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(54) **GENERATED WAVE PROPULSION WATER FEATURE**

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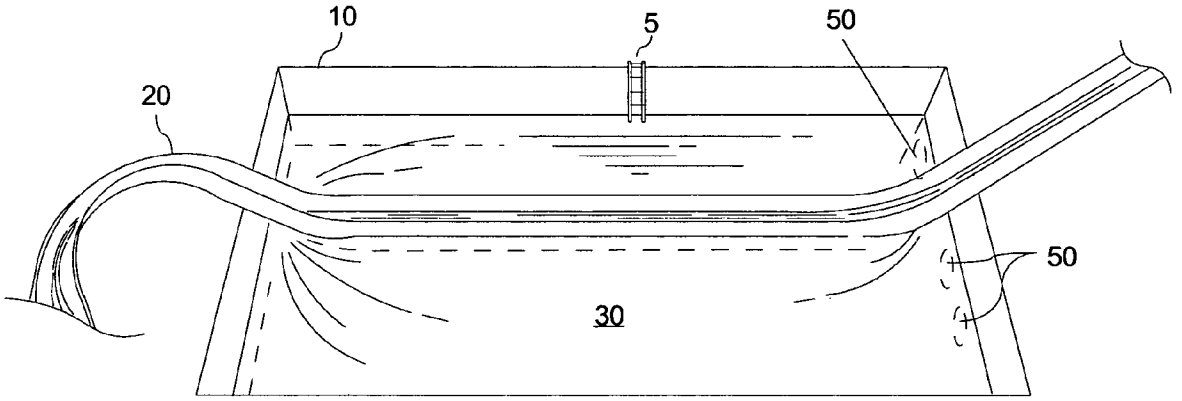
(57) **ABSTRACT**

An alternative propulsion or motive force for the riders of water features based on generated waves. A wave generator may be used to propel individuals or vessels within a chute for recreation or transportation. In one form, a pool or container having a body of water is configured to support an artificial wave generator. Portions of the waves generated in a pool may be captured in a variety of ways by chutes for stand-alone rides or for portions of chutes in water slides. Alternatively, a wave generator may generate a wave directly within a chute so long as the chute provides sufficient water and proper hydrodynamic characteristics to support a ridable wave.



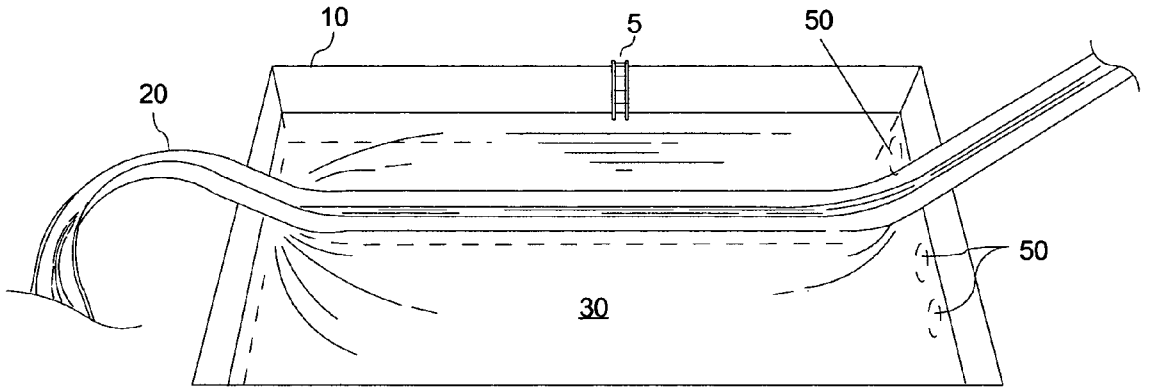


FIGURE 1

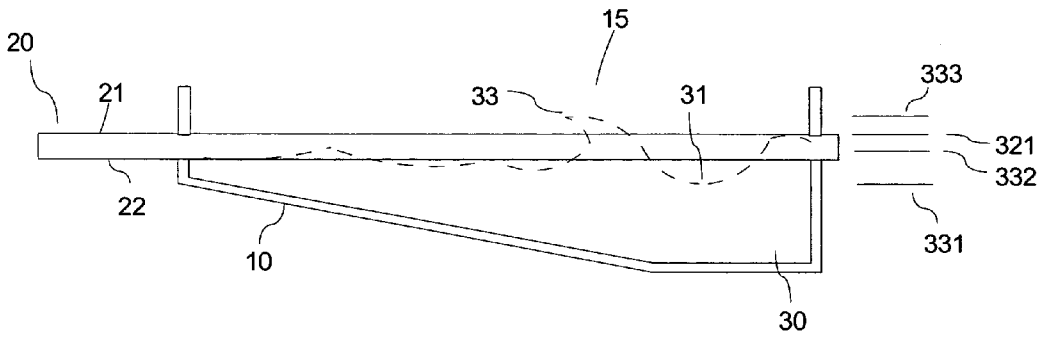


FIGURE 2

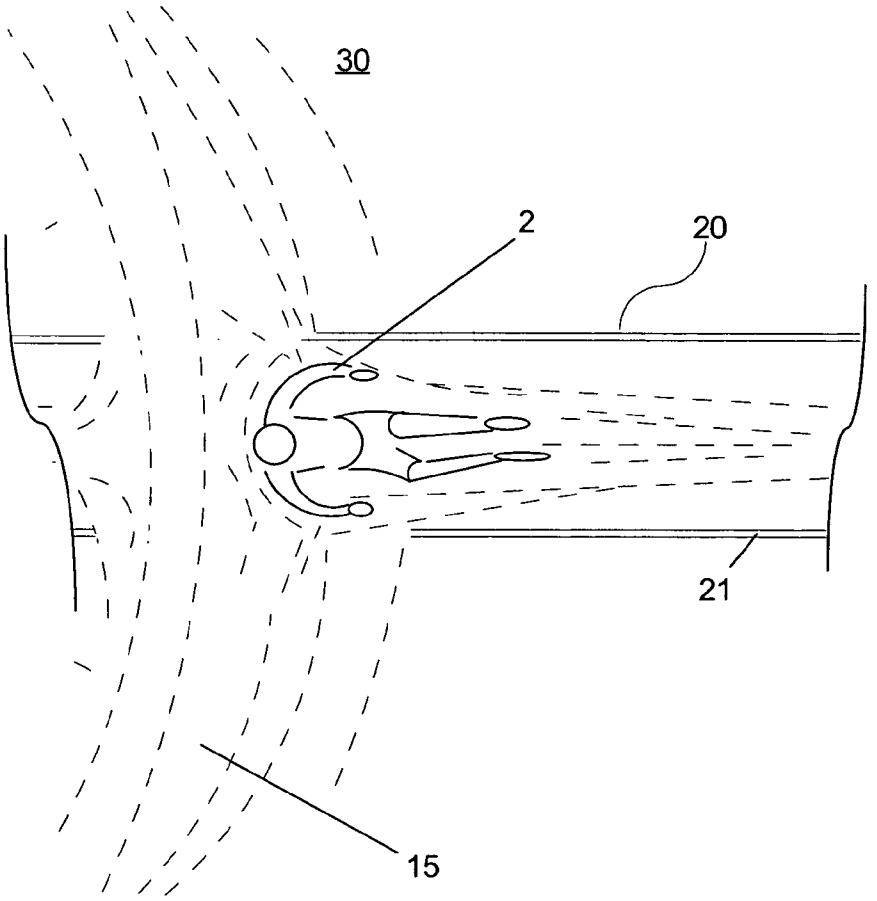


FIGURE 3

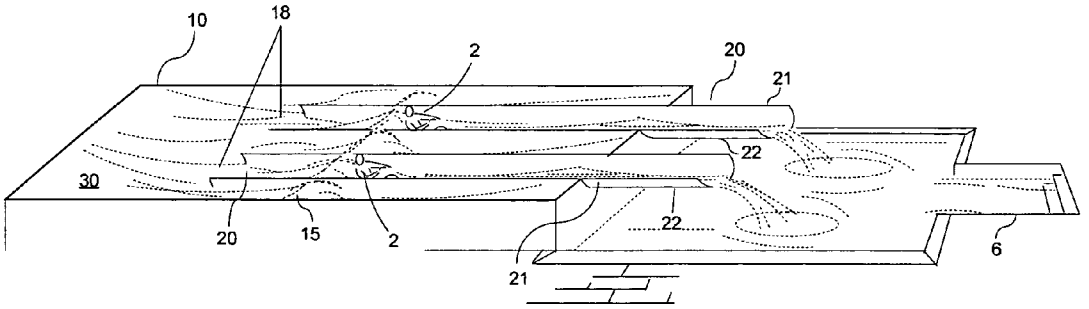


FIGURE 4

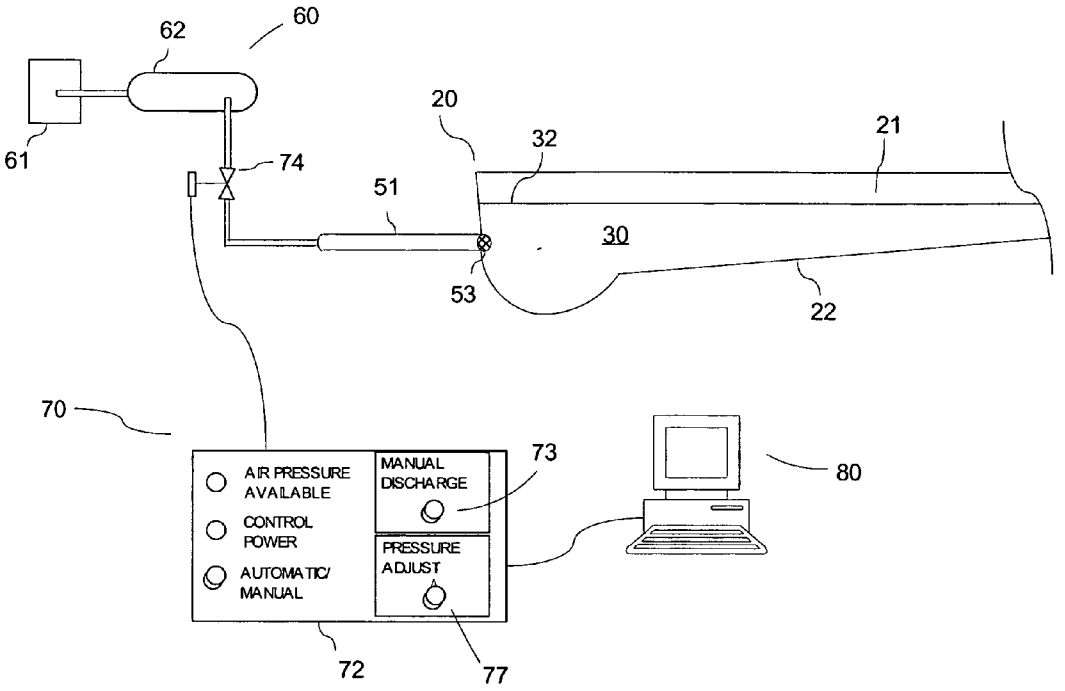

62
60
61
74
20
32
21
51
30
53
22
70
AIR PRESSURE AVAILABLE
CONTROL POWER
AUTOMATIC/ MANUAL
MANUAL DISCHARGE
PRESSURE ADJUST
73
80
72
77

FIGURE 5A

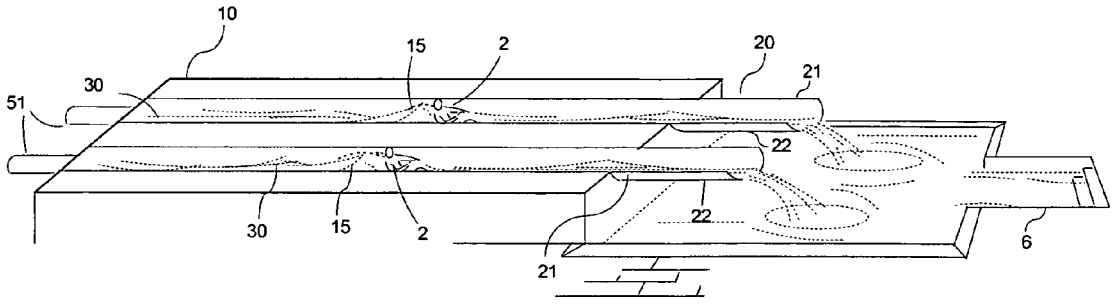


FIGURE 5B

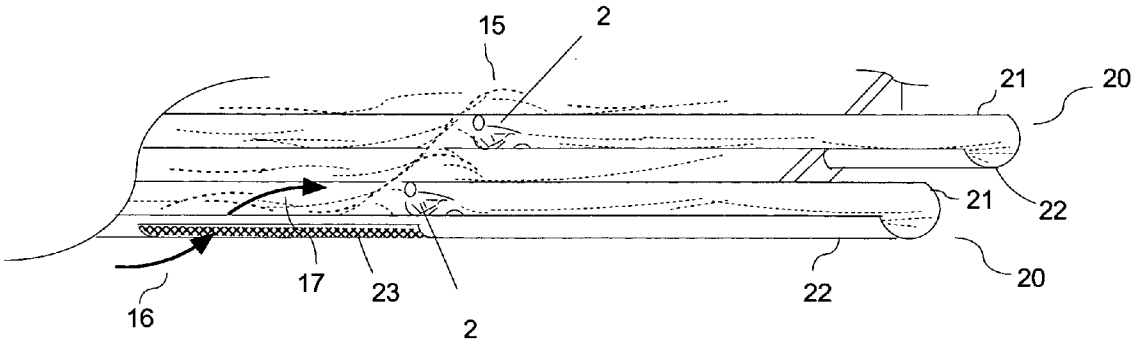


FIGURE 6

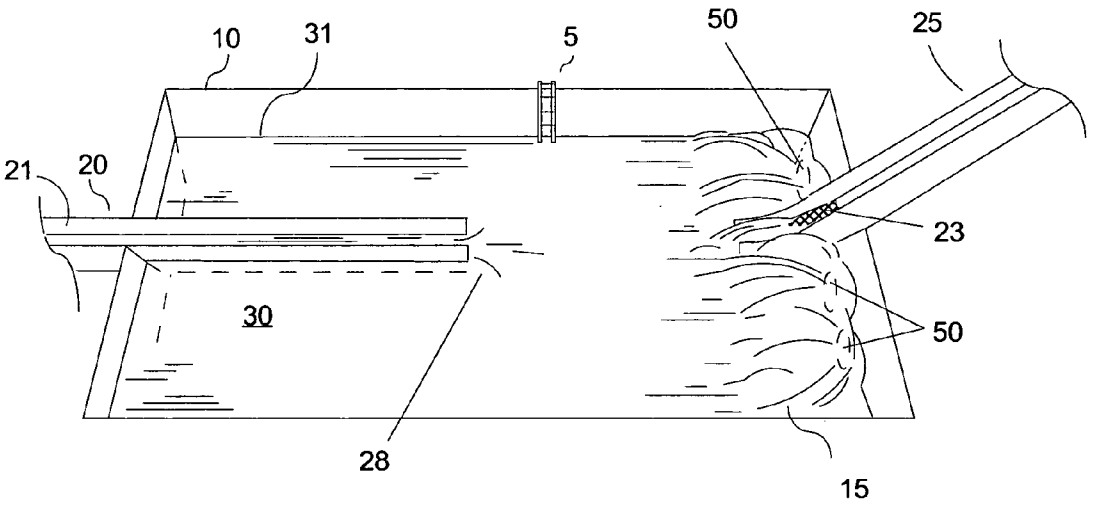


FIGURE 7

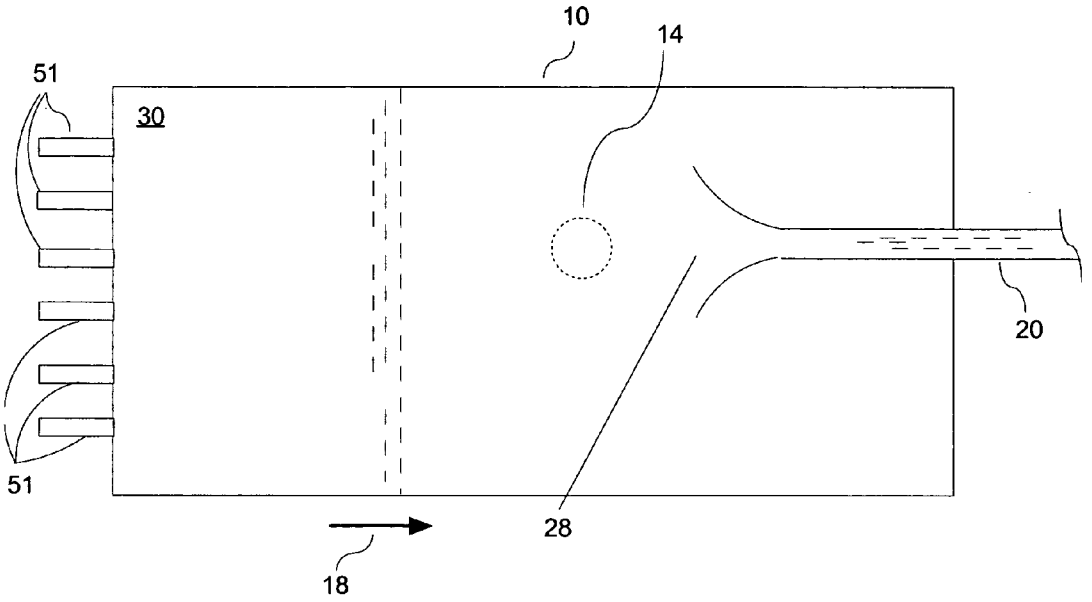


FIGURE 8

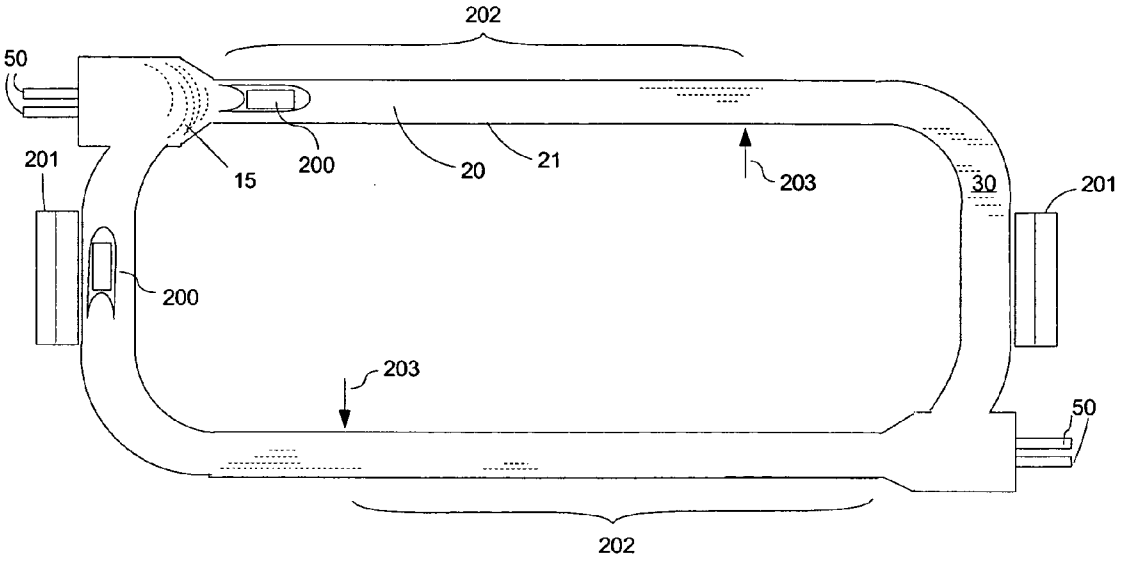


FIGURE 9

GENERATED WAVE PROPULSION WATER FEATURE

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority from U.S. Provisional Application Ser. No. 60/632,278, filed Dec. 1, 2004.

FIELD OF THE INVENTION

[0002] The present invention relates to water rides or activities. More particularly, the present invention is a recreational water feature incorporating artificially generated waves or swells as a means of propulsion for riders.

BACKGROUND OF THE INVENTION

[0003] Millions of individuals visit water parks every year to enjoy, among other attractions, various types of water slides, flumes, etc. In particular, water slides are generally known in the field as providing recreation involving water based motion or rides.

[0004] One common and simple category of water slides involves a sloping chute by which gravity draws a stream of water down the slide. The chute is typically manufactured from fiberglass full or half round segments that are fastened together. Water is pumped to the high point and then released into the chute. Individuals who climb to the top of the slide carry a potential energy that enables them to slide down the water slide chute at a desired speed, such that the potential energy is converted to kinetic energy. The water reduces friction and may propel the riding individual. Some slides (e.g., personal raft slides) provide mats to improve the sliding action, while other slides (e.g., body slides) permit individuals to slide down without a mat. Straight and steep slides are sometimes referred to as speed slides; the steep angle, the absence of diversions or curves, and the effect of a consistent fluid flow layer reduce the influence of friction on the rider.

[0005] A second category of water slides is sometimes referred to as the serpentine slide. This slide converts the potential energy of the height of entry into kinetic energy, some velocity as the rider travels a tortuous path. Because of the effect of friction and loss of energy caused by changing different directions (i.e., acceleration) away from a simple fall, serpentine slides may be limited to slower speeds. In addition, in some cases the water flow may not be adequate throughout the slide for the individual to remain at speed. Thus, some serpentine slides may introduce water in at various points to reduce friction and assist in propelling the individual sliding. This may be accomplished by solenoid or control valves that provide localized discharges or "gushes" of water. Some serpentine slides may also begin at great heights in order to increase the amount of original potential energy and to overcome the tortuous path.

[0006] A modification of the serpentine slide is the introduction of a bowl slide; a bowl slide is simply a bowl shaped portion of the slide into which an individual enters while carrying some speed in a roughly tangential direction. Inertia carries the individual initially along a circular path within the bowl slide. Gravity and friction reduce the speed along this circular path until the individual falls into the center of the bowl where a hole releases them into a pool.

[0007] Another modification of the serpentine slide is the introduction of significant elevations or inclines within the serpentine path after initial access. Traditional waterslides lacked the means for imparting additional energy to the individual once they entered the slide—the course of the slide was traveled by expending potential energy. Elevations were small and limited because each incline consumed energy and reduced speed. Some slides seek to overcome the loss of energy by using pressurized water jets to impart additional energy to the sliding individual. For example, some methods are directed to imparting energy to sliding individuals by injection of high velocity water jets. This approach must balance energy imparted with avoidance of water build up and the potential for shock to the sliding individual. Water jets involve localized energy transfers solutions that risk causing some discomfort for the rider. However, water jets have enabled waterslides that explore somewhat roller coaster-like designs. Further, the imparting of additional energy extends the duration of a water slide.

[0008] Another way of extending the duration of a sliding experience is to introduce other activities within the water slide to create a multifaceted water based experience. This is not an imparting of energy to the rider, but the addition of various features. For example, in U.S. Pat. No. 5,421,782 also to Lochtefeld is described a loop with unidirectional flow connected to several water rides. Within the loop was disclosed a "sheet wave" generator combining submersible propeller pumps forcing a sheet of water up a proprietary incline suitable for boogie or body boards (See U.S. Pat. No. 4,954,014, to Sauerbier, et al.) Individuals could move from activity to activity, including various types of water slides that discharged into the loop. While this invention combined slides or activities to enable an individual to remain in the water, it did not introduce a new way of injecting energy into any single water slide.

[0009] Further, some inventors have proposed water features involving inserting a structure shaped with a wave profile into flowing water within a channel. This feature is not a means of propulsion, but a feature of interest. As the water flows over the structure, it may give the appearance of a wave and support some activities, such as riding a tethered or spring mounted surfboard. Of course, this approach relies on placing structure within the area of activity in the channel, limiting its usefulness for certain activities. A rider falling into a channel with flowing water might strike the structure or the tethering apparatus. Accordingly, the speed of a rider of a water slide and the vulnerability of the rider renders this feature more appropriate for facilities other than water slides.

[0010] Thus, each of these features is limited in the means of propulsion, which is usually by the force of gravity (i.e., on both the individual and the water), or by the force of supplemental pressurized water gushes or jets. Alternative forms of propulsion would improve the variety of water slides features and extend the duration of the water slide.

BRIEF SUMMARY OF THE INVENTION

[0011] The present invention is directed to providing an alternative means of propulsion or motive force for the riders of water features. In particular, the following discloses an invention capable of providing propulsion to individuals within a chute from recreationally attractive artificially

generated waves or swells. A pool or container having a body of water is configured to support an artificial wave generator, as is known in the art and explained further herein. For example, a wave generator and pool may be located within and integrated into the design of a water slide or stand alone chute, such that the portion of swells or waves is captured within the chute to provide motive force for a sliding individual over some portion of the chute. An inclining bottom of the chute renders the wave ridable or breaking as opposed to merely a swell.

[0012] Waves may be generated for propulsion along one or more chutes, which chutes may then proceed in a variety of directions, straight or curved, using techniques known to those in the field, such as full round pipe, etc.

[0013] In one embodiment, a chute may be located within a larger wave pool, such that waves may enter an open ended portion of one or more chutes. With an open aspect of the water slide or chute placed in the path of a wave, the generated waves or swells flows into and runs along the chute, propelling the water sliding rider. Once a chute has isolated a wave portion within the sides of the chute, the chute may then curve or change directions, using techniques known to those in the field. If the waves run longitudinally along an extended straight portion of the chute, a greater amount of energy may be transferred to the rider than if the chute direction changes. Chutes may also be arranged in parallel, enabling riders to race each other; the present invention may be incorporated into or engaged with other water slide features, or may be provided independently.

[0014] In another embodiment, a chute may provide a perforated lower section that supports a rider while permitting a wave to enter the chute; after such entry, the perforations may end and the chute may then constrain the wave.

[0015] Alternatively, chutes able to contain a significant quantity of water may be combined with some forms of smaller wave generators, where such wave generator could generate a wave directly within the chute. For example, a recessed wave generating pneumatic discharge tube, as described further below, could generate a wave in a chute while not interfering with the sliding activities of a rider.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0016] **FIG. 1** is a perspective view of an embodiment of the present invention incorporated into a water slide.

[0017] **FIG. 2** is a side view of the embodiment in **FIG. 1**.

[0018] **FIG. 3** is a top view of the embodiment in **FIG. 1**.

[0019] **FIG. 4** is a perspective view of a wave racing embodiment of the present invention having multiple chutes open to a generated wave.

[0020] **FIG. 5A** is a schematic of a chute with an integrated wave generator.

[0021] **FIG. 5B** is an illustration of a wave racing embodiment incorporating the design in **FIG. 5A**.

[0022] **FIG. 6** is an example of the present invention in which a chute has perforations.

[0023] **FIG. 7** is another example of the present invention incorporated into a water slide.

[0024] **FIG. 8** is a top view of an embodiment of the present invention showing a chute open to a wave and a point of chute entry.

[0025] **FIG. 9** is a top view of a large scale embodiment of the present invention employed as a ride and/or transportation.

DETAILED DESCRIPTION OF THE INVENTION

[0026] Preferably the wave generator used in the present invention will not interfere with the chute, will be scalable to various sizes or applications, will be remotely controllable, and will be capable of generating ridable waves. Embodiments of the present invention may include one or more pneumatic wave cannons for the generation of waves, as may be desired for the application. Ocean surface waves are primarily created by winds that cause variations in surface pressure. Wind duration, strength, and surface coverage area contribute to the resulting wave. A wave cannon is a wave generating device as disclosed in U.S. Pat. No. 5,833,393 to Carnahan et al., which is hereby incorporated by reference. In short, the wave cannon transfers energy from the escape of compressed air to water to create swells or waves. When used in conjunction with appropriate hydrodynamic bottom contour, the wave can be rendered ridable or breaking. Other devices for the generation of ridable waves may serve in the present invention, depending on the configuration of the facility and the desired effect. Importantly, the wave generation technology should not require structure that could interfere with the activity of the individuals or vessels within the chutes, particularly while sliding. In addition, the wave generator should preferably be capable of being scaled to a small or large size, controlled remotely, and recessed so as to present little structural intrusion into the chute. Those wave generators that require structure inserted into a body of flowing water, such as a wave form or body, would generally interfere with sliding. In addition, wave generators that are not scalable may be inappropriate for some water slide applications. Therefore, preferably the wave generator will be non-interfering, scalable, remotely controllable, and capable of generating ridable waves, such as a wave cannon.

[0027] The feature of the present invention may be configured to be stand-alone or used in conjunction with other water features. Because of the common element of a chute, it is anticipated that the present invention will be attractive for use as a ride or component of a water slide. Although the present invention may be configured to be used in conjunction with water slides, it need not necessarily be so. Thus, the description herein of use in conjunction with a water slide should not be construed as limiting.

[0028] With reference to the drawings, **FIG. 1** is a first example of a water feature of the present invention incorporated into water slide **1**. One or more chutes **20** of water slide **1** pass through pool **10** without chute **20** being completely submerged. Pool **10** contains body of water **30** and is configured to support one or more wave generators **50**. Chute **20** may enter and exit pool **10** in a variety of ways. As may be seen in the side view of **FIG. 2**, generated wave **15** flows or runs in a direction along the course of chute **20**

located within pool **10**. Various lines are shown representing relative levels: trough water level line **331** (trough water level **31**), resting water level line **332** (resting water level **32**), chute side level line **321** (top of side **21** of chute **20**), and crest water level line **333** (crest water level **33**). The top of sides **21** of chute **20** may be configured so as to be above resting water level **32** of body of water **30**, but below crest water level **33**, such that wave **15** may enter chute **20** at some cresting point during the wave cycle. Sides **21** of chute **20** preferably prevent riders from being moved out of chute **20** by wave **15**. Bottom **22** of chute **20** may be above or below body of water **30** resting water level **32**, depending on the flow of water within chute **20** to propel rider **2**. Thus, water slide **1** is hydraulically associated with body of water **30** in pool **10** by cresting of wave **15** and its spillage into chute **20**. For this embodiment, side **21** should permit sufficient quantity of wave **15** to be captured within chute **20** and bottom **22** of chute **20** inclines in such a manner as to render wave **15** within chute **20** ridable. **FIG. 3** is a top view of a portion of chute **20**, in which wave **15** spills into chute **20** and propels rider **2**.

[**0029**] As shown in **FIG. 4**, multiple chutes **20** may be configured in parallel, such that sides **21** of chutes **20** may separate the water sliding riders **2** directly or through a separation space **27**. In this embodiment, riders **2** may enter chutes **20** from pool **10** through chute entry **28**. In addition, chutes **20** are open in the end to wave **15**. Chutes **20** preferably exit pool **10** after capturing portions of wave **15** within them for propelling riders **2** beyond pool **10** to any of a variety of following activities or features. Chutes **20** are parallel in this example and permit comparison or racing between riders **2**.

[**0030**] As noted above in the first embodiment, chutes **20** may be situated at an appropriate depth in body of water **30** where chutes **20** are similarly partially submerged or swamped only during the passage of wave **15**. Wave **15** may propel multiple riders **2** along their respective chutes **20**. When generated wave **15** crests consistently across chutes **20**, riders **2** may also race each other during a particular wave **15**.

[**0031**] Alternatively, as shown in **FIG. 5A**, for chutes **20** capable of carrying a sufficient body of water **30**, one or more non-interfering wave generators **50** may be configured so as to discharge directly into chute **20** for independently generating wave **15** within chute **20**. Wave generator **50** preferably is scalable for use within chute **20** and does not interfere with typical water sliding activities. This example shows wave generator **50** in the form of pneumatic wave cannon **51**. In such an integrated embodiment, sides **21** and/or orientation of chute **20** will preferably provide sufficient depth at the point of wave generation to channel sufficient energy to rider **2** (not shown). Optionally, it may be desirable for generated wave **15** (not shown) for multiple chutes **20** to spill over sides **21** out of chutes **20**. Bottom **22** is shown inclined to render wave **15** ridable or breaking. Wave cannons **51** may be integrated within parallel chutes **20** and may be controlled or timed for simultaneous operation to support racing. **FIG. 5B** illustrates the present invention with chute **20** from **FIG. 5A** incorporated into a racing embodiment.

[**0032**] In general, the configuration of chutes **20** may be arranged to achieve a desired hydrodynamic effect. For example, an incline in bottom **22** in the same direction as that of wave **15** may be used to create normal breaker behavior within such chute **20**, similar to that seen on a beach but contained within chute **20**. If bottom **22** inclines to a peak (not shown), then this arrangement can be used to provide a natural point of termination of chute **20**; the individual may exit chute **20** when the wave has receded or residue of wave **15** may be collected in subsequent chute **20** or basin (not shown). Residue of wave **15** may flow past a peak to continue to reduce friction as rider **2** may continue along chute **20** or to a subsequent feature.

[**0033**] For those embodiments in which it may be desirable to preserve energy imparted to a rider **2**, then a less steep incline, with a substantially straight path for chute **20** may be appropriate. If turns in chute **20** are desired as features of interest, the available captured wave energy should be considered. In addition, the height of sides **21** of chute **20** may need to accommodate the redirection of captured portions of wave **15**. Of course, if a terminal portion of chute **20** substantially declines, then energy preservation may be less of a design consideration, depending on subsequent features**1**.

[**0034**] In another embodiment, a lower portion of chute **20** passing through pool **10** may include smooth perforations **23**, such as slots, holes, or other openings over a predetermined distance, as illustrated in **FIG. 6**. Perforations **23** should be in communication with body of water **30** and permit wave **15** to pass through the structure of chute **20**, as shown in entering arrow **16** and in-chute arrow **17**, which shows possible wave motion within chute **20**. Perforations **23** may end after a predetermined distance, enabling the capture of a portion of wave **15** within chute **20**. Thus, each of wave **15** would inject a portion of wave **15** into chute **20**, propelling riders **2** along the direction of wave **15**.

[**0035**] In an further embodiment, the present invention may be used in conjunction with other known water features; for example, water slide **1** may provide speed drops, corkscrews, serpentine paths, bowl slides, etc. (not shown) The present invention may be adapted to such features without disrupting its utility. For example, wave cannon **51** may be recessed into the bottom **22** or sides **21** of chute **20**, as shown in **FIG. 5A**, with smooth opening **53** for hydraulic communication, such as grill, so that water sliding activities will not be impeded; other acceptable mechanisms for smooth opening **53** could include retractable covers, slots, screens, etc.

[**0036**] In another aspect illustrated in **FIG. 7**, rider **2** (not shown), traveling down a prior feature or a portion of water slide **1**, such as a serpentine previous chute **25**, may be delivered directly into pool **10**; rider **2** may continue sliding or remain in pool **10**. Preferably, the portion of previous chute **25** within pool **10** (or any connection between serpentine previous chute **25** and chute **20**) is configured so as to avoid or withstand the energy of wave **15**, and to reduce any interference of previous chute **25** with the motion of wave **15**, as applicable. In some cases, this interference may be reduced by perforations **23**, as described above, that permit the water to move relatively unimpeded through previous chute **25**, while still supporting and constraining rider **2**. In other cases, previous chute **25** may provide a small discontinuity, break, or drop off such that rider **2** is dropped into a sufficiently deep portion of pool **10** proximate

to chute **20** located within pool **10**. For example, **FIG. 8** is an alternative in which rider **2** may be dropped into plunge area **14**. Water slide **1** may include bowl slide (not shown) or other means to deliver rider **2** to plunge area **14** proximate to chute **20** within pool **10**. Arrow **18** shows the direction of wave **15**. Sides **21** of chute **20** may be flared near the chute entry **28**, or optionally may gradually rise up to the full height so as to avoid concentration of wave **15** or injury to rider **2**. Alternatively, in some embodiments it may be desired to concentrate wave **15** to enhance its effect within chute **20**.

[**0037**] Alternatively, some embodiments will permit wave generator **50** to be recessed near the point where previous chute **25** and chute **20** come together. In that case, wave generator **50** may be triggered to discharge through smooth opening **53** when rider **2** is sensed as entering chute **20**, in an embodiment similar to that shown in **FIG. 5A**.

[**0038**] Conventional methods of entering water features associated with the present invention are preferable; however, the entering method chosen should suit the application. In some embodiments, it may be desirable for one or more entrances **5** to be located near or in pool **10** or chute **20**. For example, for designs in which chute **20** has integrated or dedicated wave cannons **51**, rider **2** may enter from over side **21** of chute **20** during a coordinated pause in operation of wave cannon **51**, so long as sides **21** are low enough. For an embodiment of water slide **1** having pool **10** between discrete features or portions of water slide **1**, a simple approach may be entrance **5** in the form of a ladder to chute entry **28** within pool **10**, as shown in **FIG. 7**. This approach may permit rider **2** (not shown) to begin, end, or resume riding water slide **1** from pool **10**. As noted above, sides **21** of chutes **20** may rise and close gradually to avoid injury in the event of wave **15** occurring prior to rider **2** (not shown) fully taking position within chute **20**, as shown in **FIG. 8**. If water slide **1** is designed for mats, then entrance **5** could be adapted to use of such devices, as is known in the art. Other arrangements (not shown), such as access platforms or steps, may also be appropriate depending on the application.

[**0039**] The exit of rider **2** from water features associated with the present invention is also preferably according to conventional arrangements. However, as noted above, for example, the present invention may also be adapted to deliver rider **2** to another feature or portion of a water slide **1** for subsequent sliding activities. The rider **2** need only retain sufficient momentum to complete sliding along chute **20** to the next feature. Of course, chute **20** should retain sufficient water and rider **2** should retain sufficient momentum. For example, as chute **20** inclines within the pool **10**, then chute **20** may peak and then decline so as to carry rider **2** on remaining water to reach a follow on portion of chute **20** in water slide **1**. Of course, pool **10**, body of water **30**, and chute **20** may be configured for a desired retention of water for pool **10** or for a desired transfer of water from body of water **30** to chute **20** and subsequent features. In some cases, after completion of riding the present invention, supplemental water jets (not shown) may be desirable to carry rider **2** to another feature or portion of water slide **1**, as is known in the art. In an example of termination, rider **2** may be discharged from chute **20** directly into a separate plunge pool having exit **6** as shown in **FIG. 4**.

[**0040**] Preferably, discharge of wave generators **50** will be controlled or timed. For example, for those embodiments providing wave cannon **51** for racing in chutes **20** or for other themed scenarios, generation of wave **15** may be controlled to support such activities. **FIG. 5A** illustrates compressed air system **60** for support of wave cannons **51**, using air compressor **61** and pressure storage tank **62**. Preferably, compressed air system **60** is linked to control system **70** for control of wave cannons **51** through control valve **74** and control panel **72**. Thus, wave cannons **51** may be controlled manually or automatically. Control panel **72** includes discharge button **73** for manual discharge and various indications, as may be appropriate for the application. Control system **70** preferably includes variable pressure adjust **77** for wave cannons **51** from compressed air system **60**. Variable charging of wave cannon **51** enables waves **15** of a variety of size and frequency, so as to match the age, size, and athletic level of rider **2**, or to the conditions of a scenario theme. Preferably, control of wave cannon **51** may be automated or scripted through a computer processor **80** to activate wave cannon **51** as well as other features. Such a system may be linked with sensors detecting presence of riders **2**, water levels, the weight of rider **2**, etc.

[**0041**] Because of the scalability of some wave generators **50**, such as wave cannon **51**, the present invention may be employed in a variety of sizes and configurations. The above descriptions have concentrated on individual rider **2** within chute **20**; in particular, the description referred to examples of use with water slide **1** as being a likely embodiment. However, the present invention may apply to different embodiments, including those using single or multi-person vessels configured to operate within a larger embodiment of chute **20**.

[**0042**] In the example of **FIG. 9**, vessels **200** ride waves **15** along chute **20**. This embodiment illustrates a ride that may also be used for transportation between two or more points within an amusement park. For stability purposes, vessels **200** may be multi-hulled, such as a catamaran. Wave generators **50** generate ridable waves **15** within body of water **30** along chute **20**. Preferably, bottom **22** (not shown) inclines for the portion of chute **20** designated as inclining portion **202**. Peaks in bottom **22** may be located at arrows **203**, after which bottom **22** may decline or drop off such that wave **15** dissipates and vessel **200** slows. Station **201** may be a boat house, terminal, pier, or other facility where riders **2** (not shown) can embark or debark from vessels **200**.

[**0043**] The above examples should be considered to be exemplary embodiments, and are in no way limiting of the present invention. Thus, while the description above refers to particular embodiments of the present invention, it will be understood that many modifications may be made without departing from the spirit thereof.

What is claimed is:

1. A water feature for propelling a rider along a chute having a bottom and two sides, the water feature comprising:

at least one body of water having a resting water level;

at least one wave generator, located proximate to the body of water without interfering with the rider in the chute, for generating at least one wave within the body of water, wherein the wave has a trough water level in the body of water below the resting water level and a crest water level in the body of water above the resting water level; and

wherein a portion of the chute passes through a portion of the body of water and is aligned in the direction of the wave such that the top of the sides of the portion of the chute are above the resting water level and below the crest water level, so that when the at least one wave crests the chute captures a portion of the wave within the chute and the bottom of the chute is configured so as to produce a ridable wave within the chute capable of propelling the rider.

2. The water feature of claim 1, wherein a plurality of chutes are juxtaposed in parallel fashion, such that each of the plurality of chutes captures a portion of the wave to enable riders within the chutes to race each other.

3. The water feature of claim 1, wherein the rider is located on a vessel situated within the chute and the water feature is configured to propel the rider by propelling the vessel.

4. A water feature for propelling a rider along a chute having a bottom and two sides, the water feature comprising:

at least one body of water having a resting water level;

at least one wave cannon, located proximate to the body of water without interfering with the rider in the chute, for generating at least one wave within the body of water, wherein the wave has a trough water level in the body of water below the resting water level and a crest water level in the body of water above the resting water level; and

wherein a portion of the chute passes through a portion of the body of water and is aligned in the direction of the wave such that the top of the sides of the portion of the chute are above the resting water level and below the crest water level, so that when the at least one wave crests the chute captures a portion of the wave within the chute and the bottom of the chute is configured so as to produce a ridable wave within the chute capable of propelling the rider.

5. The water feature of claim 4 wherein a plurality of chutes are juxtaposed in parallel fashion, such that each of the plurality of chutes captures a portion of the wave to enable riders within the chutes to race each other.

6. The water feature of claim 4, further comprising at least one computer processor, a compressed air supply, and a control system operably connected between the compressed air supply and the computer processor so as to enable computer control of the wave cannon.

7. The water feature of claim 4, wherein the rider is located on a vessel situated within the chute and the water feature is configured to propel the rider by propelling the vessel.

8. A water feature for propelling a rider along a chute having a bottom and two sides, the water feature comprising:

at least one body of water within the chute;

at least one wave generator, located proximate to the chute without interfering with the rider in the chute, for generating at least one wave within the body of water; and

wherein the bottom of the chute is configured so as to produce a ridable wave within the chute capable of propelling the rider.

9. The water feature of claim 8, wherein the wave generator is a wave cannon.

10. The water feature of claim 8, wherein a plurality of chutes are juxtaposed in parallel fashion, each of the plurality of chutes having a wave generator for generating a wave, and wherein the wave generators of the plurality of chutes may be synchronized to operate simultaneously to enable the riders within the chutes to race each other.

11. The water feature of claim 8 wherein each of the wave generators is a wave cannon and further comprising at least one computer processor, a compressed air supply, and a control system operably connected between the compressed air supply and the computer processor so as to enable computer control of the wave cannons.

12. The water feature of claim 8, wherein the rider is located on a vessel situated within the chute and the water feature is configured to propel the rider by propelling the vessel.

13. A water feature for propelling a rider along a chute having a bottom and two sides, the water feature comprising:

at least one body of water having a resting water level;

at least one wave generator, located proximate to the body of water without interfering with the rider in the chute, for generating at least one wave within the body of water, wherein the wave has a trough water level in the body of water below the resting water level and a crest water level in the body of water above the resting water level; and

wherein a portion of the chute passes through the body of water and is aligned in the direction of the wave with the top of the sides of the portion of the chute above the resting water level, and the portion of the chute has a plurality of perforations configured so that when the at least one wave crests the chute captures a portion of the wave within the chute and the bottom of the chute is configured so as to produce a ridable wave within the chute capable of propelling the rider.

14. The water slide feature of claim 13, wherein the wave generator is a wave cannon.

15. The water slide feature of claim 13, wherein a plurality of chutes are juxtaposed in parallel fashion, such that each of the plurality of chutes captures a portion of the wave to enable riders within the chutes to race each other.

16. The water slide feature of claim 13, wherein the wave generator is a wave cannon and further comprising at least one computer processor, a compressed air supply, and a control system operably connected between the compressed air supply and the computer processor so as to enable computer control of the wave generator.

17. The water feature of claim 13, wherein the rider is located on a vessel situated within the chute and the water feature is configured to propel the rider by propelling the vessel.

18. A water feature for propelling a rider along a chute having a bottom and two sides, the water feature comprising:

at least one body of water having a resting water level;

at least one wave generator, located proximate to the body of water without interfering with the rider in the chute, for generating at least one wave within the body of water, wherein the wave has a trough water level in the body of water below the resting water level and a crest water level in the body of water above the resting water level; and

wherein a portion of the chute passes through the body of water and is aligned in the direction of the wave with the top of the sides of the portion of the chute above the resting water level, and the portion of the chute forms an opening facing the wave and is configured to capture a portion of the wave within the chute and the bottom of the chute is configured so as to produce a ridable wave within the chute capable of propelling the rider.

19. The water feature of claim 18, wherein the wave generator is a wave cannon.

20. The water feature of claim 18, wherein a plurality of chutes are juxtaposed in parallel fashion, such that each of the plurality of chutes captures a portion of the wave to enable riders within the chutes to race each other.

21. The water feature of claim 18, wherein the wave generator is a wave cannon and further comprising at least one computer processor, a compressed air supply, and a control system operably connected between the compressed air supply and the computer processor so as to enable computer control of the wave generator.

22. The water feature of claim 18, wherein the rider is located on a vessel situated within the chute and the water feature is configured to propel the rider by propelling the vessel.

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