TIME-CONFIGURABLE WATER PARK AMUSEMENT RIDE

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Appl. No.: 10/267,329
Filed: Oct. 8, 2002

Related U.S. Application Data

Provisional application No. 60/328,318, filed on Oct. 9, 2001.

Publication Classification

Int. Cl. A63G 21/18

U.S. Cl. 472/117

ABSTRACT

A time configurable water amusement ride of a type including a water course having a floor and upstanding walls for sustaining and directing a flow of water along a water path, a first set of water features along said water path and a second set of water features along said water path. The water course is divided into several thematic zones of activity such as depth charge zone, pipe forest zone, tipping bucket zone, etc. The ride includes a first set of features and a second set of features arrayed along the ride. A timer coupled to the second set of features includes an activation period having a start time and an end time wherein the second set of features are only active during said activation period. Accordingly, the ride can be configured to have repeatable periods throughout the day where only more sedentary features are active, and other periods where more extreme features are active to cater to different participants throughout the day.
FIG. 4

FIG. 6
FIG. 7
TIME-CONFIGURABLE WATER PARK AMUSEMENT RIDE

BACKGROUND OF THE INVENTION

[0001] This invention relates generally to water-based rides and more particularly to an amusement ride that changes over periods throughout the day.

[0002] Water-based amusement rides of varying sorts are well known in the industry. Such rides, however, give one a repeatable experience over several uses thus decreasing the enjoyment of the ride over time.

[0003] One such water-based amusement device intended to address this deficiency is U.S. Pat. No. 6,045,449 (Aragona) owned by the assignee of the present invention. The ’449 patent discloses a two-dimensional playing surface with human interactive elements arrayed along the playing surface to provide both water play elements and movement inducing devices. The end result is that a rider can enjoy nearly an infinite number of paths along the amusement ride and thus maintain enjoyment of the ride over many uses.

[0004] An important element of successful rides is to carefully balance surprise and anticipation. A successful balance will help achieve a full range of emotions with the rider of the amusement device. Furthermore, the ride should include a full range of attractions appropriate to every age group. That is, the ride should allow for those wanting a more sedentary experience as well as those wanting an extreme experience. Thus far, achieving this balance in a single ride has been very difficult.

[0005] Accordingly, a need remains for an amusement ride that addresses the deficiencies of the prior art.

SUMMARY OF THE INVENTION

[0006] Briefly, the ride comprises two inventive elements: (1) the ride has two differing activity periods that alternate between high paced (crazy) and low (lazy) depending upon the time of day or some other factor; and (2) the ride is broken up into multiple [e.g., seven] thematic zones of activity, each including various interactive elements that are enabled only during the “crazy” periods in which spectators or even participants of the ride can activate different features of the ride affecting others.

[0007] A time configurable water amusement ride of a type including a water course having a floor and upstanding walls for sustaining and directing a flow of water along a water path, a first set of water features along said water path and a second set of water features along said water path. The water course is divided into several thematic zones of activity such as depth charge zone, pipe forest zone, tipping bucket zone, etc. The ride includes a first set of features and a second set of features arrayed along the ride. A timer coupled to the second set of features includes an activation period having a start time and an end time wherein the second set of features are only active during said activation period. Accordingly, the ride can be configured to have repeatable periods throughout the day where only more sedentary features are active, and other periods where more extreme features are active to cater to different participants throughout the day.

[0008] The foregoing and other objects, features and advantages of the invention will become more readily apparent from the following detailed description of a preferred embodiment of the invention that proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a top plan schematic view of a water park amusement ride constructed according to a preferred embodiment of the invention.

[0010] FIG. 2 is a top plan detail view of the amusement ride of FIG. 1.

[0011] FIG. 3 is a block diagram illustrating the operational components of the invention to implement the time-configuration feature of the invention.

[0012] FIG. 4 is a graph showing the operational change of the water park amusement ride of FIGS. 1-3 during different time periods.

[0013] FIG. 5 is a side view schematic of a water feature of the invention.

[0014] FIG. 6 is a block diagram schematic of an alternate water feature of the invention.

[0015] FIG. 7 is a side view schematic of a second alternate water feature of the invention.

DETAILED DESCRIPTION

[0016] FIG. 1 is a top plan view of a schematic of the water amusement ride constructed according to a preferred embodiment of the invention. The ride 10 is defined by a water course 12 having upstanding walls for sustaining and directing a flow of water along a water path, defined in the embodiment shown as a closed loop. The water course 12 passes through a plurality of water features organized into a plurality of thematic zones. The water features are organized into a first set of features comprising more sedate water features, such as gentle water jets, and a second set of features comprising more extreme features such as the interactive features discussed further below and found in applicant’s patent U.S. Pat. No. 6,045,449.

[0017] The zones included in the present embodiment include a depth charge zone 16, an arch jet zone 18, a splat zone 20, a large tipping bucket zone 22, a mysterious ancient ruins zone 24, a bridge zone 26, and a pipe forest zone 28. Each of these zones includes interactive water features, described below, that are active only during predetermined time periods throughout the day (see, e.g., FIG. 4). For reasons that will be appreciated with the discussion below, operation of the ride of FIG. 1 during these active periods is called “Crazy River”, where the most extreme of the water features are active, while operation at other times is called “Lazy River”, where the extreme water features are inactive.

[0018] Water is directed along course 12 around the ride by means such as water jets that are well-known in the art and thus not discussed in detail here. As water features add water to the water course, excess water must be drained, as through drain gates 30, 32 arrayed along the bottom of the water course 12, to prevent the water from spilling over the walls 14 ride. Riders board a floatation device, such as a raft or inner tube 34, at a ride start point 36 and move along the water path through the zones under the gentle guidance of the water flow. Upon reaching the end point 38, the riders
move up out of the water. In addition to the water course 12 portion of the ride 10 in which the participants are accommodated, the ride also includes a spectator area adjacent the water course. Examples of the spectator area shown in FIG. 2 include adjacent path 40, bridge 42, and interior track 44.

[0019] FIG. 2 illustrates the ride 10 of FIG. 1 along which are arrayed various interactive water features organized into various thematic zones. These zones are discussed in more detail below.

[0020] The participants in the river can control and vary their speed and direction by paddling their tubes with their arms and hands as they are floating around the river. They can maneuver themselves to avoid being “hit” by spectator-operated devices located around the perimeter of the river, and also to negotiate their position toward triggering devices suspended above the river and near the sidewalls of the river. The triggering devices that are operated by the spectators can cause water sprays or playful explosions directed at the participants in the river. Likewise, the participants in the river can trigger similar devices to interact with the spectators around the river. The activities can be controlled either mechanically or via PLC or computer.

[0021] The other primary feature of the present invention is the constant fluctuation of crazy and lazy throughout the day. For instance, the lazy feature may run for about a half an hour where there are no interactive operating, which will allow Moms and Dads to relax without getting too wet. Then for about a half an hour, the interactive will turn on and the area becomes crazy while the interactive exchange between spectators and participants become the key ingredient. Then the river will go back to lazy, and back to crazy all day long.

[0022] FIG. 3 illustrates a block diagram of the operational elements of the ride that enable activation of extreme water features only during certain time periods throughout the day. The ride play area 10 includes a first set of water features 46 and a second set of water features 48. In a preferred embodiment of the invention, the first set of water features are the sedate features intended to operate the water park amusement ride in a first, or Lazy, mode. The second set of features are those interactive features described further below that give the participants a more exciting experience. It is understood, of course, that the concept underlying the invention does not require a first set of features, or that the second features be exciting. Rather, the inventive concept is intended to embody all amusement rides that allow certain features of the ride to be active during certain times of the day.

[0023] FIG. 4 illustrates how such time periods are programmed to occur during certain time periods throughout the day. The ride is active in either a lazy time period, such as period 50, or in a crazy time period, such as period 52. Lazy and crazy time periods are contiguous so that one or the other time periods are active—that is, the ride operates in either a lazy mode or a crazy mode. It is understood that the ride can be configured to operate in more than two modes using the principals disclosed herein. For instance, the ride could be implemented using the inventive concepts disclosed so that the extreme features activate progressively in groups as the Crazy time period approaches so that the ride becomes more and more extreme. Alternatively, the ride can be implemented so that certain thematic zones are active only during certain time periods.

[0024] In a preferred embodiment of the invention, a single pump 54 feeds water to all the interactive elements of water feature set 48. The pump always runs, but there is a diverter valve 56, controlled by a timer 58 along signal path 60, that directs water back along pipe 62 to the water recycle pit 64 when the ride is in a Lazy River time period. Diversion of the water during this Lazy River time period thereby bypasses the interactive water features 48.

[0025] In a preferred embodiment of the invention, a single pump 54 feeds water to all the interactive elements of water feature set 48. The pump always runs, but there is a diverter valve 56, controlled by a timer 58 along signal path 60, that directs water back along pipe 62 to the water recycle pit 64 when the ride is in a Lazy River time period. Diversion of the water during this Lazy River time period thereby bypasses the interactive water features 48.

[0026] Turning again to FIG. 4, lazy mode time periods 50 and crazy mode time periods 52 are shown along a time axis divided into hourly periods. In a preferred embodiment of the invention, lazy mode is active for forty-five minutes out of every hour while crazy mode is active for fifteen minutes. If lazy mode started at 1:00 pm in the afternoon, then the ride would transition to crazy mode at 1:45 pm (time 76) by operation of timer 58 on valve 56 and master PLC 68. The sequence of change is programmable and repeatable throughout the day. For instance, crazy mode can be active on certain days and not others, over certain time periods but not others, etc. More generally, crazy mode is preferably active for between one and thirty minutes and the total time period of the crazy-lazy mode sequence is between one and two hours. In an alternate embodiment of the invention, timer 58 activates sound controller 72 at a time 78 prior to transition time 76 to announce the impending arrival of a crazy river time period 52. For example, crazy mode can be announced at 1:40 pm (“five minutes before crazy river”), at 1:41 pm (“four more minutes until things get crazy”), etc., until at 1:45 (“here comes crazy river”). Messages are sampled and stored digitally in sound controller for later playback at an appropriate time.

[0027] Attention is now directed back to FIG. 2 with a description of the various thematic zones.

[0028] The depth charge zone 16 includes extreme water features that are intended to soak both the riders within course 12 and spectators standing on path 40. Within course 12 are located slap targets or floating detonators 80 and blow pipes 82. Slap targets are bodies that are hung above the surface of the water course. Floating detonators 80 are...
bodies that float on the surface of the water course. Both operate in a similar fashion—that is to activate a signal when jostled. Along path 40 and adjacent to the detonators and blow pipes are activation mechanisms, such as plunger 84, and water spray mechanisms, hidden within crates 86 or the like. Generally, jostling the detonators 80 within the water or depressing the plunger 84 on land will cause water effects to activate through blow pipe 82 or within the crates 86 depending upon how the water features are designed.

[0029] Several devices can be used to pick up the contact with a slap target or floating detonator 80. A vibration sensor can be affixed somewhere on the target body that can detect the sudden strike. Alternately, a photo electric eye can be aimed just in front of the target so that when the participant’s hand is in motion toward the slap target, it breaks the beam. In this case, it is not the actual striking of the hand on the target that causes the sensor to trigger—it is the breaking of the photo eye beam. A further alternate method should be to use a magnetic switch. In this case, a magnet is affixed to an element on the slap target suspension system. When the target moves with the strike, the magnet is pulled away from a metal switch. The magnet causes the switch to close. In all of these instances, electrical signals are sent to a PLC that processes the desired output effect (such as a solenoid valve or alarm or such).

[0030] While some slap targets or floating detonators 80 activate spray mechanisms within a certain crate 86, they could just as easily be designed to activate a blow pipe 82. In this way, participants on the ride can get spectators wet and vice versa. Without knowing which detonator or plunger activates which water feature, however, the spectator or participant will be surprised by the outcome.

[0031] Examples of operation of a floating detonator 80 and a plunger 86 are shown in FIGS. 5 and 6 and described further below. Turning first to FIG. 5, plunger 84 includes a metal handle 88 having bottom portions of which that are slidable received within apertures within plunger body 90. When fully depressed, the bottom portions of the handle 88 make electrical contact with signal lines 70 and 92 to thereby transmit the Master PLC 68 signal through to Effect PLC 94. Effect PLC 94, sensing the full depression of plunger 84, passes an activation signal to solenoid valve 96 which opens the valve and permits compressed air from source 98 to enter pipe 82 affixed to the bottom of water course 12.

[0032] Preferred implementations of the depth charges use three inch stainless steel pipe pieces 82, eight inches tall, installed in twelve-inch by twelve-inch cavities 100 at the bottom of the water course. The cavities are covered with a safety grate 101. Detonator plunger 84, themed to look like a dynamite detonator box and positioned along the perimeter of the river water course 12, is depressed by a spectator triggering an electrical signal to PLC 94. The PLC 94 then sends an electrical current to nearby solenoid 96 causing it to open for about a second, allowing compressed air to pass through. The compressed air exits out the depth charge pipes 82, and causes a bubble of air to “pop” at the surface level 102 thereby simulating a depth charge explosion.

[0033] It is understood that the plunger 84 can be easily arranged according to the methods taught herein and those already known in the art such that depressing the plunger instead causes a water valve hidden within an adjacent box 86 to operate and drench the plunger operator or another spectator.

[0034] FIG. 6 illustrates the operating features of a floating detonator 80 that is active within depth charge zone 16 during crazy river time periods 50. The floating detonator comprises a floating body incorporating a switch or sensor 104, which is sensitive to sudden movements. Such objects are known in the art and thus not described further here. The small sensor 104 or switch is sealed and installed in the floating body. The body 80 is anchored to the river floor 106 via a cable 105 or chain (like a boat mooring) but is capable of transmitting a signal from sensor 104 therealong to Effect PLC 94. When the floating detonator 80 is smacked, the switch or sensor 104 sends a signal to PLC 94 which, in conjunction with an activation signal from Master PLC 68 as through an AND gate, sends an electrical signal to nearby solenoid 96 causing it to open for about a second, allowing compressed air from source 98 to pass through. The result is the discharge of an air bubble from pipe 82 up to the surface of river proximate floating detonator 80. Alternately, smacking the detonator can activate other water features upstream or downstream the detonator and/or activate water features proximate spectators—for instance the water valve enclosed within crate 86—so that water sprays are directed back to the spectators around the perimeter.

[0035] The arch jet zone 18 includes water features where participants around the perimeter open and close valves that cause streams of water to reach out and douse someone. Each jet will be a different style. One style may use a single valve to control a series of jet streams 108 that can sweep a broad area. Such features involve fabricated pipe structures that are anchored to the walkways 40 immediately adjacent to the river. Spectators pull lever valves, turn handwheels, or pull ropes to open valves that allow water to pass through to open jets. The valves and hoses are installed inside the pipe structures and accessed for maintenance by access windows that are cut in the sides of the pipes and fastened back into place using screws.

[0036] Another style will use a single jet, but it will be mounted on a swivel assembly to allow the user to maneuver it and hunt for perspective targets. Some jets will arch up high, while others will shoot straight down. Along the walls of the river will be mortar launching 110. Such devices are described in detail in applicant’s U.S. Pat. No. 6,045,449 whose disclosure is incorporated herein by reference. The actuation means are situated so that participants on the ride can simply float by on the river, reach out and press a button, and fire a jet stream from the nozzle next to it. The associated jet might just be aimed right at the person who just squirmed the participant seconds ago.

[0037] Tipping bucket zone 20 includes a truss 112 that stretches across and above the river 12. There are nine one-gallon buckets 114 mounted to truss 112. All of the buckets are filled by the spectators on the perimeter 40 of the river or within the central area 44. The spectators pull on nine ropes which operate nine individual valves. Pulling the ropes allows water to feed down pipes filling each individual bucket. An example of such a system in shown in applicant’s ’449 patent in FIG. 17 with the button replaced by the rope. Five of the nine buckets 114 are tipped by participants in the river 12. Each of these five buckets has a rope that hangs down from the truss 112 to the river elevation where participants can pull on it. When the participants pull on the rope, they operate a lever arm that tips the buckets over, pouring the water onto river participants. The remaining four
buckets are not tipped by ropes. They are designed to automatically tip over by gravity (as in the '449 patent) when they fill up with water. The spectators can therefore pull a rope to cause water to pass through a valve and fill up a bucket. When the bucket fills, it automatically spills onto the people in the river, and rights itself back up in position for refilling.

[0038] The large tipping bucket zone 22 is illustrated in FIG. 7. A huge bucket 116 is engaged with a tipping mechanism 118 that is adapted to tip bucket 116 at a particular fill point 120. The bucket includes an open top and one or more sidewalls bounded by a bottom surface and defining a volume. The tipping mechanism 118 is known and hence not described here. The bucket 116 is filled by a pipe 122 that in turn receives water from pump 54 (FIG. 3) responsive to timer 58 during Crazy River time periods. The level of water pouring through an open top of bucket 116 into the interior is also viewable by spectators and participants alike via means located outside the container. Means in the preferred embodiment includes a water gauge 124 having demarcations indicating a designated fill point 120 at which the bucket will be tipped by mechanism 118. A float 126 within bucket 116 activates controller 128 when the water level reaches level 120. Controller 128 in turn activates a sound generating mechanism such as speaker 130 or a steam whistle to announce the impending arrival of the tipped bucket.

[0039] It is anticipated that participants will try to time each trip around the river so that the giant rickety water tower bucket soaks them as they pass. Participants have some control over their movement along the water course 12 because they can use their hands and feet to paddle toward interactive opportunities and away from spray effects, hang on to the sides of the water course, etc. While the current of the river does indeed push the participants in one direction, and the path of the river is defined, the participants can slow themselves down, speed themselves up or even stop themselves, paddle left or paddle right to enhance their play experience.

[0040] Gallon by gallon, cup by cup, drip by drip the giant water tower 116 fills. You can tell the water level is rising by watching the gauge 124. The gauge displays the time left before doom. The gauge inches closer and closer to the red zone 120. Suddenly, seconds before dumpage, the 4-foot steam whistle erupts, bellowing throughout the park. The crowd screams with anticipation. The tubes 34 begin to pile up in the flood zone 132 inside the river, and also any structures adjacent. Suddenly the water tower separates from its roof and tips over unleashing gobs of water onto everyone below. In one embodiment, a splash roof (not shown) is included adjacent the tipping top of the bucket 116 so that the water first hits the splash roof, tumbles over and crashes down onto adjacent structures where the spectators get the first soaking, then the water passes through and cascades onto the participants in the crazy river for a second dousing. The crowd takes a few moments to laugh with their friends and get an eyeful of how wet their hair is. Then it is back to interactive warfare and the next fun zone.

[0041] The mysterious ancient ruins zone 24 is themed to look like it fell out of the Indiana Jones silver screen. Rock walls decorated with carvings and sculptures 134 provide a spooky feel to the crazy river. Water falls over the rocks and splashes into the river. Fog bellows out of the cracks in the walls. High above the river, guests are exchanging water gusts from one side of the canyon to the other using a variety of water blasters 136, 138. Others are pulling on levers themed to look like dead branches and find that they have opened a secret valve that causes water to spout out of a sculpture's 134 mouth. Move a rock 140 and cause a burst of water to explode from the cracks in the rock walls. Open the rickety-looking crate and water spouts out. Gargoyles 142 positioned along the river appear to guard against intruders. Move the gargoyles 142 and water spouts on the people standing on the cliffs.

[0042] The ancient ruins zone 24 further includes slap targets 144 that are soft padded devices suspended from a system above the river. A description of their operation is included above with reference to the depth charge zone 16. As participants in the river pass underneath the slap targets 144, they can reach up and slap them to cause water effects such as those described herein. Outputs are in the form of carvings of faces and heads in the rocks walls surrounding the river. Behind these carvings are water pipes and solenoid valves that provide sprays and squirts as triggered by the slap targets. There are also two tikis (totem poles) that squirt water in a similar manner. The tikis water sprays are triggered by water being shot out of water guns 136, 138 and hitting specified targets. When the water hits the targets, the sensors on the back of the targets trip PLCs, which opens solenoid valves allowing water spray.

[0043] The next zone is the interactive bridge zone 26. Float under the bridge 42 and fall victim to the number of colorful gadgets and gizmos located on the bridge above. Sprayers, buckets 146, funnels, troughs and funnels decorate the bridge. River riders get back by whacking one of the slap targets 144 suspended from the under-side of the bridge. Hit the target and splat the spectators on the bridge 42.

[0044] The last zone is the pipe forest zone 28. True to the crazy theme, participants enter this forest of wacky, goofy-looking pipe structures 148 like something out of the pages of Dr. Seuss. 10 The crazy pipes drapes over the river from the sides. The pipes will be painted in a bizarre yet fun scheme to add to the visual excitement. Banks of lever arms and cable systems operated by the perimeter guests activate sprayers and jets stemming off the wacky pipe structures, and directed to spurt the lazy crazy river riders. Also hanging down from the pipe structures are colorful ropes that river riders can pull to open valves that spray water at the perimeter guests. Some of these jets will be positioned to aim back at the person operating the rope as a booby prize gag. The pipe forest interactive 48 are operated in a similar manner to the arch jet zone 18 interactive described above.

[0045] The Crazy River will provide a type of excitement never before introduced in a lazy river environment. By involving proven interactive excitement in an otherwise calm environment, and by flip-flopping from lazy to crazy and back to lazy all day long will add anticipation and appreciation for those guests who are looking for their turn to enjoy the river the way they want. The Crazy River may operate for only fifteen minutes at a time while the Lazy River operates for forty-five minutes, allowing moms to enjoy more peaceful time. Fifteen minutes at a pop for Crazy time will keep the fun-lovers’ level of anticipation up. They won’t get enough time to completely satisfy their vengeful
side of their personality, and they will wait anxiously for the next Crazy session to begin. Subconsciously and consciously, they will enjoy their experience a lot more by having to wait for it.

[0046] Having described and illustrated the principles of the invention in a preferred embodiment thereof, it should be apparent that the invention can be modified in arrangement and detail without departing from such principles. We claim all modifications and variation coming within the spirit and scope of the following claims.

We claim:

1. An amusement ride comprising:
   a first set of features;
   a second set of features; and
   a timer coupled to said second set of features, said timer including an activation period having a start time and an end time,
   wherein said second set of features are only active during said activation period.

2. An apparatus for creating a turbidity within a body of water, comprising:
   a body adapted to float on a surface of the body of water;
   a switch affixed to a bottom of the body of water;
   means connecting the floating body to the switch, said switch activated responsive to movement of the floating body relative to the surface of the body of water; and
   pump means coupled to a water source for forcing a quantity of water substantially vertically into the body of water in substantially vertical alignment with the floating body.

3. A feature activation apparatus for use with an amusement ride including a water course having a floor and upstanding walls for sustaining and directing a flow of water along a water path, a first set of water features along said water path and a second set of water features along said water path, the apparatus comprising:
   a timer for tracking time of a first period and second period contiguous with said first period, said first period and second period repeating over time;
   a switch coupled to a water valve for supplying water to the second set of water features, said switch activated only during said second period.

4. A method for operating a time configurable water amusement ride of a type including a water course having a floor and upstanding walls for sustaining and directing a flow of water along a water path, a first set of water features along said water path and a second set of water features along said water path, the method comprising:
   programming a timer to include a first period type and a second period type;
   coupling said second set of water features to the timer;
   activating said second water features only when the timer is on said second period type.

5. The method of claim 4, wherein said first period type is longer than said second period type.

6. The method of claim 5, wherein the second period type is between 1 and 30 minutes long.

7. The method of claim 6, wherein the first period and second period combined are between 1 and 2 hours.

8. The method of claim 4, further including the step of only activating the first set of features when the time is on said first period type.

9. The method of claim 4, further including the step of activating the first set of features during the first and the second period type.

10. A water dousing apparatus comprising:
    a container having an open top and one or more sidewalls bounding a bottom surface;
    a water dispenser positioned above the open top for dispensing water into the container thereby filling the container with water;
    means outside of the container for displaying the amount by which the container is filled, said means including a demarcation indicating a designated fill point;
    means for tipping the container at the designated fill point to thereby pour water out of the container downward onto participants adjacent the water dousing apparatus.

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