No. 723,525. PATENTED MAR. 24, 1903.

C. L. HAGEN.

CENTRIFUGAL AMUSEMENT WAY.

APPLICATION FILED NOV. 8, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

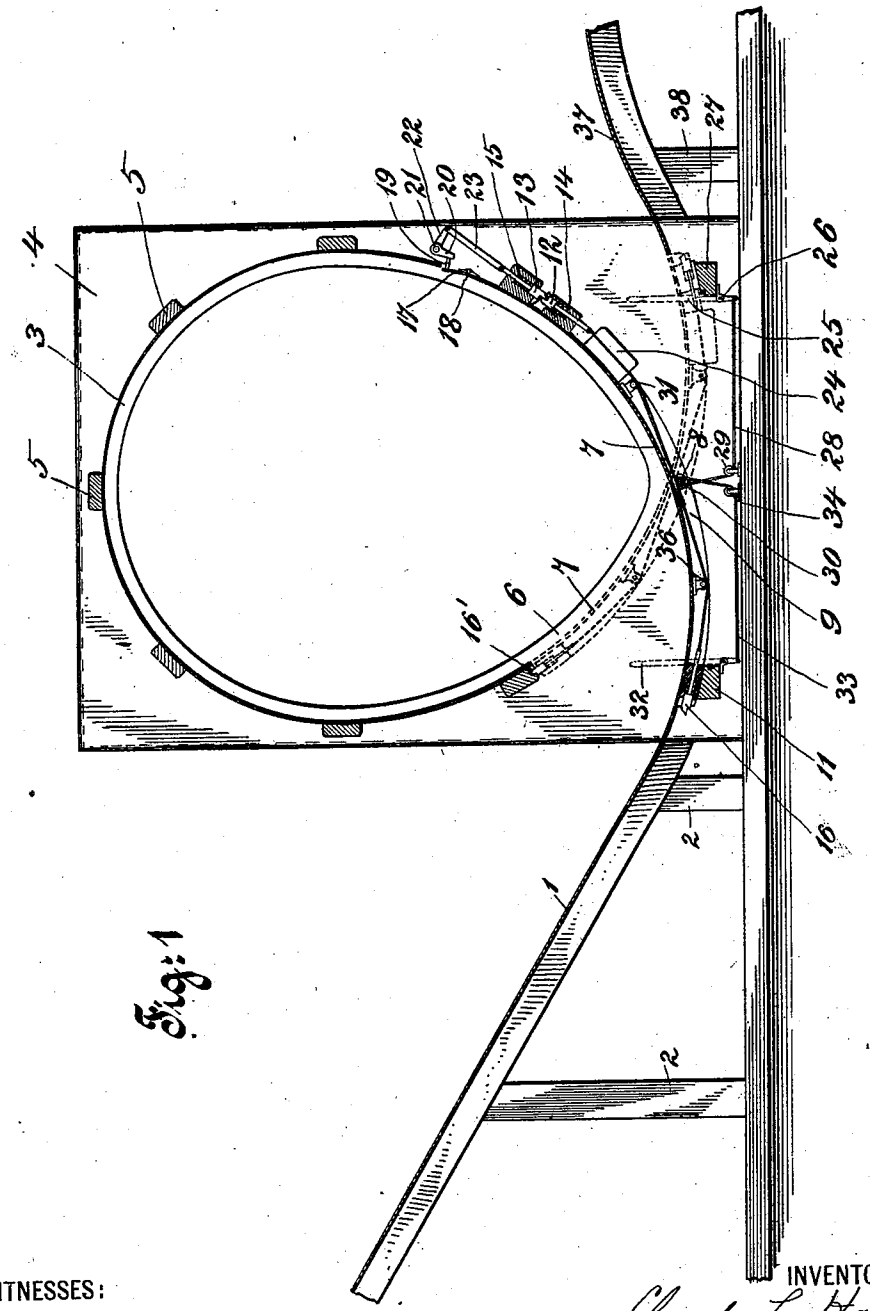

Fig. 1.

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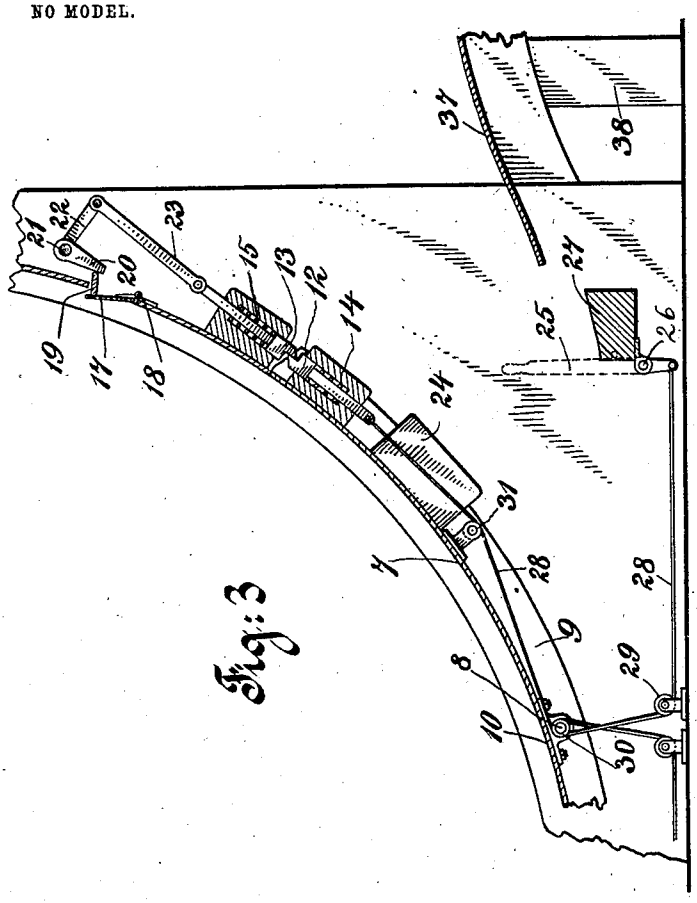

Fig. 3

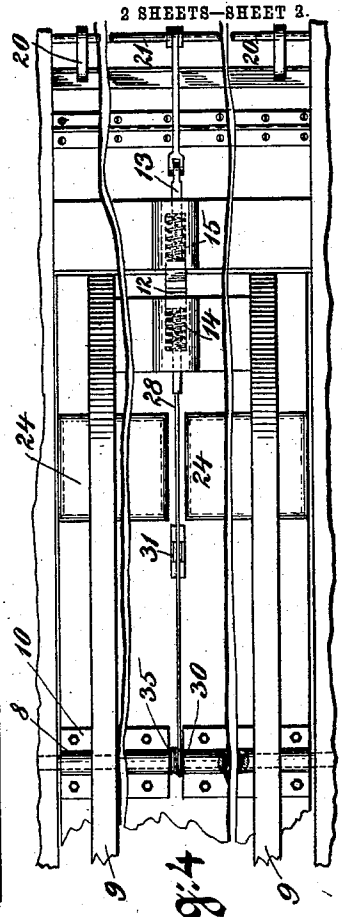

Fig. 4

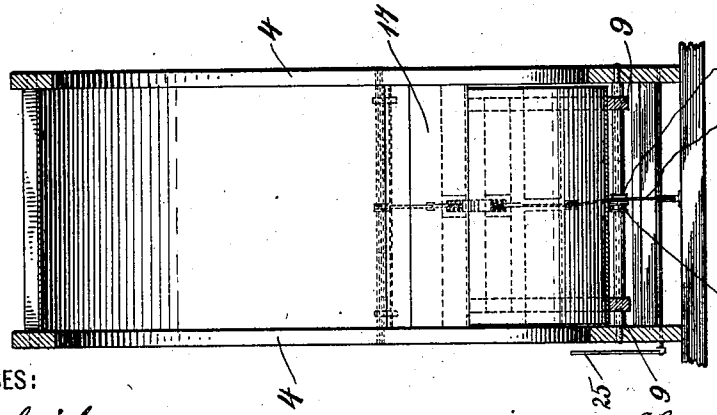

Fig. 2

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UNITED STATES PATENT OFFICE.

CLAUDE L. HAGEN, OF NEW YORK, N. Y.

CENTRIFUGAL AMUSEMENT-WAY.

SPECIFICATION forming part of Letters Patent No. 723,525, dated March 24, 1903.

Application filed November 8, 1902. Serial No. 130,481. (No model.)

To all whom it may concern:

Be it known that I, CLAUDE L. HAGEN, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Centrifugal Amusement-Ways, of which the following is a specification.

My invention relates to centrifugal amusement-ways in which a car or a bicycle travels around a loop while under the action of centrifugal force, the car or bicycle carrying a rider, if desired.

The object of my invention is to provide a loop which will avoid the danger of throwing the car or bicycle off the way or track while going around the loop.

Heretofore loops have been constructed of helical spiral form, so that the direction taken by the car or bicycle is continually changing its plane. This makes it exceedingly difficult to ride the loop on a bicycle, as it necessitates continual and very accurate steering, failing in which the rider leaves the track, often with fatal results.

The object of my invention is to provide a loop in which the direction of the loop is not constantly changing its plane at every point, but in which the course of the loop preferably lies substantially in a single plane. Little steering is necessary, and in some forms of my invention the rider may even pass through the loop with his front wheel locked, so that steering is impossible. By this improved construction riding the loop on a bicycle is made easy.

Although particularly adapted for bicycle-paths, my invention may also be used in pleasure-railways in which cars are used to carry the passengers or riders, the cars running on suitable tracks or rails. The cars that have been used on spiral loops have often been specially constructed in order that they may accommodate themselves to the spiral tracks. In my invention this special construction of car is unnecessary, and, if desired, the tracks may also be omitted, since there is no tendency for the car to leave the loop sidewise.

My invention may also be used for toy railways, in which case, of course, no passengers will, as a rule, be carried around the loop.

My invention consists in the parts, improvements, and combinations particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a vertical longitudinal section of the centrifugal way. Fig. 2 is a vertical transverse section passing through the loop. Fig. 3 is a detail section of a part of the pivoted way and the locking means therefor. Fig. 4 is a detail view looking from below and facing the locking means and pivoted way shown in Fig. 3.

Referring to the drawings in detail, 1 is the inclined way leading toward the loop, the way being supported by the standards 2. The loop 3, which in the preferred form of my invention lies in a vertical plane, consists of a way for the car or bicycle, which is supported in the side frames 4 by means of suitable braces 5. This loop may be of any desired configuration. I have shown it oval; but it may be circular. The course of the loop lies in substantially a single plane, so that the rider when traveling around it has no tendency to leave the loop sidewise. The loop is cut out at 6 to permit the rider to enter it.

Suitable means are provided to enable the rider to enter and leave the loop. These means may be of any desired form. In the present instance I make use of a movable section 7, which receives the rider on his entrance to the loop. In the preferred form of the invention it also serves to deliver him therefrom. The movable section may be mounted in any desired manner. I prefer to pivot it, as shown at 8, the pivot extending into the two side frames 4 of the apparatus. Suitable strengthening-braces 9, running lengthwise of the way, and cross-pieces 10 may be provided for holding the parts of the movable section rigidly together.

In its normal position ready to receive the rider or passenger the front of the movable section rests upon the cross-piece 11. Suitable means are provided for locking the pivoted section in place, so as to prevent it from moving under the impact of the riders or cars as they enter the loop. This means may be of any desired form. In the present instance I have shown it to consist of locking-bolts 12 and 13, pressed into engagement by suitable

springs 14 and 15, respectively. The bolt 13 is on the fixed frame or support, and the bolt 12 is on the movable section. A similar locking means 16 is provided at the other end of the movable section to lock it in place in order to support the rider as he leaves the loop. This lock 16 engages the notch 16′, which holds it firmly while the rider is on the movable section as he is leaving the loop.

Means are provided of any desired form for automatically operating the locking mechanism, so as to permit the movable section to move from its receiving to its delivering position while the riders or passengers travel around the loop. I prefer to operate the locking mechanism automatically by contact with the wheel of the bicycle or car. This may be accomplished in any desired manner. I have shown a pivoted platform 17, pivoted at 18, over which the wheel of the rider passes. The platform 17 is provided with a cross-piece 19, which engages the two arms 20 to unlock the locking mechanism. These two arms 20 are each connected to a transverse shaft 21, from which extends an arm 22, which is connected by an intermediate link 23 to the locking-bolt 13. As the wheel of the rider passes over the platform 17 the platform, through its connected mechanism, retracts the bolt 13 and the movable section is free to swing about its pivot 8. Any means may be provided for swinging the section. In the present instance I have shown a weight 24 attached to the bottom of the movable section, the force of which swings the section from the position shown in Fig. 1 in full lines to that shown in dotted lines in the same figure. A spring may be arranged to take the place of or assist the weight in its action.

In order to avoid accidents, it is desirable to provide some hand-controlled mechanism that will release the movable section and permit it to assume the delivery position in case the automatic mechanism for controlling the lock fails to act. Any desired means may be used for this purpose. I have shown a hand-lever 25, pivoted at 26 to the cross-piece 27, to which one end of the bolt is connected by means of a suitable strap or cord 28, passing over the guide-pulleys 29, 30, and 31. When the lever 25 is pulled after the rider has left the movable section, the lock is opened and the section swings to the dotted-line position. A similar hand-lever 32, pivotally mounted upon the cross-piece 11, is connected by a cord or strap 33, passing over the guide-pulleys 34, 35, and 36 to the bolt 16. The object of this construction is to permit the retraction of the bolt 16 in unlocking the pivoted way from its delivery position, and thus enabling it to be reset to the position shown in the full lines of Fig. 1 when the apparatus is made ready to receive the rider. Any desired means may be used to receive the rider as he leaves the loop. In the present instance I have shown upwardly-inclined ways 37, mounted upon standards 38, up which the rider travels.

The operation of my apparatus is as follows: The lock 16 having been unlocked from the notch 16′ by pulling down on the hand-lever 32, the movable section 7 is swung down against the force of the weight 24 until its front end is in the position shown in Fig. 1. This operation sets the locking mechanism 12 13, the bolt 12 snapping past the bolt 13, so as to hold the movable section in place. The rider, descending the incline 1 and arriving at the bottom of the incline at a high rate of speed, rides around the loop, and as he passes on the platform 18 the locking mechanism is released. While the rider passes around the fixed portion the movable section 7 moves from the position shown in the full lines of Fig. 1 to that shown in the dotted lines and the lock 16 snaps into place and into coöperation with the notch 16′. On arriving at the point 16′ the rider passes again over the movable section and then out of the loop, finally riding up the incline 37. While the rider or passenger is traveling around the loop he is under the action of centrifugal force acting toward the way of the loop. This prevents the car or cycle from dropping away from the track or path.

It will be observed that the course of the loop lies in a single plane. The ways leading toward and from the loop are preferably in the same plane as that occupied by the loop itself. By this means if the loop is being ridden on a bicycle no steering of the bicycle is necessary in order that it may keep its path. In fact, the front wheel may be locked, and thus steering made impossible.

In its broader aspects the invention is not limited to the particular construction shown, nor to any particular construction by which it may be carried into effect, as many changes may be made in the construction without departing from the main principles of the invention and without sacrificing its chief advantages.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a centrifugal amusement-way, a vertical loop whose course lies substantially in a single plane, around which loop the car or rider travels while under the action of centrifugal force acting to press the car or rider against the loop, substantially as described.

2. In a centrifugal amusement-way, a loop whose course lies in a single plane around which loop the car or rider travels, the loop being cut out to permit the rider to enter it, substantially as described.

3. In a centrifugal amusement-way, a loop whose course lies in a vertical plane around which loop the car or rider travels, the loop being cut out to permit the rider to enter it, substantially as described.

4. In a centrifugal amusement-way, the

combination of a loop whose course lies substantially in a single plane, around which loop the car or rider travels while under the action of centrifugal force acting toward the way of the loop, and ways leading toward and from the loop, substantially as described.

5. In a centrifugal amusement-way, the combination of a loop whose course lies substantially in a vertical plane around which loop the car or rider travels, and ways leading toward and from the loop, substantially as described.

6. In a centrifugal amusement-way, the combination of a loop whose course lies substantially in a single plane around which loop the car or rider travels while under the action of centrifugal force acting toward the way of the loop, and ways leading toward and from the loop, the loop being cut out to permit the rider to enter it, substantially as described.

7. In a centrifugal amusement-way, the combination of a loop whose course lies in a vertical plane around which loop the car or rider travels, and ways leading toward and from the loop, the loop being cut out to permit the rider to enter it, substantially as described.

8. In a centrifugal amusement-way, the combination of a loop whose course lies substantially in a plane, around which loop the car or rider travels while under the action of centrifugal force acting toward the way of the loop, and inclined ways leading toward and from the loop, substantantially as described.

9. In a centrifugal amusement-way, the combination of a loop whose course lies in a vertical plane around which loop the car or rider travels, and inclined ways leading toward and from the loop, substantially as described.

10. In a centrifugal amusement-way, the combination of a loop whose course lies substantially in a plane, around which loop the car or rider travels while under the action of centrifugal force acting toward the way of the loop, and inclined ways leading toward and from the loop, the loop being cut out to permit the rider to enter it, substantially as described.

11. In a centrifugal amusement-way, the combination of a loop whose course lies in a vertical plane, around which loop the car or rider travels, and inclined ways leading toward and from the loop, the loop being cut out to permit the rider to enter it, substantially as described.

12. In a centrifugal amusement-way, the combination of a loop whose course lies substantially in a plane, around which loop the rider travels while under the action of centrifugal force acting toward the way of the loop, with ways leading toward and from the loop, the ways and the loop lying in the same plane, substantially as described.

13. In a centrifugal amusement-way, the combination of a loop around which loop the car or rider travels while under the action of centrifugal force acting toward the way of the loop, with ways leading toward and from the loop, the ways at the entrance and exit from the loop lying in a single plane, substantially as described.

14. In a centrifugal amusement-way, the combination of a loop around which loop the car or rider travels while under the action of centrifugal force acting toward the way of the loop, and a movable section for delivering the car or rider to the loop, substantially as described.

15. In a centrifugal amusement-way, the combination of a loop around which the car or rider travels while under the action of centrifugal force acting toward the way of the loop, and a movable way-section forming part of the loop for delivering the rider to the loop, substantially as described.

16. In a centrifugal amusement-way, the combination of a loop around which loop the car or rider travels while under the action of centrifugal force acting toward the way of the loop, a movable way-section for delivering the rider to and from the loop, and means for moving the section, substantially as described.

17. In a centrifugal amusement-way, the combination of a loop whose course lies in a plane around which loop the car or rider travels while under the action of centrifugal force acting toward the way of the loop, a pivoted way-section for delivering the rider to the loop, and means for swinging the section, substantially as described.

18. In a centrifugal amusement-way, the combination of a loop whose course lies in a plane, around which loop the car or rider travels while under the action of centrifugal force acting toward the way of the loop, a pivoted way-section for delivering the rider to and from the loop, and means for swinging the section, substantially as described.

19. In a centrifugal amusement-way, the combination of a loop, whose course lies in a vertical plane, a pivoted way-section for delivering the rider to and from the loop, a weight or spring for swinging the section in one direction and means for returning the section, substantially as described.

20. In a centrifugal amusement-way, the combination of a loop whose course lies in a vertical plane, a way-section pivoted intermediate its ends for supporting the car or rider and means for swinging the section, substantially as described.

21. In a centrifugal amusement-way, the combination of a loop whose course lies in a vertical plane, a movable way-section therefor, a locking means for holding the section while the rider is entering the loop, and hand-operated means for controlling the locking means, substantially as described.

22. In a centrifugal amusement-way, the combination of a loop whose course lies in a vertical plane, a movable way-section therefor, locking means for holding the section in

place, and automatic mechanism for controlling the locking means, substantially as described.

23. In a centrifugal amusement-way, the combination of a loop whose course lies in a vertical plane, a movable way-section therefor, a locking means for holding the section while the rider is entering the loop, hand-operated means for controlling the locking means, and means operated by the car or bicycle for controlling the locking means, substantially as described.

24. In a centrifugal cycle-path, a vertical loop whose course lies in a plane, around which loop the rider travels while under the action of centrifugal force acting to press the car or rider against the loop, substantially as described.

25. In a centrifugal cycle-path, a loop whose course lies in a single plane, the loop being cut out to permit the rider to enter it, substantially as described.

26. In a centrifugal cycle-path, a loop whose course lies in a vertical plane, the loop being cut out to permit the rider to enter it, substantially as described.

27. In a centrifugal cycle-path, the combination of a loop whose course lies in a plane, around which loop the rider travels while under the action of centrifugal force acting toward the path of the loop and inclined cycle-paths leading toward and from the loop substantially as described.

28. In a centrifugal cycle-path, the combination of a loop whose course lies in a vertical plane, with inclined cycle-paths leading toward and from the loop, the loop being cut out to permit the rider to enter it, substantially as described.

29. In a centrifugal cycle-path, the combination of a loop whose course lies in a vertical plane, with inclined cycle-paths leading toward and from the loop, the loop being cut out to permit the rider to enter it, a movable section in the path of the rider and means for moving the section, substantially as described.

30. In a centrifugal cycle-path, the combination of a loop whose course lies in a vertical plane, with inclined cycle-paths leading toward and from the loop, the loop being cut out to permit the rider to enter it, a pivoted section in the path of the rider, and means for moving the section, substantially as described.

31. In a centrifugal cycle-path, the combination of a loop whose course lies in a plane, with inclined cycle-paths leading toward and from the loop, the loop being cut out to permit the rider to enter it, a movable section in the path of the rider and locking means for the section, substantially as described.

32. In a centrifugal cycle-path, the combination of a loop whose course lies in a plane, with inclined cycle-paths leading toward and from the loop, the loop being cut out to permit the rider to enter it, a movable section in the path of the rider, locking means for the section, and means operated by the cycle for controlling the locking means, substantially as described.

33. In a centrifugal cycle-path, the combination of a loop whose course lies in a plane, with inclined cycle-paths leading toward and from the loop, the loop being cut out to permit the rider to enter it, a movable section, locking means for the section, and hand-operated means for controlling the locking means, substantially as described.

34. In a centrifugal cycle-path, the combination of a loop whose course lies in a plane, with inclined cycle-paths leading toward and from the loop, the loop being cut out to permit the rider to enter it, a movable section in the path of the rider, locking means for the section, means operated by the cycle for controlling the locking means, and hand-operated means for controlling the locking means, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLAUDE L. HAGEN.

Witnesses:
E. CAMBRELENG,
W. F. BISSING.