No. 811,211. PATENTED JAN. 30, 1906.

A. E. W. FRAZER.

AMUSEMENT RAILWAY.

APPLICATION FILED MAR. 21, 1903. RENEWED JULY 15, 1905.

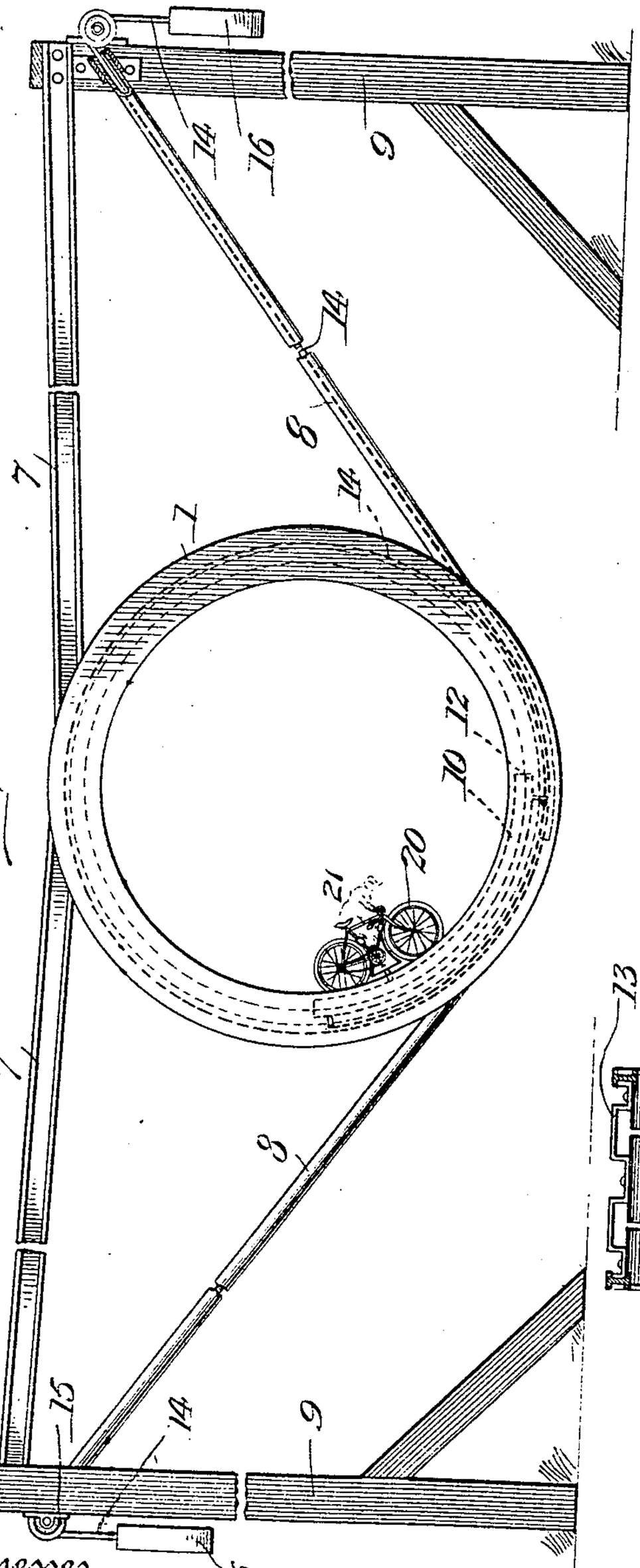

Fig. 1.

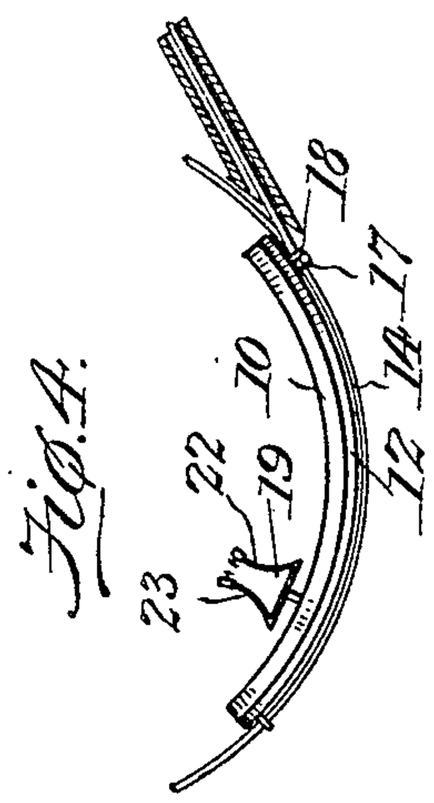

Fig. 4.

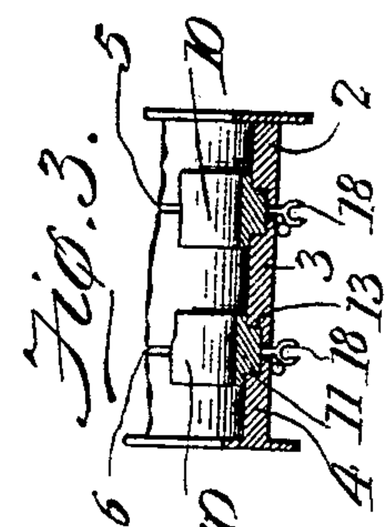

Fig. 3.

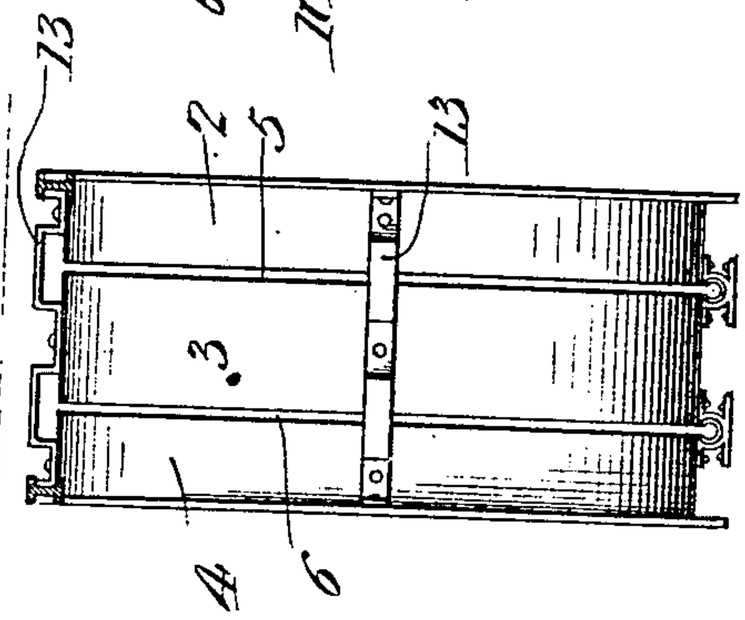

Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

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AMUSEMENT-RAILWAY.

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Application filed March 21, 1903. Renewed July 15, 1905. Serial No. 269,908.

To all whom it may concern:

Be it known that I, ANNE E. W. FRAZER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Amusement-Railways, of which the following is a description, reference being had to the accompanying drawings, and to the figures of reference marked thereon.

My invention relates to amusement-railways, and is designed to provide means whereby a vehicle carrying a rider may be caused to traverse the inner periphery of a circular vertically-arranged path without apparent means of support.

Heretofore in devices known as "loop-the-loop" railways a vehicle has been caused to traverse the inner periphery of a more or less circular loop without leaving the track by the momentum gained by the descent of an inclined pathway before entering the loop. Vehicles have also been caused to traverse the inner periphery of a circular vertically-arranged pathway by being secured to a supporting-arm extending radially from a shaft arranged at the center of the circular path. In the device of my invention I dispense with the inclined pathway of the first-mentioned devices and also dispense with the radial supporting-arm of the other device mentioned.

In the drawings, Figure 1 is an elevation of my device, showing an arrangement by which two vehicles may be caused to traverse the inner periphery of a circular path in opposite directions. Fig. 2 is a side view of the circular pathway. Fig. 3 is a cross-sectional view of the pathway. Fig. 4 is a detail view of the shoe.

In the drawings, 1 is a circular vertically-arranged pathway comprising separate parallel portions 2, 3, and 4, separated by narrow spaces 5 and 6. The circular pathway 1 is supported by means of braces 7 and 8, connected, respectively, to the pathway near its upper and lower points and extending outward to a suitable upright 9. The braces 8, connected to the circular pathway near its lower point, are preferably hollow and may be conveniently made of ordinary metal piping: A shoe 10, preferably equal in length to about one-fourth of the circumference of the circular pathway, is arranged in each of the slots 5 and 6. The inner faces of the portions 2, 3, and 4 are preferably formed with grooves 11, into which a rib 12 on the shoe fits. The portions 2, 3, and 4 of the circular pathway are rigidly connected on their external faces by cross-bars 13, which are bent outward opposite the slots 5 and 6 to permit free passage of the shoes 10.

To the shoe 10 at a point near the end which in the position in which the shoe is shown in Fig. 1 is farthest from the entrance to the hollow brace 8 is secured a cord or band 14, which when the parts are in the position shown in Fig. 1 extends along the outer face of the shoe, thence along the outer face of the circular pathway, making a complete circuit of the pathway, extending again along the outer face of the shoe, and thence through the hollow brace 8 to the pulley 15 and has a weight 16 secured to its end. The cord or band should obviously be of such diameter or width relative to the width of the slot that it will not drop through the slot. In order to avoid excessive friction at starting between the cord or band and the outer surface of the pathway, the cord or band is detachably secured to the shoe after it has passed completely around the pathway. This detachable connection consists of a projection 17 on the cord or band and a notched projection 18 on the shoe, preferably near the end opposite to that at which the end of the cord or band is secured. The portion of the cord or band between the points of its attachment to the shoe is sufficiently slack to permit of its moving on the outer surface of the pathway without excessive friction. The pull of the cord or band in starting will be through the projection 17 on the projection 18, the cord lying in the notch of the projection 18. As the projection 18 passes the entrance of the hollow brace 8 it will readily detach itself from the projection 17, and thereafter the pull of the cord or band will be through its end attachment on the shoe. By the time the projection 18 has passed the entrance to the hollow brace 8 the shoe will have acquired considerable momentum by reason of the pull of the cord or band on the projection 18, as well as by the gravitational force of the vehicle and rider, and the strain on the cord or band necessary to maintain the speed of the shoe and the friction of the cord or band on outer surface of the pathway will consequently be comparatively small.

Secured to the inner face of the shoe is a clamp 19, extending through the slot and adapted to engage the vehicle 20, which in this case is preferably a bicycle carrying a rider 21, who for the sake of safety should be

strapped or otherwise secured in position. The clamp 19 is preferably arranged near the end of the shoe farthest from the entrance of the hollow brace 8. The clamp is preferably constructed with a forward portion 22 curved to follow the curve of the tire of the front wheel and engaging the front fork of the bicycle and with a rear portion 23 curved to follow the curve of the rear wheel and engaging the frame of the bicycle, and the clamp is preferably so arranged that the wheel of the bicycle may revolve freely.

The projection 17 on the cord or band 14 is preferably so located that when it engages the projection 18 on the shoe the portion of the cord or band surrounding the circular pathway will be slightly slack.

The parts being in the position in which they are shown in Fig. 1 and the rider being in position and the wheels of the bicycle being put in motion, the weight 16 is dropped and the shoe 10, which has been temporarily held in position by any convenient means, is let go. The weight 16 through the cord or band 14 and its projection 17, engaging the projection 18 on the shoe, aided by the weight of the bicycle and its rider, causes the bicycle and its rider to appear to ride downward to the lowest of the circular pathway. As the projection 18 passes the entrance of the hollow brace 8 it disengages itself from the projection 17, and the pull of the cord or band is then upon the rear end of the shoe, as above described. The further descent of the weight causes the shoe carrying the bicycle and its rider to traverse the inner periphery of the circular pathway until it comes to rest at the lowest point. Any convenient means for checking the momentum of the shoe at the proper point may be employed.

It will be understood that if only one bicycle is to be used the track may be made in two portions, only one slot and shoe being necessary. I prefer, however, to use two shoes, as shown, and to arrange them, as shown, to move in opposite directions.

Instead of a weight 16 any other motive power may be used.

I prefer to so arrange the braces 7 and 8 that the circular pathway will be supported at a slight elevation above the ground or floor on which the uprights rest. The circular pathway should be so constructed as to conceal the shoes and the cords or bands, and the slots should be made as narrow as possible.

The weight 16 should of course be sufficient to overcome the weight of the bicycle and rider and the friction on the cord or band, and it should be arranged to fall a distance sufficient to carry the shoe completely around the circular pathway.

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

1. In an amusement-railway, the combination of a circular vertically-arranged pathway, comprising parallel portions separated by a slot, means for sustaining the pathway in vertical position, a clamp extending through the slot, and means connected to the clamp exterior to the pathway for causing the clamp to traverse the pathway; substantially as described.

2. In an amusement-railway, the combination of a circular vertically-arranged pathway, comprising parallel portions so arranged as to leave a slot between contiguous parallel portions, a clamp extending through each slot, and means connected with the clamps exterior to the pathway for causing the clamps to traverse the pathway in opposite directions; substantially as described.

3. In an amusement-railway, the combination of a circular vertically-arranged pathway, comprising parallel portions separated by a slot, means for sustaining the pathway in vertical position, a shoe adapted to traverse the exterior of the pathway, a clamp carried by the shoe and extending through the slot and means for causing the shoe to traverse the pathway; substantially as described.

4. In an amusement-railway, the combination of a circular vertically-arranged pathway, comprising parallel portions separated by a slot, means for sustaining the pathway in position comprising braces, one of which is hollow, a clamp extending through the slot, a cord or band connected with the clamp and extending through the hollow brace, and means acting on the cord or band to cause the clamp to traverse the periphery of the pathway; substantially as described.

5. In an amusement-railway, the combination of a circular vertically-arranged pathway, comprising parallel portions separated by a slot, means for sustaining the pathway in position, comprising braces, one of which is hollow, a clamp extending through the slot, a cord or band connected with the clamp and extending through the hollow brace; substantially as described.

6. In an amusement-railway, the combination of a circular vertically-arranged pathway, comprising parallel portions separated by a slot, means for sustaining the pathway in vertical position, a shoe adapted to traverse the exterior of the pathway, a clamp carried by the shoe and extending through the slot, a cord or band secured to the shoe near one end, extending around the exterior of the circular pathway and provided with means for detachably engaging the shoe near its other end; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ANNE E. W. FRAZER.

Witnesses:
JOS. H. BLACKWOOD,
A. P. GREELEY.