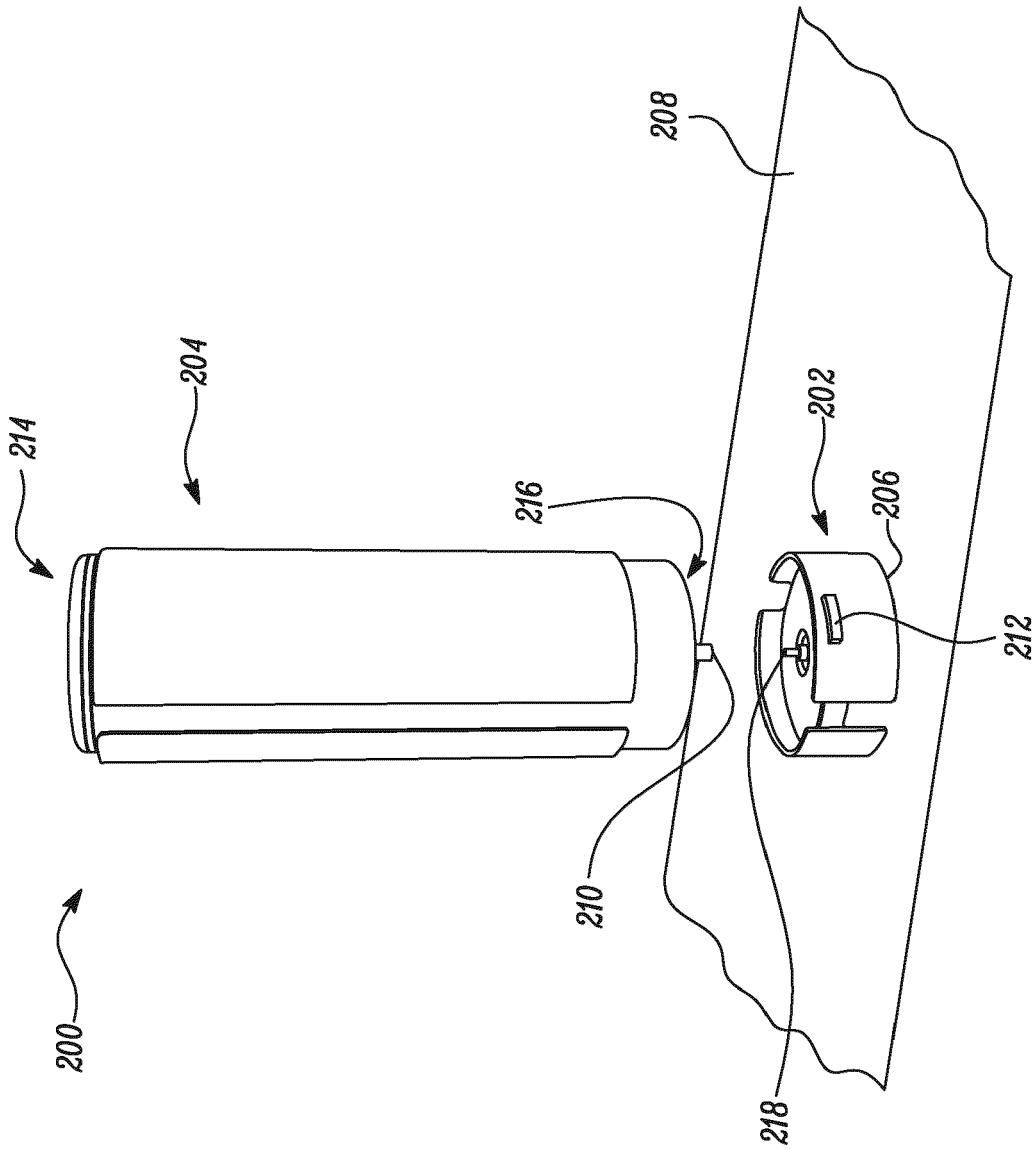


FIG. 2B

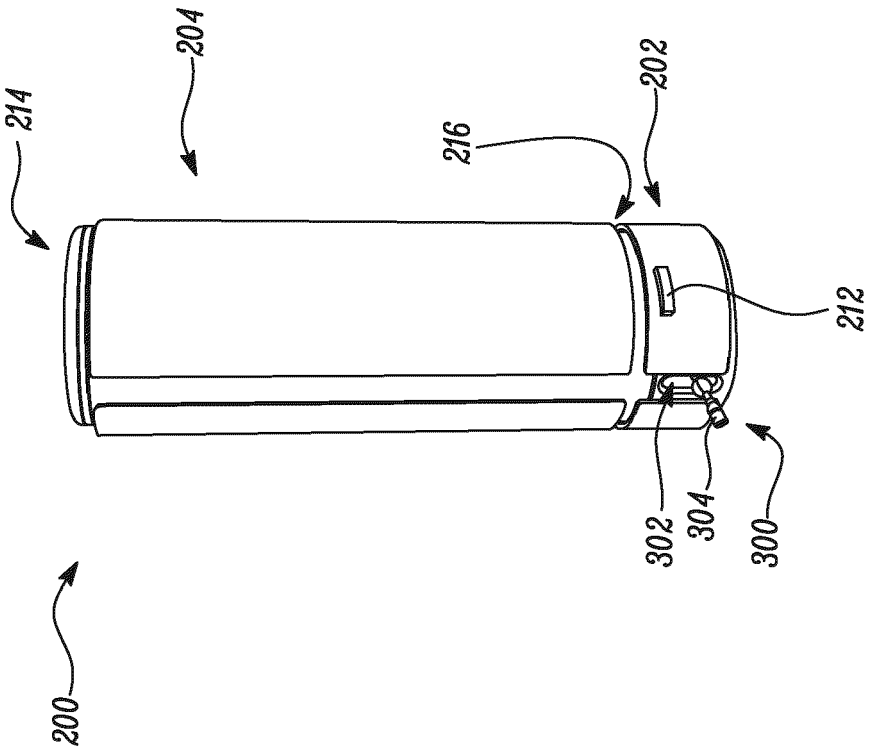


FIG. 3

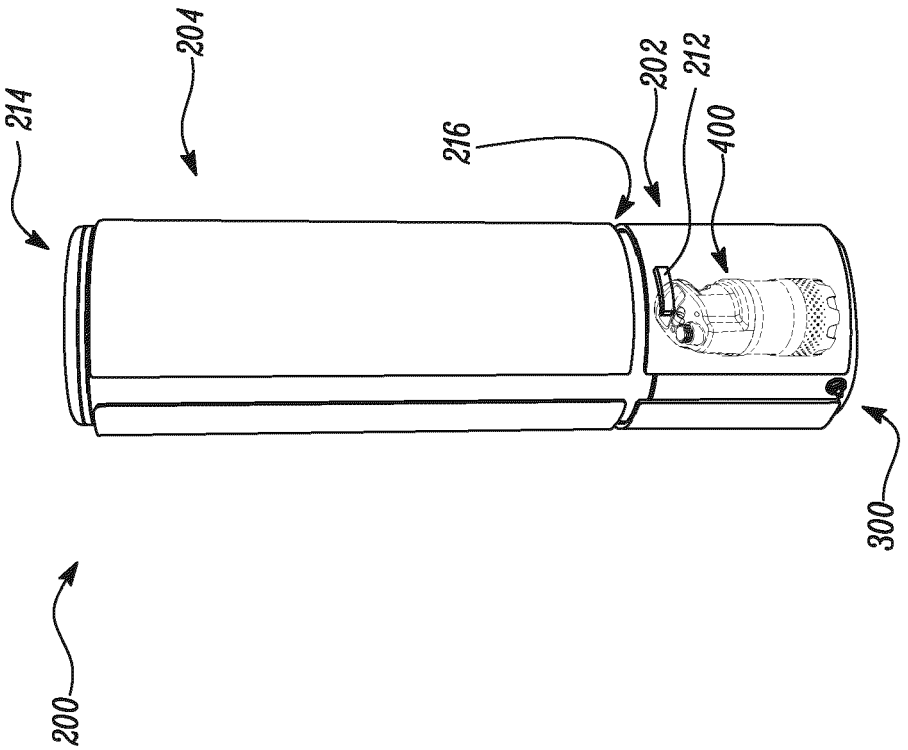


FIG. 4

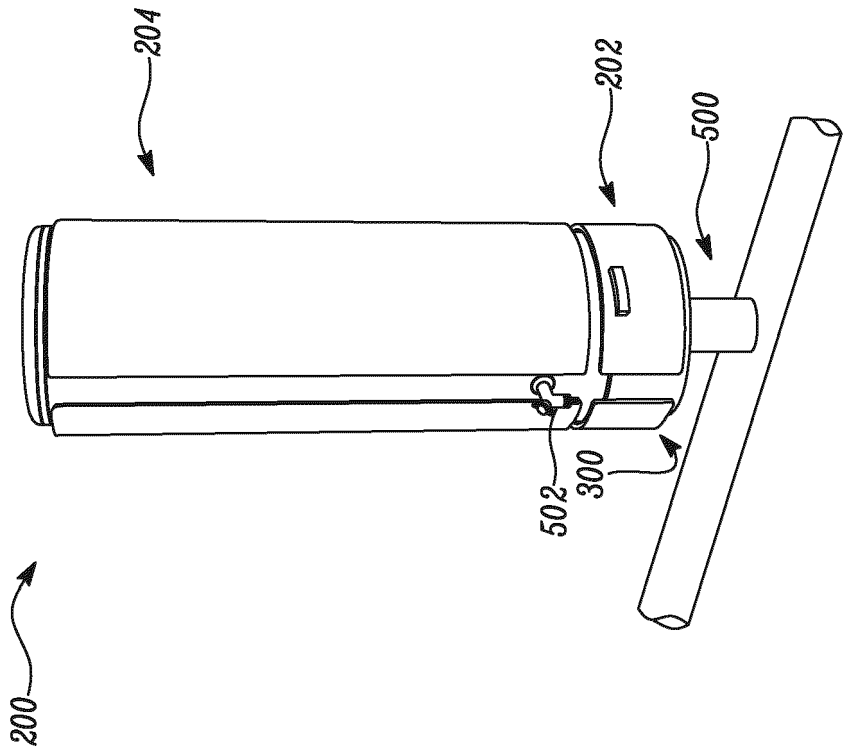


FIG. 5

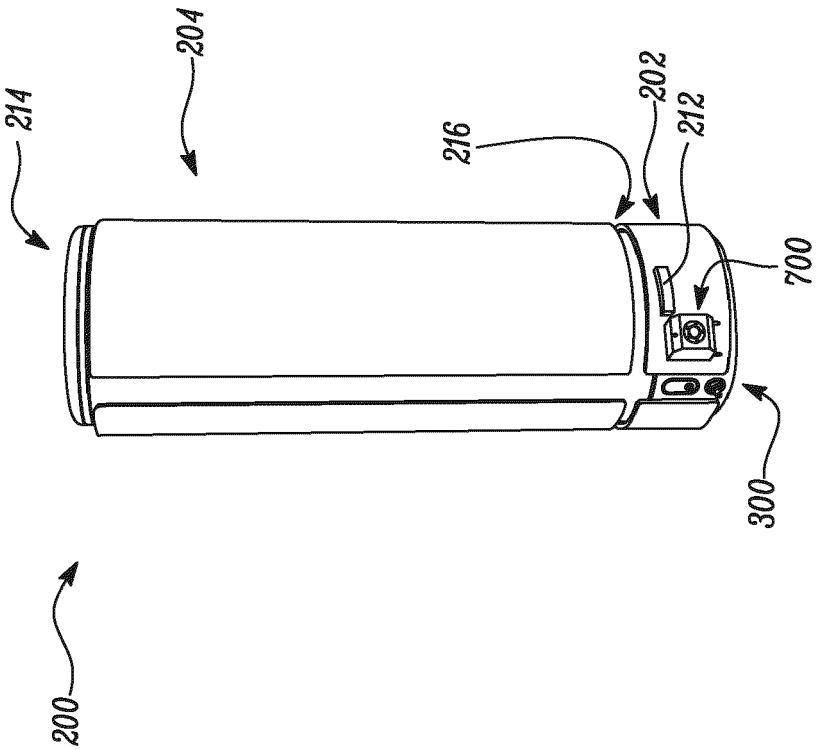


FIG. 6

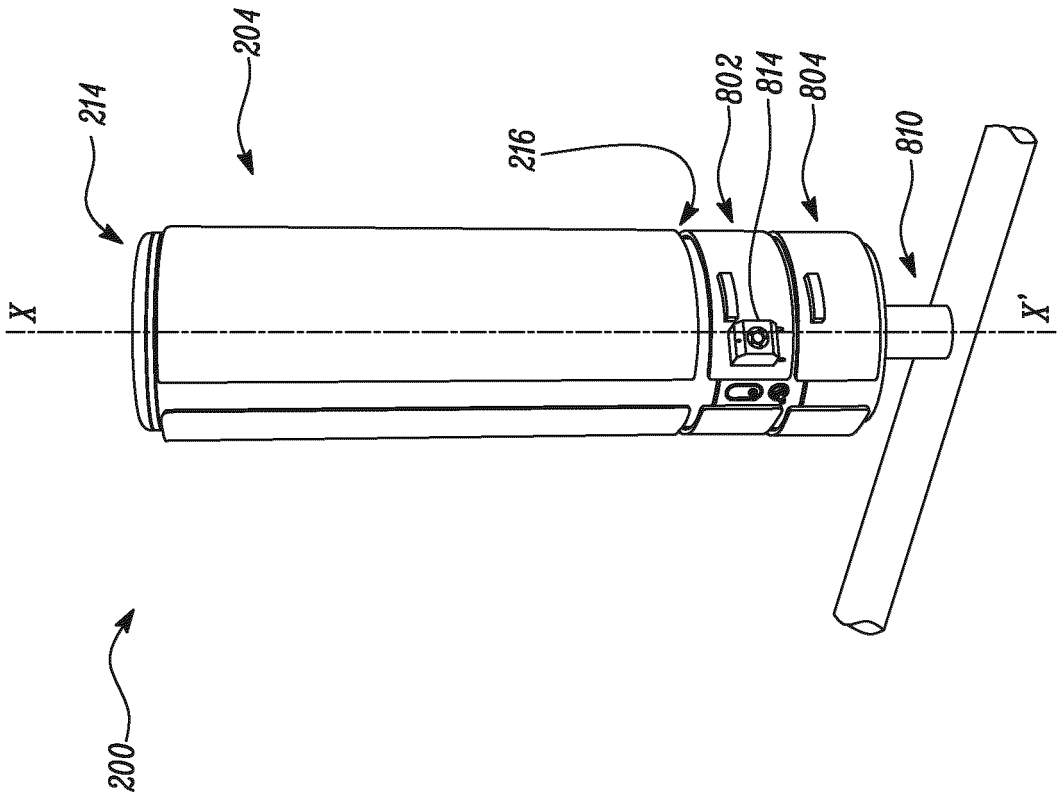


FIG. 7A

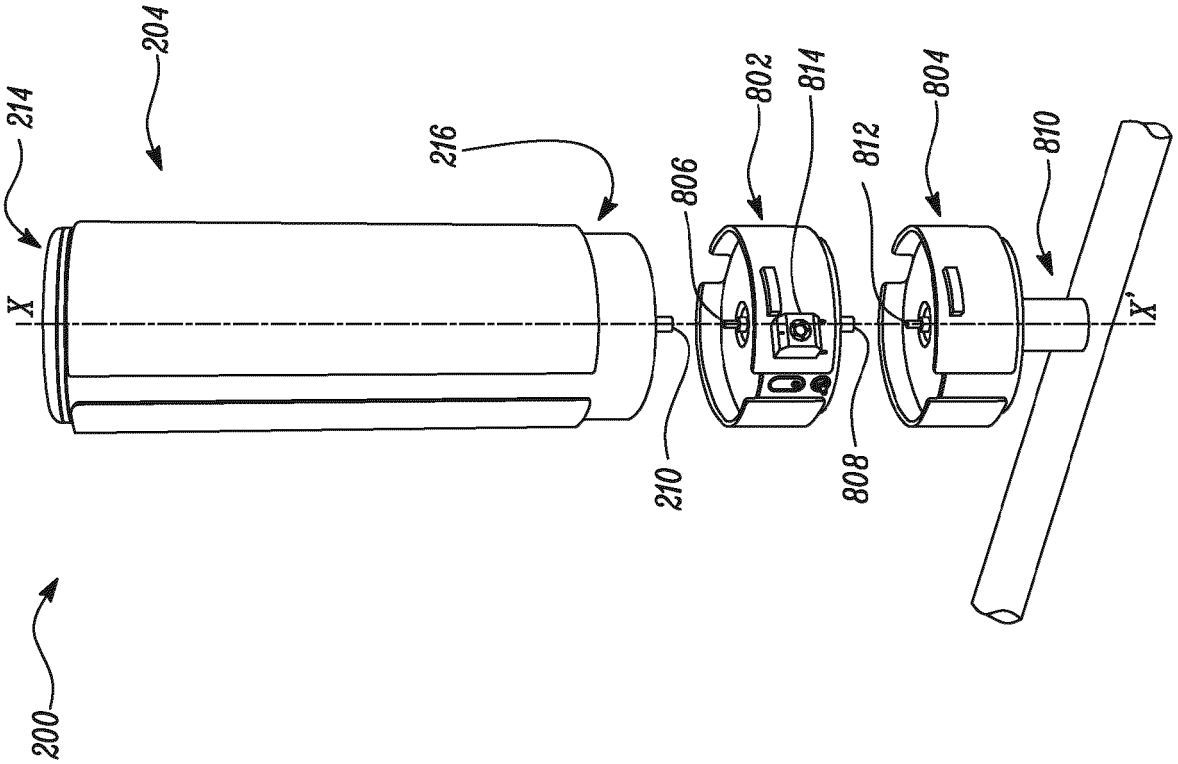


FIG. 7B

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European Patent Office
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EUROPEAN SEARCH REPORT

Application Number
EP 21 21 5214

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 587 380 A (BLUUMBOX LTD [GB]; UNIV BRUNEL [GB]) 31 March 2021 (2021-03-31) * figures 4-5b *	1,6,9-11	INV. E03B3/03
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X	CH 697 526 B1 (HANS GUENTER STURM DIPL ING [DE]; MARKUS MOEHRLE [DE]) 28 November 2008 (2008-11-28) * figure 2 *	1,5	
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A	* figure 3 *	8	TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	31 May 2022	Flygare, Esa

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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