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(54) Pull-rope actuated water play structure

(57) An interactive participatory water play system for entertaining and educating small and intermediate-age children is disclosed. The invention provides a pull-rope actuated water play structure that has associated with it a conduit system for supplying water from a pressurized source and a plurality of water play elements disposed on the play structure that allow participants to observe and experiment with various cause-and-effect reactions. Further, the pull-rope actuated water play structure provides a water forming device and a pull-rope actuator for allowing play participants to create a water effect in addition to a buoyant device floating in a container which is adapted to cause an audible effect to surprise one or more play participants when the vessel is sufficiently filled with water.

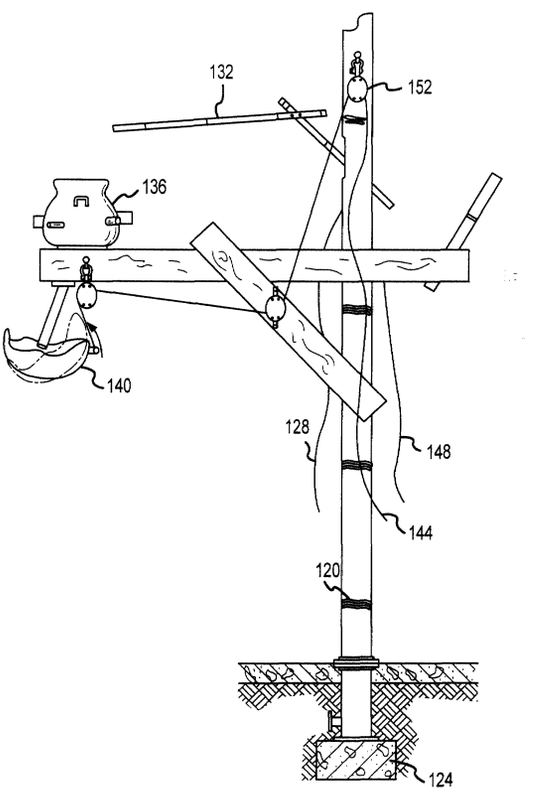

FIG.3

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to water play structures and, in particular, to an interactive participatory water play system for entertaining and educating small and intermediate-age children.

BACKGROUND OF THE INVENTION

[0002] The popularity of family-oriented water theme parks and recreational water facilities has increased dramatically in the last decade. Water parks have proliferated as adults and children alike, seek the thrill and entertainment of water parks as a healthy and enjoyable way to cool off in the hot summer months.

[0003] Most water them parks, like their dry counterparts, consist primarily of ride attractions. The most popular among these are water slides in which participants slide down a wet trough or tunnel and splash down into a pool of water. As demand for such water attractions has increased, water parks have continued to evolve ever larger and more complex water slides to thrill and entertain growing numbers of water play participants. Other popular ride attractions include surfing wave simulators, log flumes and white-water rafting. While these water ride attractions are very popular, particularly among older children and adults, a common complaint is that participants often must spend more time waiting in line for the various rides than actually riding on them. Also, many of the most popular water rides are unsuited for small children because of the inherent dangers of drowning or possible uncontrolled collision with other ride participants.

[0004] As a result, families with small children often have to split their time between either participating in the more popular rides or looking after the small children. While most water parks have recreational facilities for entertaining small children, they are generally limited to small wading pools, miniature water slides, and static play structures. While these may be moderately entertaining for small children, they fail to entertain parents or provide the creative stimulation and interactive educational experience that captivates the imaginations of small and intermediate-age children.

SUMMARY OF THE INVENTION

[0005] Accordingly, it is an object of the present invention to provide an interactive, participatory water play system that allows children of nearly all ages to play together and to combine their creative inspiration and imaginations to achieve various desired water effects. It is a further object of the present invention to provide a play structure that is entertaining for adults as well as children. It is a further object of the present invention to provide a single play structure in which the entire family can participate and interact with one another without having to wait in long lines.

[0006] In accordance with one embodiment of the present invention, an interactive, participatory water play system is provided for entertaining one or more play participants, The water play system comprises one or more support structures and one or more conduits for supplying water to various water play elements mounted in, on, or adjacent to the support structure. The conduit or conduits may be associated with the support structure, which may comprise a frame.

[0007] A first interactive participatory water play element is provided comprising a water forming device and a corresponding control actuator for allowing play participants to selectively control the water forming device to create a first water effect. A second participatory water play element receives water from the first water effect to create a second water effect. By activating the actuator, which may be accomplished by pulling on one or more ropes and/or by turning one or more valves and/or by moving one or more handles, play participants are able to control the order and magnitude of the water effects. Furthermore, play participants can observe and experiment with various cause-and-effect reactions involving multiple-order water effects. The use of pull-ropes further enhances this cause-and-effect mystery. This invention embodies pull-ropes rigged through one or more ship blocks and routed back and forth through a series of passages, which may include pulleys, so that the effect of each rope is not readily apparent to the play participants. Some valves, handles and/or pull-ropes may be configured to cause one or more local effects, while others may be configured to cause one or more remote effects, thus enhancing the play experience by requiring the participants to experiment to figure out the effect or effects of each valve, handle and/or pull-rope.

[0008] In accordance with another embodiment, an exciting new water effect is provided comprising a vessel such as a trough, giant bucket, cauldron, reservoir or other container for collecting water discharged from a water forming device. The vessel may be stationary, may be configured to produce a flow of water when filled to a desired level, and/or may be balanced and conditionally stable so that it spills over when filled to a desired level and/or when a play participant pulls on an associated pull-rope. The vessel may also be configured to create other dramatic visual and sound effects to allow the play participants to surprise, entertain and amuse themselves along with other play participants.

[0009] In accordance with yet another embodiment, a multiple-order water effect is provided for allowing play participants to observe and experiment with various cause-and-effect reactions involving water. The water effect comprises a first participatory water play element having an incoming flow of water controlled by one or more play participants to create a first water effect. A second participatory water play element is provided for receiving water from the first water effect to create yet

a second water effect. By controlling the first and second water play elements with hand wheels and pull-rope actuators, play participants can observe and experiment with various multiple-order cause-and-effect reactions involving water. Additionally, the use of multiple-pull-rope actuators adds an element of mystery and surprise. The play participants can experiment with the different ropes to discover what each does. Furthermore, because many of the ropes are rigged through ship blocks, it may not be readily observable what each rope will do when pulled on, thus enhancing the surprise element when a participant discovers what effect each rope will have.

[0010] In accordance with yet another embodiment, a structure conveying a them, such as resembling a ship complete with a series of ropes and ship blocks, are provided for children to experiment with and control remote effects by pulling on the various ropes. For example, one rope may open the water supply valve which allows a reservoir to be filled with water, the water from the reservoir may then either be selectively or automatically distributed to a number of other water effects which are then, in turn, controlled by corresponding pull-ropes. A play participant may pull a rope which tips and dumps the water contained in the reservoir, pull another rope to actuate a shower of water, or pull yet another rope which causes the water to spill through a water-wheel which turns and may control a number of visual or sound effects. It should be appreciated that the pull-ropes are designed to be the proper length for small and intermediate-age children to reach them, but no too long so as to pose a hazard.

[0011] These and other objects and advantages of the present invention will become readily apparent to those skilled in the art from the following detailed description of the preferred embodiments having reference to the attached figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Figure 1 is a plan view of the pull-rope actuated play structure.

[0013] Figure 2 is a side elevational view of the structure showing various water play elements with their associated pull-rope actuators.

[0014] Figure 3 is a front elevational view of one mast of the structure showing various water play elements with their corresponding pull-rope actuators.

[0015] Figure 4 is a front elevational view of another mast of the structure showing other interactive water play elements.

[0016] Figure 5 is a plan view of one mast of the water play structure in the form of a vessel which spills into a reservoir containing a floating element.

[0017] Figure 6 is a font elevational view of various interactive participatory water play elements in the form of a rotatable water supply, water-wheel, tipping reservoir, and multiple-order water troughs.

[0018] Figure 7 is a rear elevational view of the water play structure of Figure 6.

[0019] Figure 8 is a plan view of the water play structure of Figure 6 showing the rotatable water supply which play participants selectively control to provide water to various water play elements.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0020] U.S. Patent No. 5,194,048, first disclosed the concept of participatory water play in which play participants can operate any one of a number of valves to adjust the amount of water spraying from one or more associated nozzles. Play participants adjust the various valves and can immediately observe the change in the rate of water flowing from the various associated nozzles. This allows participants to experiment with and learn about first order cause-and-effect reactions using a familiar and entertaining medium, mainly water.

[0021] In addition, U.S. Patent No. 5,820,471 improved and expanded upon that theme of participatory water play by introducing second, third, and even higher order water effects which may be created or activated by a particular combination of other water effects. Some water effects may have immediate results, while others may have delayed or require a combination of water effects to have a result. Some water effects may be local, while others may be remote.

[0022] The present invention improves and expands upon the previous inventions by adding the elements of pull-rope actuators and audible effects in additional to the visual effects. This improvement not only allows children to control the beginning of the chain of events, but to also control the intermediate water effects to reach the desired result. Additionally, play participants can alter the chain of event by having control of the intermediate water effects.

[0023] The following figures illustrate a couple of possible embodiments of a pull-rope actuated play structure having features of the present invention. This particular interactive water play system is provided in the form of a dug-out canoe situated in a remote island setting made complete by corresponding island living amenities. The first order water elements are located at or along the canoe's mast which, in turn, conveys the water to the second and higher-ordered water elements. Of course, those skilled in the art will readily appreciate that the participatory water play system of the present invention is not limited to this one preferred embodiment, but may be implemented in accordance with a wide variety of other possible exciting play themes. For example, a pirate's ship, submarine, medieval castle, lost temple, or a fire station, can each provide exciting play themes for participatory water play systems having benefits and advantages as taught by the present invention.

[0024] Figure 1 illustrates a plan view of one embodiment of the present invention showing a dugout canoe

20 theme with its various water play elements. The masts of the boat support some of the water play elements along with their corresponding pull-rope actuators. The pull-rope actuators are routed through a series of ship blocks **22** which make the effect of pulling the rope not visually apparent. Thus, a play participant may experiment with each pull-rope to determine its effect. The effect may be to dump water on the play participant, convey water to the next-ordered water element, or have some remote effect away from the play participant. In this embodiment, play participants can operate the manual pump **24** defined by the out-rigger structure of the canoe which pumps water to the top of the mast. The water is selectively distributed to a vessel, such as a tipping cauldron **28**, which tips and dumps its contents when a desired level is reached. The water spills through a water wheel gear **32** meshed with another wheel gear **36** which controls a drum beater **40** that beats a thundering drum **44.**

[0025] Figure 2 is a front elevational view of one embodiment of the present invention showing a simulated bamboo mast with various water play elements. This embodiment shows a simulated bamboo pole **120** firmly cemented in the ground by a concrete footer **124**. An underground water supply line supplies water to the structure. Play participants pull on the vessel feed rope **128** which opens the valve on the vessel feed **132**. The vessel feed **132** fills the spouting vessel **136**, which contains exit spouts to allow the water to exit the spouting vessel and spill on the play participants below and fill the tipping vessel clam shell **140**. The play participants can then pull the clam shell tip pull-rope **144** to dump the contents of the tipping vessel clam shell **140** on unsuspecting play participants below. Additionally, a coconut spouts pull-rope **148** may be pulled to actuate a simulated coconut shower **232.**

[0026] Figure 3 is a side elevational view of the water play structure of Figure 2. This figure adequately represents the relative positioning of the various water play elements. It will be appreciated that the pull-ropes are routed through pulleys simulating ship's blocks **152** to further the theme and to allow the proper directional force to be applied to the corresponding water element to achieve the desired water effect.

[0027] Figure 4 is a front elevational view illustrating another embodiment of the present invention still carrying the remote island theme. In this embodiment, water is supplied to the ground-level tub **220.** A play participant must manually operate the 1-man pump **224** which sends water up the interior of the simulated bamboo mast **228** and exits the coconut shower **232.** As the water exits the coconut shower **232,** it fills a tipping vessel **236.** A play participant may then selectively pull the tipping vessel pull-rope **240** which dumps the water into an internal float tank **248** hidden by a bamboo curtain **252.** As this process is repeated, a floating object, in this case in the form of a rising tiki **244,** rises from behind the bamboo curtain **252** and may trigger sound effects to surprise and entertain the play participants. The water may be emptied from the internal float tank **248** by operation of another coconut shower pull-rope **256** which actuates the coconut shower **260**. As the coconut shower **260** is actuated, the rising tiki **244** disappears behind the bamboo curtain **252** and the process may be repeated.

[0028] Figure 5 is a plan view of the structure of Figure 4 showing another view of the described structure. It should be appreciated that a play participant, standing at the base of the bamboo mast, can operate the pump and pull-ropes to remotely raise the rising tiki head to surprise and entertain play participants located near that part of the structure.

[0029] Figure 6 is a front elevational view and another embodiment of the present invention. In this embodiment, a play participant controls the flow of water by means of a flow control hand wheel **320**. The water supply travels up the bamboo mast and exits the rotating pipe fall **324**, which may be selectively rotated to supply water to either the water wheel **328** or the tipping vessel, in this case a clam shell **332**. As water passes through the water wheel **328**, it spills into a tipping trough **336** which automatically tips and dumps the collected water onto the play participants below. A play participant may turn the pipe fall hand wheel **326**, which turns the rotating pipe fall **324** to deliver water to the tipping vessel, in this case the clam shell **332**. As the tipping vessel clam shell **332** fills with water, it will automatically tip to spill the water into a bamboo trough **344** which contains an exit pipe **348** to deliver the water to a multi-ordered runnel set **340**. The water will spill through the subsequent runnels and eventually onto a waiting play participant below.

[0030] Figure 7 is a side elevational view of Figure 6 illustrating the structure and sequence of events triggered by the tipping vessel clam shell **332.** It should be appreciated that a play participant operating the hand wheel **320** through a chain of events, can cause water to flow through the system and spill remotely from the lower-most runneL

[0031] Figure 8 is a plan view of the structure of Figure 6 showing the relative orientation of the water play elements. Again, it should be appreciated that a play participant, operating the pipe fall hand wheel can start a sequential chain of events resulting in a remote spilling of water from either the tipping trough **336** or the lowermost runnel.

[0032] Although this invention has been disclosed in the context of certain exemplary embodiments, it will be understood by those skilled in the art that the present invention extends beyond the specifically disclosed embodiments to other alternative embodiments of the invention. Thus, it is intended that the scope of the present invention herein disclosed should not be limited by the particular disclosed embodiments described above, and should be determined only by reference to the following claims.

Claims

1. A pull-rope water play structure comprising:

a support structure (228);
a conduit system;
a plurality of water play elements; and
at least one pull-rope actuator (128,144,148,240,256);

characterized in that said conduit system is for supplying water from a pressurized source;

said conduit system is associated with said support structure;
said water play elements are disposed on said support structure;
said water play elements comprise at least one water-forming device;
said at least one pull-rope actuator corresponds to at least one of said water play elements; and **in that**
said at least one pull-rope actuator is for allowing play participants to create an effect;
whereby play participants can observe and experiment with at least one cause-and effect reaction using said at least one pull-rope and water.

2. The water play structure of claim 1, wherein said effect comprises an audible effect and/or a visual water effect.

3. The water play structure of claim 1 or claim 2, wherein said structure creates the appearance of a dug-out canoe (20) having a mast.

4. The water play structure of claim 3, wherein said elements are located along said mast.

5. The water play structure of claim 3, wherein said pull-rope actuators are located along said mast.

6. The water play structure of claim 3, wherein said pull-rope actuators comprise a rope routed through a series of ship blocks (22,152).

7. The water play structure of claim 1 or claim 2, wherein said structure creates the appearance of any one of;

a pirates ship;
a submarine;
a castle;
a bamboo pole (120);
a temple, or
a fire station.

8. The water play structure of any one of claims 1 to 7, wherein said effect comprises dumping water on the play participant.

9. The water play structure of claim 8, wherein said water-forming device comprises a vessel (28,140,236,332,336).

10. The water play structure of claim 9, wherein said vessel (28,140,236,332,336). is adapted to tip when filled to a desired level.

11. The water play structure of claim 9, wherein said vessel (28,140,236,332,336) is adapted to produce a flow of water when filled to a desired level.

12. The water play structure of claim 11, wherein said flow of water is through at least one water wheel (32,328) and said water wheel is adapted to cause an audible effect (40,44) in response to said flow of water.

13. The water play structure of any of claims 1 to 12, wherein said pressurized source is a manual pump (24).

14. A water play element comprising;

a buoyant device (244);
said device floating in a container (248);
said device rising as one or more play participants cause the container to be filled with water;
said device causing an audible effect when said device rises above a pre-determined level;
said audible effect configured to surprise one or more play participants.

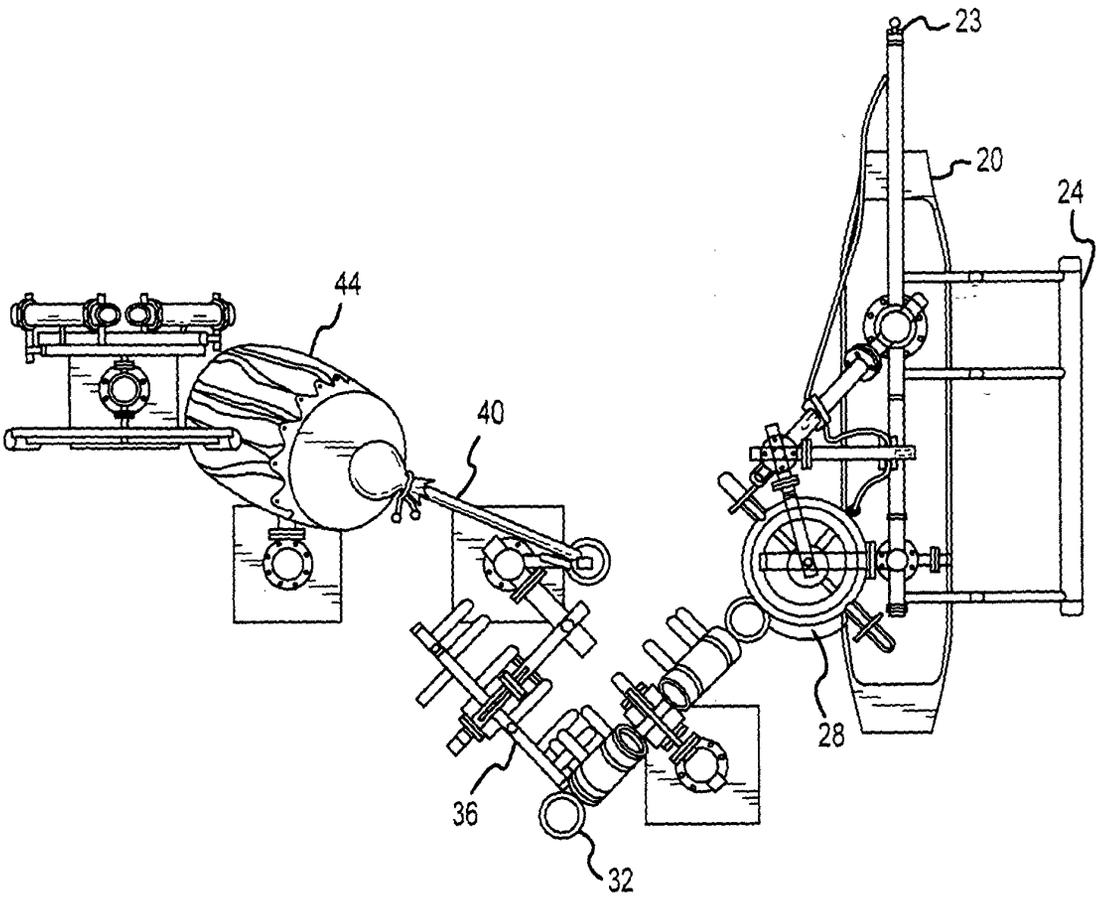

FIG.1

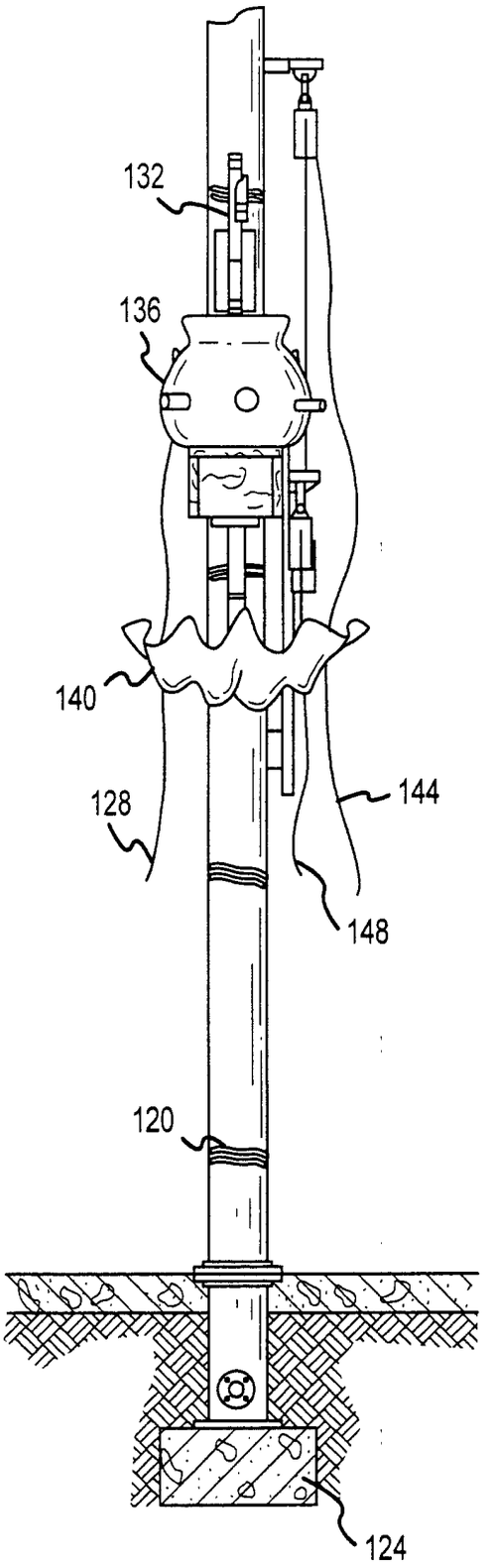

FIG.2

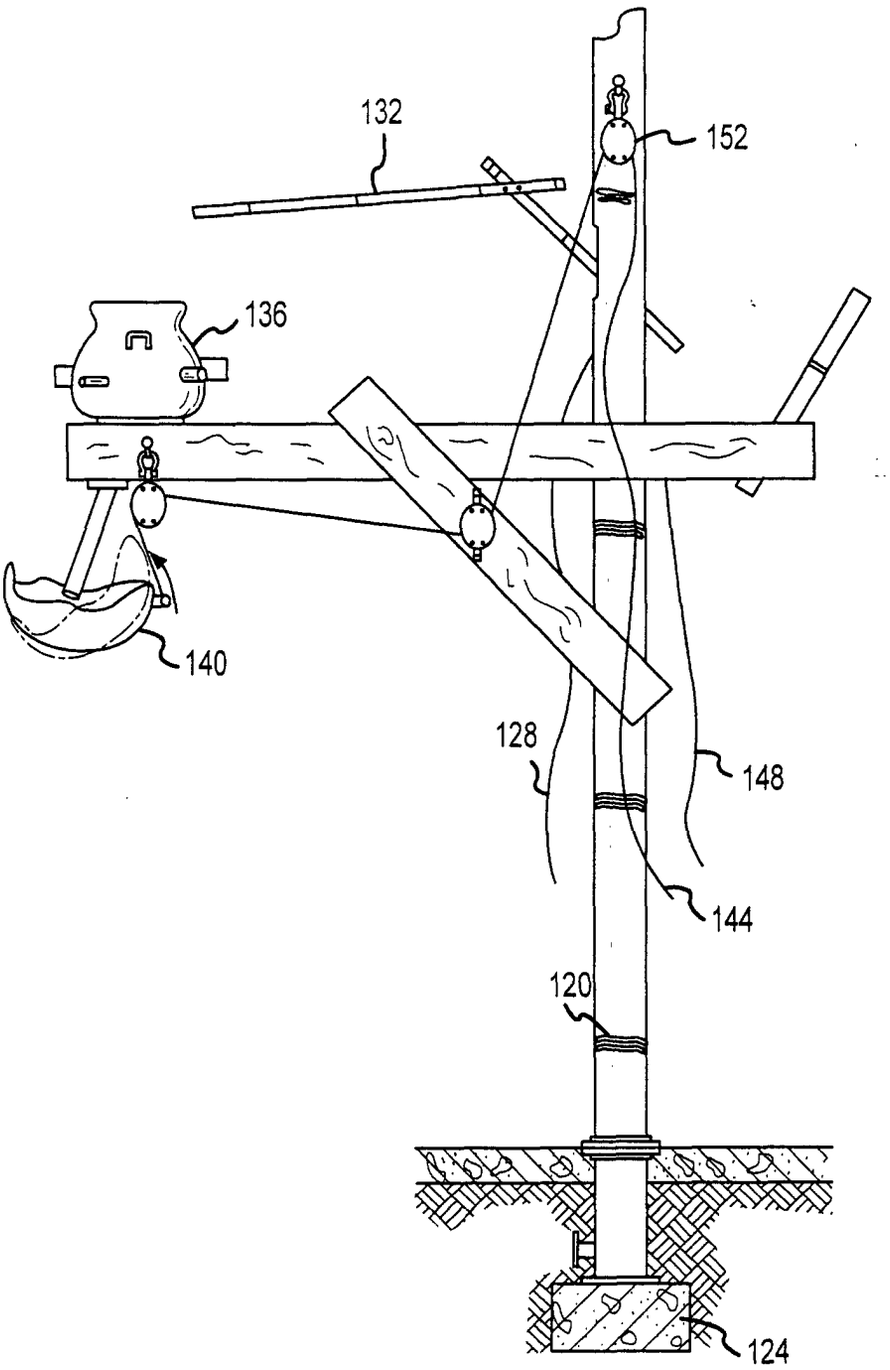

FIG.3

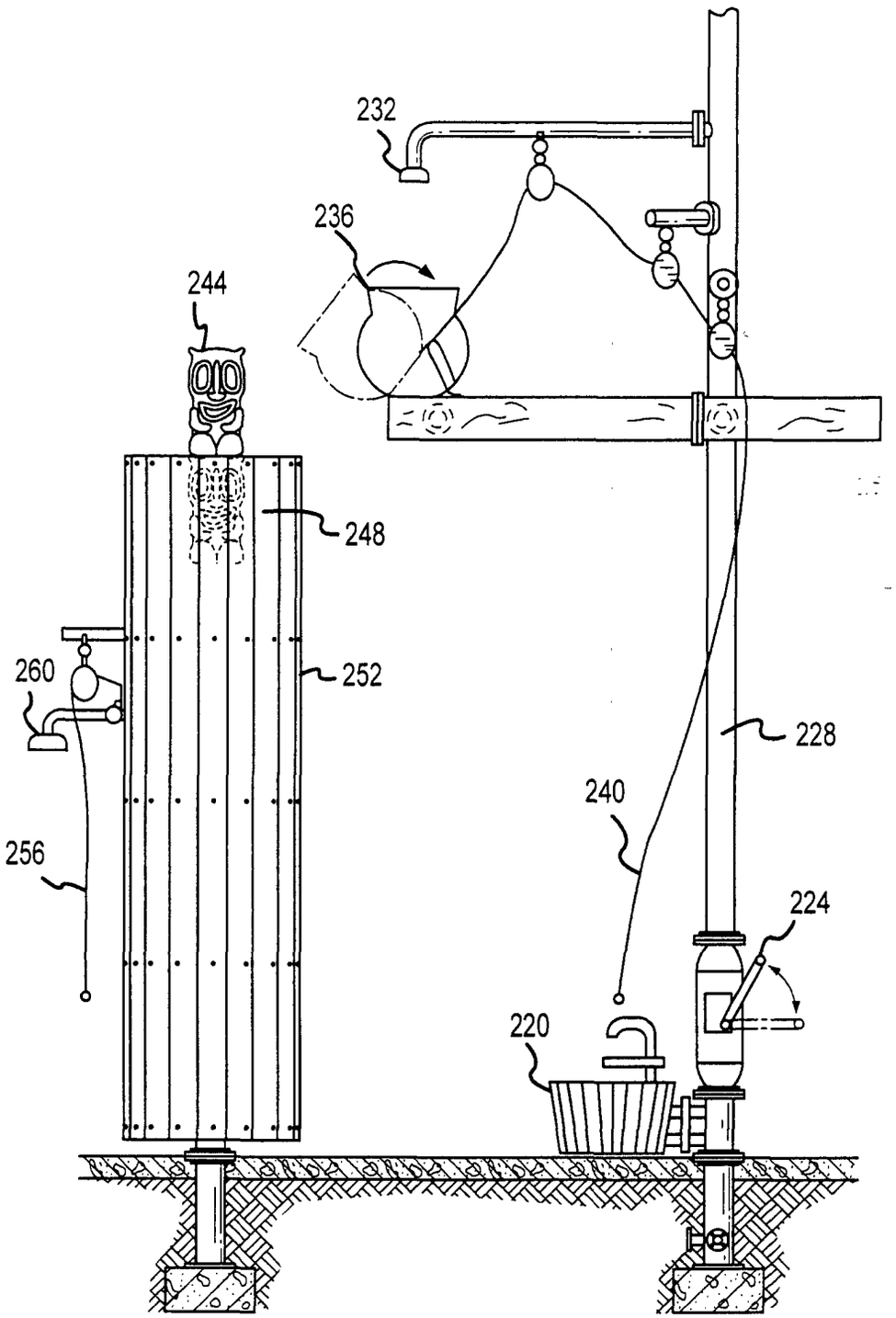

FIG.4

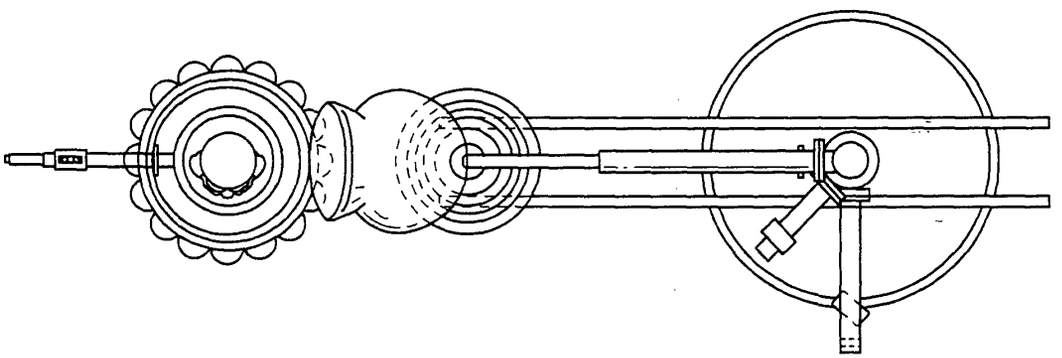

FIG.5

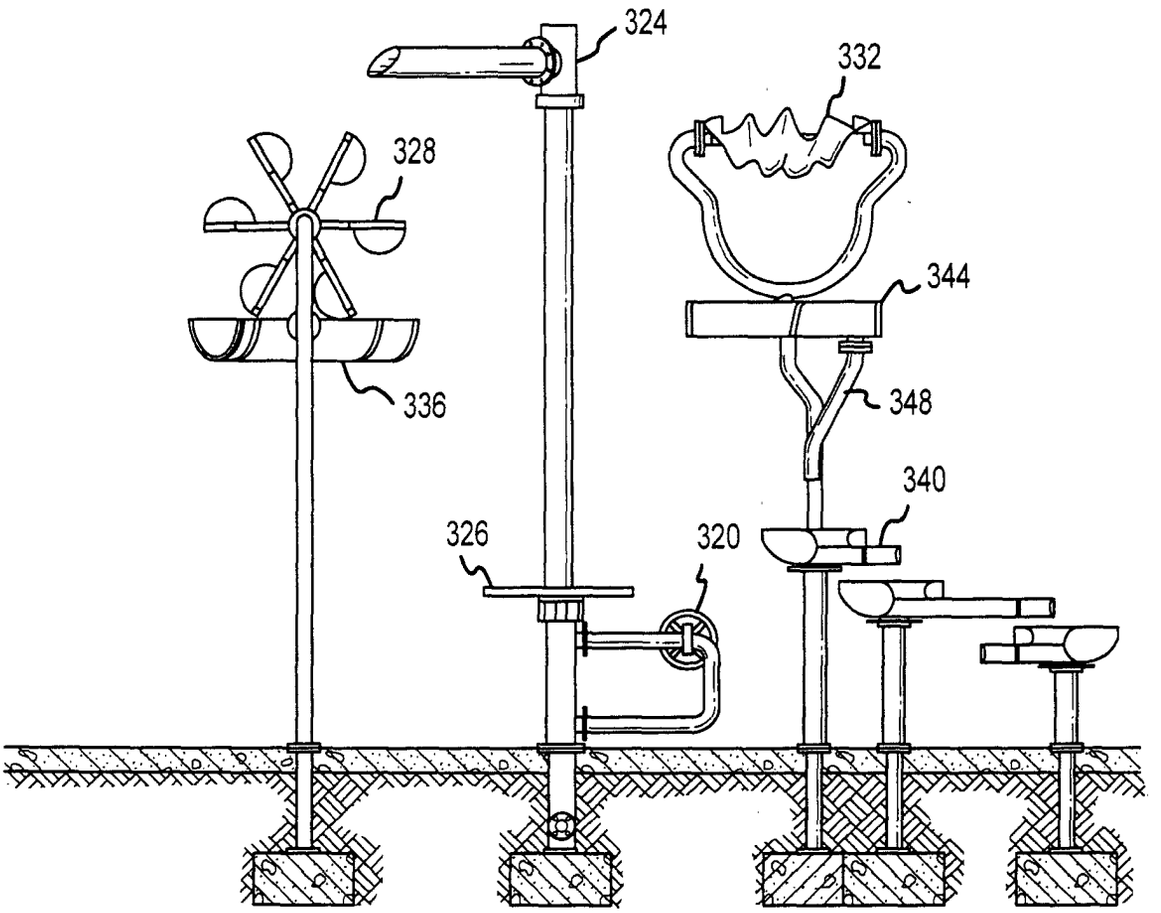

FIG.6

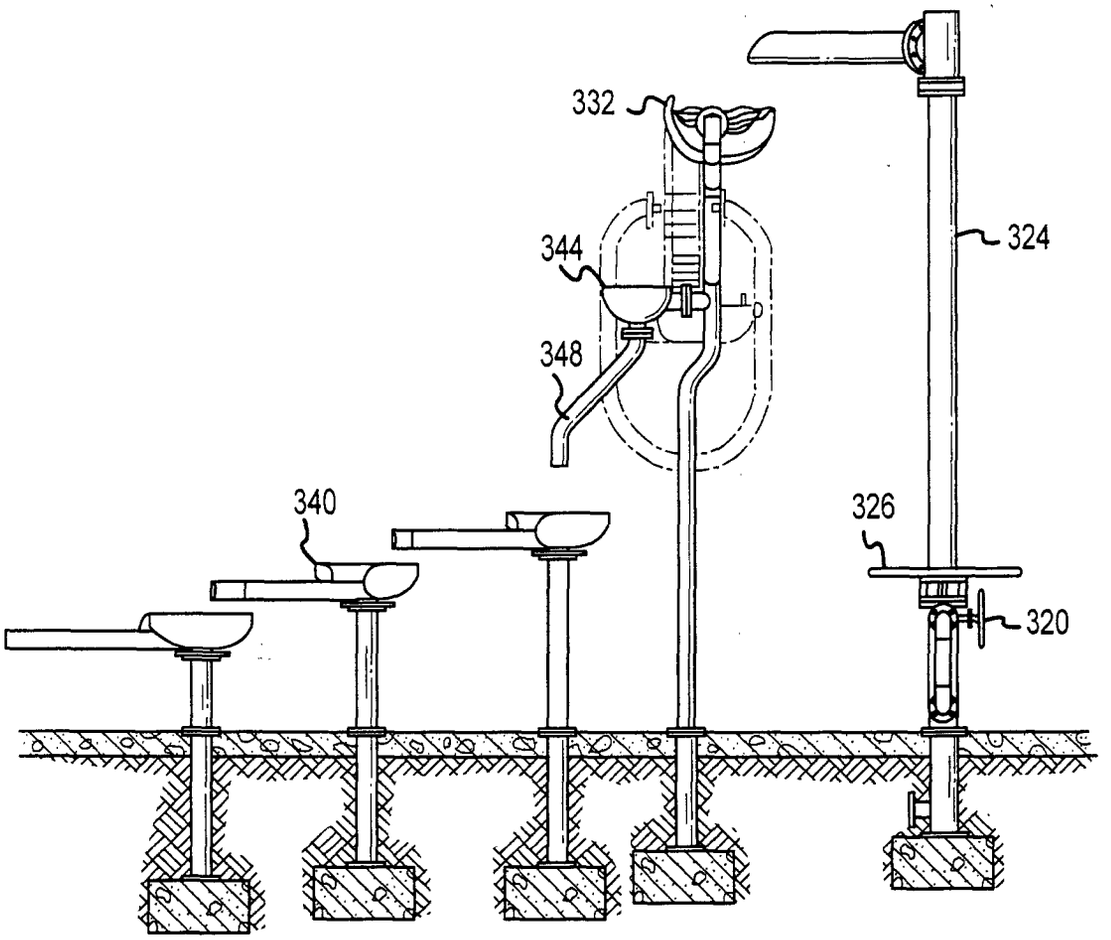

FIG.7

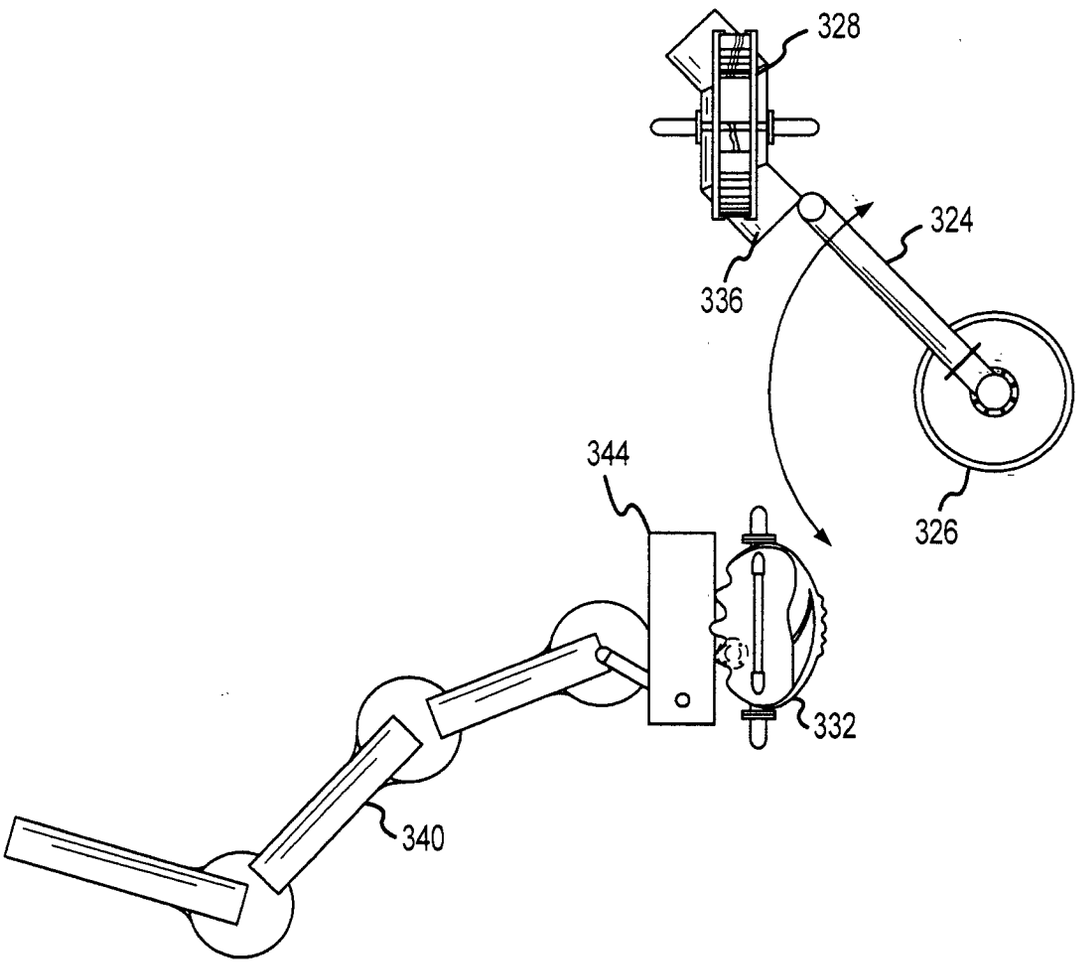

FIG.8