WATER RIDE

FIELD

The present disclosure relates generally to amusement rides, and more specifically to water slide rides and portions thereof.

BACKGROUND

The amusement park industry is competitive and evolving. Park operators strive to offer new, innovative rides to provide exciting and thrilling experiences for patrons.

Some slide-based rides are known. For example, in conventional water slides, patrons enter the ride at a high elevation and travel to a terminal destination at a lower elevation by sliding along a chute or flume. To facilitate sliding, portions of a water slide may be lubricated with a volume of water.

In some water slides, patrons may sit or lie on a vehicle designed to contact the ride surface. In some water slides, patrons may slide along the ride without a vehicle, with their bodies in contact with the ride surface.

In U.S. Patent No. 7,854,662 B2 to Braun *et al.*, a water slide having at least one loop section is described. One problem with the water slide described in U.S. Patent No. 7,854,662 B2 is that, due to the use of the loop, there is a need for an evacuation platform at the valley and as well as the apex of the loop. In addition, confining riders to such a loop may decrease the thrill of the ride.

In some commercially available water slides, such as rides sold by ProSlide Technology Inc. under the trademarks CannonBOWL™, BulletBOWL™, ProBOWL™, and BehemothBOWL™, riders are deposited from a chute into a round, horizontally-oriented bowl. Riders enter the bowl along the wall of the bowl and exit from the bottom center of the bowl.

There is a need for water rides that address the problems and disadvantages of previous rides while providing more exciting experiences for riders.

SUMMARY

According to an aspect, there is provided a slide feature for an amusement ride adapted to carry a rider or ride vehicle sliding thereon, the slide feature comprising: an inrun permitting ingress of the rider or ride vehicle at a first elevation, an outrun permitting egress of the rider or ride vehicle at a second elevation, wherein the first elevation is higher than the second elevation, a sliding surface in communication with the inrun and the outrun, wherein the sliding surface comprises a surface portion substantially in the shape of a sector of a closed curve, wherein the slide feature provides that the rider or ride vehicle, at least partially urged by gravity, slides along the sliding surface from the inrun to the outrun in an arcuate path.

Optionally, the sliding surface is substantially planar.

Optionally, the sliding surface is oriented at a pitch angle around a pitch axis, the pitch angle being measured relative to a horizontal plane; the sliding surface is oriented at a roll angle around a roll axis, the roll angle being measured relative to the horizontal plane, the pitch axis and the roll axis are mutually perpendicular, and at least one of the pitch angle and the roll angle is nonzero.

Optionally, the pitch angle and the roll angle are selected so that an elevation of the rider or ride vehicle increases along a first portion of the arcuate path and decreases along a second portion of the arcuate path.

Optionally, each of the pitch angle and the roll angle is less than 45°.

Optionally, at least one of the pitch angle and the roll angle is 11.25°.

Optionally, each of the pitch angle and the roll angle are between 15° and 18°.

Optionally, the roll angle is 11.25° and the pitch angle is 22.5°.

Optionally, a diameter of the slide feature is between 15 feet to 25 feet.

Optionally, a radius of the sliding surface is continuously reduced from the inrun to the outrun.

Optionally, the radius of the sliding surface at the outrun is 75% of the radius of the sliding surface at the inrun.

Optionally, a radius of the sliding surface is constant from the inrun to the outrun.

Optionally, the sliding surface is uncovered.

Optionally, the slide feature comprises a cover over the sliding surface.

Optionally, the cover has at least one of a hemispherical or domed shape.

Optionally, the slide feature is adapted to carry a ride vehicle and the ride vehicle comprises a raft for seating one human or a raft for seating two humans in an inline configuration.

Optionally, a shape of the inrun and a shape of the outrun each are adapted to interface with water slide chutes having a circular or semi-circular cross-section.

Optionally, the sliding surface comprises a groove for guiding the path of the rider.

Optionally, the sliding surface comprises a flexible material with a textured surface.

Optionally, the outer lip has a substantially flat cross-section perpendicular to the sliding surface.

Optionally, the outer lip has a curved cross-section.

Optionally, an edge of the sliding surface is curved to provide a smooth transition to the outer lip.

Optionally, an edge of the sliding surface is angled to meet the outer lip.

Optionally, the edge of the sliding surface is angled at an angle between 10° and 45° relative to a central part of the sliding surface.

According to another aspect, there is provided a slide feature for an amusement ride adapted to carry a rider or ride vehicle sliding thereon, the slide feature comprising: an inrun permitting ingress of the rider or ride vehicle at a first elevation, an outrun permitting egress of the rider or ride vehicle at a second elevation, wherein the first elevation is higher than the second elevation, a sliding surface in communication with the inrun and the outrun, wherein the sliding surface is substantially planar, wherein the slide feature provides that the rider or ride vehicle, at least partially urged by gravity, slides along the sliding surface from the inrun to the outrun in an arcuate path, and wherein the sliding surface is oriented so that an elevation of the rider or ride vehicle increases along a first portion of the arcuate path and decreases along a second portion of the arcuate path.

Optionally, the sliding surface is oriented at a pitch angle around a pitch axis, the pitch angle being measured relative to a horizontal plane; the sliding surface is oriented at a roll angle around a roll axis, the roll angle being measured relative to the horizontal plane, the pitch axis and the roll axis are mutually perpendicular, and both the pitch angle and the roll angle are nonzero.

According to yet another aspect, there is provided a slide feature for an amusement ride adapted to carry a rider or ride vehicle sliding thereon, the slide feature comprising: an inrun permitting ingress of the rider or ride vehicle at a first elevation, an outrun permitting egress of the rider or ride vehicle at a second elevation, wherein the first elevation is higher than the second elevation, a sliding surface in communication with the inrun and the outrun, wherein the sliding surface comprises a substantially circular or substantially elliptical surface portion, wherein the slide feature provides that the rider or ride vehicle, at least partially urged by gravity, slides along the sliding surface from the inrun to the outrun in an arcuate path.

According to yet another aspect, there is provided a water slide comprising a slide feature as described above.

Optionally, the water slide comprises a support structure supporting the slide feature, wherein the support structure is configured to dynamically impart movement to the slide feature.

Various aspects and features of the disclosure are described in further detail below.

CLAIMS

1. A slide feature for an amusement ride adapted to carry a rider or ride vehicle sliding thereon, the slide feature comprising:

an inrun permitting ingress of the rider or ride vehicle at a first elevation,

an outrun permitting egress of the rider or ride vehicle at a second elevation, wherein the first elevation is higher than the second elevation,

a sliding surface in communication with the inrun and the outrun, wherein the sliding surface comprises a surface portion substantially in the shape of a sector of a closed curve,

wherein the slide feature provides that the rider or ride vehicle, at least partially urged by gravity, slides along the sliding surface from the inrun to the outrun in an arcuate path.

2. The slide feature of claim 1, wherein the sliding surface is substantially planar.

3. The slide feature of claim 1, wherein:

the sliding surface is oriented at a pitch angle around a pitch axis, the pitch angle being measured relative to a horizontal plane;

the sliding surface is oriented at a roll angle around a roll axis, the roll angle being measured relative to the horizontal plane,

the pitch axis and the roll axis are mutually perpendicular, and

at least one of the pitch angle and the roll angle is nonzero.

4. The slide feature of claim 3, wherein the pitch angle and the roll angle are selected so that an elevation of the rider or ride vehicle increases along a first portion of the arcuate path and decreases along a second portion of the arcuate path.

5. The slide feature of claim 4, wherein each of the pitch angle and the roll angle is less than 45°.

6. The slide feature of claim 4, wherein at least one of the pitch angle and the roll angle is 11.25°.

7. The slide feature of claim 4, wherein each of the pitch angle and the roll angle are between 15° and 18°.

8. The slide feature of claim 4, wherein the roll angle is 11.25° and the pitch angle is 22.5°.

9. The slide feature of claim 1, wherein a diameter of the slide feature is between 15 feet to 25 feet.

10. The slide feature of claim 1, wherein a radius of the sliding surface is continuously reduced from the inrun to the outrun.

11. The slide feature of claim 10, wherein the radius of the sliding surface at the outrun is 75% of the radius of the sliding surface at the inrun.

12. The slide feature of claim 1, wherein a radius of the sliding surface is constant from the inrun to the outrun.

13. The slide feature of claim 1, wherein the sliding surface is uncovered.

14. The slide feature of claim 1, further comprising a cover over the sliding surface.

15. The slide feature of claim 14, wherein the cover has at least one of a hemispherical or domed shape.

16. The slide feature of claim 1, wherein the slide feature is adapted to carry a ride vehicle and the ride vehicle comprises a raft for seating one human or a raft for seating two humans in an inline configuration.

17. The slide feature of claim 1, wherein a shape of the inrun and a shape of the outrun each are adapted to interface with water slide chutes having a circular or semi-circular cross-section.

18. The slide feature of claim 1, wherein the sliding surface comprises a groove for guiding the path of the rider.

19. The slide feature of claim 1, wherein the sliding surface comprises a flexible material with a textured surface.

20. The slide feature of claim 32, wherein the outer lip has a substantially flat cross-section perpendicular to the sliding surface.

21. The slide feature of claim 32, wherein the outer lip has a curved cross-section.

22. The slide feature of claim 21, wherein an edge of the sliding surface is curved to provide a smooth transition to the outer lip.

23. The slide feature of claim 32, wherein an edge of the sliding surface is angled to meet the outer lip.

24. The slide feature of claim 23, wherein the edge of the sliding surface is angled at an angle between 10° and 45° relative to a central part of the sliding surface.

25. A water slide comprising a slide feature according to claim 1.

26. The water slide of claim 25, further comprising:

a support structure supporting the slide feature,

wherein the support structure is configured to dynamically impart movement to the slide feature.

27. A slide feature for an amusement ride adapted to carry a rider or ride vehicle sliding thereon, the slide feature comprising:

an inrun permitting ingress of the rider or ride vehicle at a first elevation,

an outrun permitting egress of the rider or ride vehicle at a second elevation, wherein the first elevation is higher than the second elevation,

a sliding surface in communication with the inrun and the outrun, wherein the sliding surface is substantially planar,

wherein the slide feature provides that the rider or ride vehicle, at least partially urged by gravity, slides along the sliding surface from the inrun to the outrun in an arcuate path, and

wherein the sliding surface is oriented so that an elevation of the rider or ride vehicle increases along a first portion of the arcuate path and decreases along a second portion of the arcuate path.

28. The slide feature of claim 27, wherein:

the sliding surface is oriented at a pitch angle around a pitch axis, the pitch angle being measured relative to a horizontal plane;

the sliding surface is oriented at a roll angle around a roll axis, the roll angle being measured relative to the horizontal plane,

the pitch axis and the roll axis are mutually perpendicular, and

both the pitch angle and the roll angle are nonzero.

29. A water slide comprising a slide feature according to claim 27.

30. A slide feature for an amusement ride adapted to carry a rider or ride vehicle sliding thereon, the slide feature comprising:

an inrun permitting ingress of the rider or ride vehicle at a first elevation,

an outrun permitting egress of the rider or ride vehicle at a second elevation, wherein the first elevation is higher than the second elevation,

a sliding surface in communication with the inrun and the outrun, wherein the sliding surface comprises a substantially circular or substantially elliptical surface portion,

wherein the slide feature provides that the rider or ride vehicle, at least partially urged by gravity, slides along the sliding surface from the inrun to the outrun in an arcuate path.

31. The slide feature of claim 1, wherein the slide feature further comprises an outer lip extending from the inrun to the outrun and wherein the arcuate path is at least partially bounded by the outer lip.

32. The slide feature of claim 27, wherein the slide feature further comprises an outer lip extending from the inrun to the outrun and wherein the arcuate path is at least partially bounded by the outer lip.

33. The slide feature of claim 30, wherein the slide feature further comprises an outer lip extending from the inrun to the outrun and wherein the arcuate path is at least partially bounded by the outer lip.

34. The slide feature of claim 1, wherein the rider or ride vehicle has a continuously decreasing elevation while sliding from the inrun to the outrun.

35. The slide feature of claim 27, wherein the rider or ride vehicle has a continuously decreasing elevation while sliding from the inrun to the outrun.

36. The slide feature of claim 30, wherein the rider or ride vehicle has a continuously decreasing elevation while sliding from the inrun to the outrun.