

No. 762,022.

PATENTED JUNE 7, 1904.

J. H. BROWN.
PLEASURE RAILWAY.
APPLICATION FILED FEB. 25, 1904.

NO MODEL.

12 SHEETS—SHEET 1.

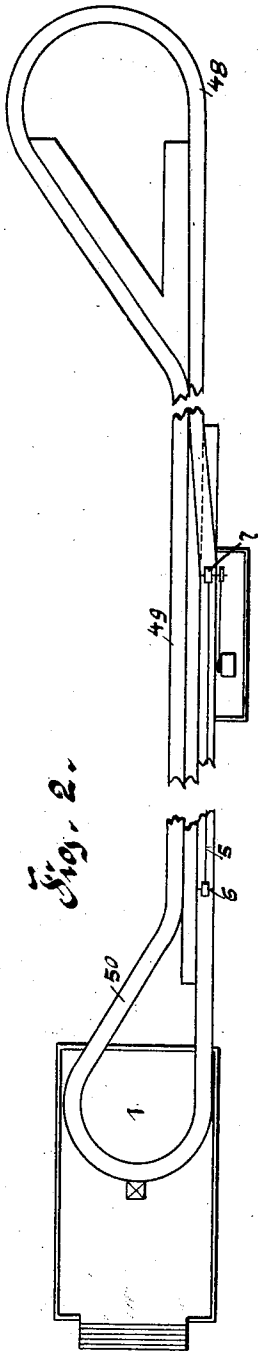


Fig. 2.

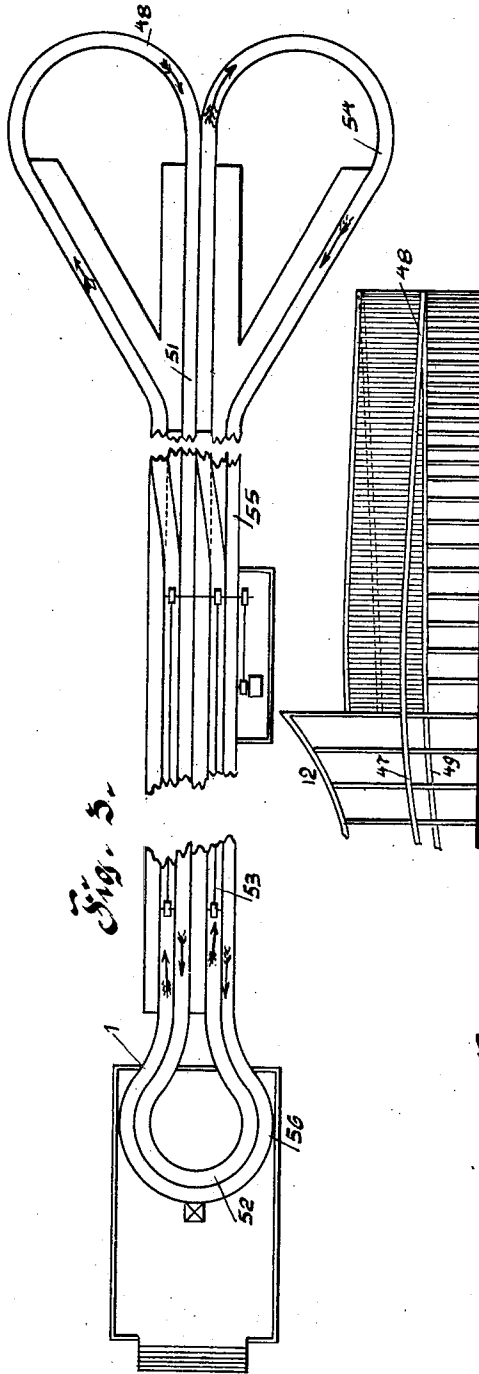


Fig. 3.

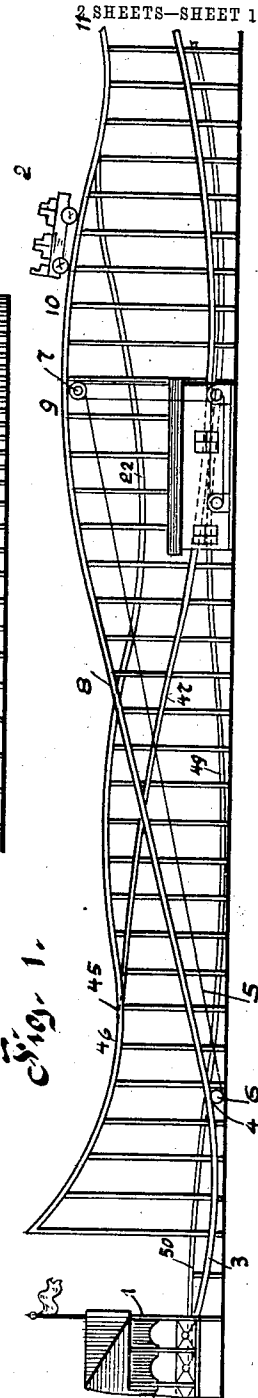


Fig. 1.

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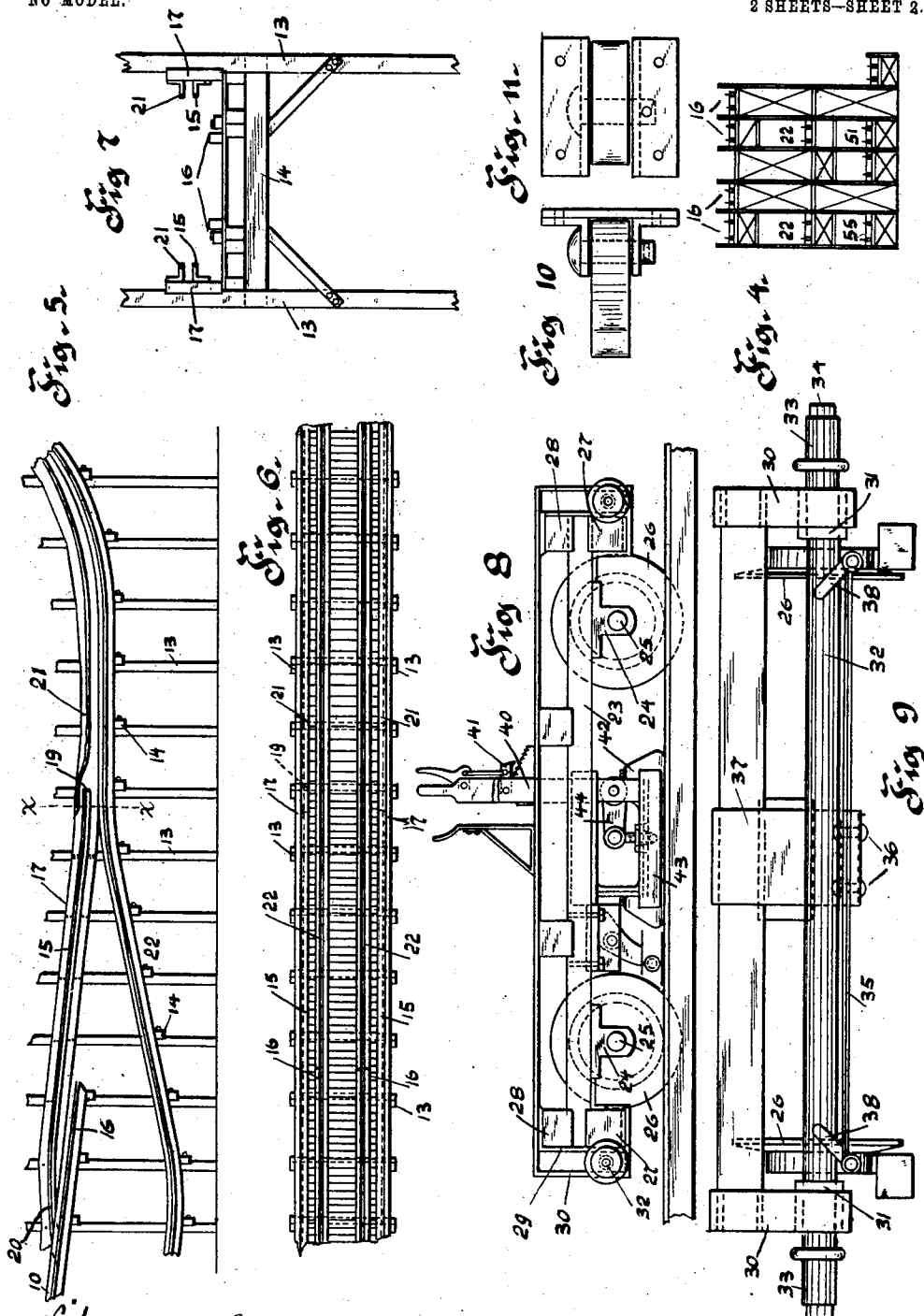
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NO MODEL.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN H. BROWN, OF RANKIN, PENNSYLVANIA.

PLEASURE-RAILWAY.

SPECIFICATION forming part of Letters Patent No. 762,022, dated June 7, 1904.

Application filed February 25, 1904. Serial No. 195,192. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. BROWN, a citizen of the United States of America, residing at Rankin, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Pleasure-Railways, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to pleasure-railways, called indifferently "pleasure-railways," "scenic railways," "gravity-railways," "toboggan-slides," "roller-coasters," and by other well-known names. Heretofore such railways have been so constructed that the car starting from a station or point would travel on an outgoing track to the extreme end thereof, where by means of a switch or equivalent device the car would be transferred from the outgoing track to an incoming track, which it would traverse back to the station or starting-point to be again transferred by a switch or similar device to the outgoing track. Such switches have always been considered more or less dangerous as applied to pleasure-railways, owing to the fact that they may fail to work, and the car may thus be sent backward on the outgoing track and encounter another car coming from the station. In another form pleasure-railways have been constructed having two or more parallel tracks connected by means of loops at each end, thus making the course or track continuous, the cars traveling over the entire stretch of track in one direction or head on.

The object of my invention is to provide a pleasure-railway having a series of ascending and descending tracks with undulating grades, and tracks being so constructed and arranged as to have courses or tracks at one or more parts of the structure in tiers—that is, one course or track over the other—and to provide means whereby the cars traversing the tracks will move alternately backward and forward during the circuit of the course.

I propose to provide means whereby, for instance, the car having traversed the tracks of the topmost or first course going forward leaves the tracks of that course and passes onto the tracks of the second course, where it trav-

els in the reverse direction—that is, backward—and, passing under the tracks of the first course, traverses the tracks of the second course to the tracks of the third or next course below, upon which the direction of the travel of the car will be again reversed, that car now running forward—that is, in the same direction as it ran on the topmost or first course.

My invention consists in the novel construction, combination, and arrangement of parts to be hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of a portion of a pleasure-railway constructed in accordance with my improvements, the outer end of the track being shown above the main portion of the tracks. Fig. 2 is a plan view of the same, the intermediate portions of the track being broken away to shorten the figure. Fig. 3 is a similar view of the track having a double course. Fig. 4 is a transverse sectional view of the structure shown in Fig. 3. Fig. 5 is an enlarged vertical sectional view of a portion of the structure shown in Fig. 1, showing that part of the track where the car passes from one course to another. Fig. 6 is a plan view of a portion of the structure shown in Fig. 5. Fig. 7 is an enlarged vertical transverse sectional view on the line *xx* of Fig. 6. Fig. 8 is a side elevation of the frame of the car-truck, showing the arrangement of the double sets of wheels upon which the car runs. Fig. 9 is an end elevation of same. Figs. 10 and 11 are detail views in plan and elevation of a gripping device carried by the car.

1 designates the starting-point or station from which the cars depart in traveling over the course. 2 designates one of the cars, which may traverse the course singly or in groups or trains. The car on leaving the station 1 traverses by gravity a short downwardly-inclined section of track 3 to a point 4, where the gripping devices with which the car is supplied and which will be hereinafter described are caused to engage a cable or endless conveyer 5, which may be a link, chain, belt, or similar well-known device. The conveyer 5 passes over pulleys 6 at its lower end and over pulleys 7 at its upper end and is op-

erated in the usual well-known manner by an engine having a driving-shaft from which power is communicated to the pulley 7. The conveyer 5 draws a car up the incline 8 to a point 9, where gripping devices on the car are disengaged from the conveyer and the latter is allowed to descend the downwardly and laterally inclined portion 10 of the track by gravity, and by the momentum acquired by the descent of the inclined portion 10 the car ascends the inclined portion 11 to 12, where as soon as the momentum acquired by the descending of portion 10 has been lost the car, having now completed its forward motion on the first course of the railway, runs backward by gravity, descending the inclined portion 11 backward on the tracks of the second course. As the means for transferring the car from the first course to the second course and from each course to that which follows, whatever may be the number of the same, requires a peculiar construction and arrangement of parts of both the car and the tracks, I will now proceed to describe the same, reference being had to Figs. 5 to 11 of the drawings.

In Fig. 5 I have shown the portion of the track at point 11 and immediately adjacent thereto, the track being shown as supported by vertical standards 13 and cross-beams 14. The inclined portion 10 of the first course of the track is shown at the left-hand side of the figure, and at this point a guide-track 15 is secured to the side beams 17 on each side of the main track, which in this figure is designated by numeral 16. This guide-track overlaps the end of the main track 16 of the first course and extends from a point within the end of said track 16 to a point 19, said guide-track being extended on a line parallel to the track 16, but at a slight elevation above the same, the overlapping end of the guide-track extending backwardly and downwardly, as shown at 20, so as to meet the plane of the track 16. The guide-track is composed of angle-irons arranged one on each side of the track to accommodate rollers carried on the outside of the frame of the car, the rollers, the angle-irons, and a guide-plate 21, as will be presently described. The guide-plate 21 is arranged on the side beams 17 and overlaps the ends 19 of the guide-track 15, being curved upwardly and over said end 19, so as to leave a space between the end of the said guide-track 15 and the end of said guide-plate. Beyond the end 19 of the guide-track the second course 22 of the tracks extends and inclines upwardly, forming that portion of the second course lying between the points 11 and 12 of Fig. 1, and the guide-plate 21 is disposed parallel to this section of the track, as shown in Fig. 5. The track 22, as before stated, constitutes the second course and from the point 19 of the guide-track inclines downwardly. The said track 22 is located a sufficient distance below

the end of the guide-track 19 to permit the rollers on the outside of the frame of the car to pass under the end of said guide-track when the car is on its return journey over the tracks 22.

The car mechanism, which is shown in detail in Figs. 8 and 9, is mounted on a truck having the usual side frames 23, carrying axle-boxes 24, in which are journaled axles 25, carrying the flanged wheels 26, which run upon the main tracks 16 of the first course and the main track of the following courses. The side frames 23 of the truck carry cross-beams 27 28 at each end, and to the upper cross-beam 28 are secured vertical plates 29 30, between which are arranged vertically-slidable journal-boxes 31, in which are journaled horizontal axles 32, that project beyond the side frames of the truck on each side thereof. Upon the outer ends of the axles 32 are arranged flanged rollers 33, which are held in position upon the axles by nuts 34, said rollers being free to revolve upon the axles. The axles 32 and the boxes 31 are normally held at the bottom of the spaces between the plates 30 and 31, both the said plates being, as shown, bent around so as to extend over the top of the beam 28 and the bottom of the beam 27 and the plate 30 preferably extending from end to end of the car, as shown in Fig. 8. Springs 35 are attached at 36 to the blocks 37, carried by the end beams 28, and are connected by links 38 to the axle, and said springs serve to normally hold the rollers in their lowermost position, while permitting them to rise in the space between the plates 29 30 when the rollers 33, running on the guide-tracks 15, sustain the truck above the main tracks. Extending above the bottom of the car is arranged a lever 40, that is constructed after the manner of the levers used on cable-cars and provided with a latch 41, by means of which it is held in the adjusted position. Upon the lower side of the truck is arranged a gripping device 42, and a track-brake 43 is connected to the lever 40 by a rocking arm 44. This lever, the track-brake, and the gripping device, which latter is adapted to engage with or grip the conveyer 5, are all of the ordinary and well-known construction and need not, therefore, be particularly described. The car-body, which is to be mounted upon the truck shown in Figs. 8 and 9, is also of the usual construction and is provided with appropriate seats for the motorman, who rides on the car, and for the passengers.

When the car is coming down the incline 10 of the first course, it is riding upon the wheels 26, and the rollers 33 are at their lowermost position in the truck-frame. Upon reaching the guide-track 15 the rollers pass upon the angle-irons of the same, and as the truck progresses the rollers running upon the angle-irons receive the weight of the car and

the passengers, the car being sustained solely by the rollers as soon as the wheels 26 leave the rails 16. When the car is supported by the rollers and the weight of the car and of the passengers overcoming the resistance of the spring 35 causes the car to depend from the rollers, the bearings of the axles 34 being at the top of the space between the plates 30 31, the car will run down guide-track 15 until it reaches the end 19 thereof, whereupon the rollers 33 will leave the guide-track 15 and the car will then run upon the tracks 22, being sustained upon the wheels 26 26, and will run up the incline from the point 12 to the point 11 and, as before stated, will start upon its return journey over the second course. As soon as the rollers 33 leave the guide-track 15 the rollers 33 will descend both of their own weight and by reason of the downward pull of the springs 35 and will be prevented from rising by guide-plate 21. Consequently when the car on its travel over the track 22 reaches the point 19 at the end of the guide-rails 15 the rollers will be lowered to such a point that they will readily pass under point 19 of the guide-track without coming into contact therewith. As the construction of parts at the point where the car is transferred from one track to another track when making a change from the upper to the lower tier of tracks is the same at all points of the railway, it will be unnecessary to further describe the same, and I will hereinafter refer to the parts which are constructed in accordance with Fig. 5 of the drawings as "transfer-points." After having traversed the tracks 22 to a point 45 in Fig. 1 the car passes over another transfer-point and ascends the incline 46 of the third course, and having overcome the momentum acquired during its travel over the second course—that is, over the tracks 22—it starts in the reverse direction to that in which it traveled over the second course and reaching the transfer-point 45 descends on the track 47 of the third course and having traversed the loop 48 returns by the track 49 to a loop 50 at the inner end of the same to the starting-point 1.

In Fig. 3 of the drawings I have shown a modification of my invention wherein a double series of tracks having inclines and transfer-points similar to the tracks shown in Fig. 2

are arranged so as to give a course double the length of that of Figs. 1 and 2. In this modified form the cars start from the point 1 in the direction shown by the arrow and follow the course herein described until they reach the loop 48, which they follow around and return by the track 51 to a point alongside of the starting-point 1, where they traverse the loop 52 and reach a second conveyer 53, by means of which they are again conveyed to a point level with the point 9 of the first course, and then they follow a course the same as that hereinbefore described until they reach a loop 54, that carries them to a track 55, from whence they travel to loop 56 and around said loop to the starting-point 1.

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

1. In a pleasure-railway, the combination with inclined tracks arranged in tiers one over the other, of a car, means for transferring the car from the upper to the lower track and means for reversing the direction of movement of the car without reversing the position of the same.

2. In a pleasure-railway, the combination with a course composed of main tracks arranged in tiers one over the other, and a guide-track arranged in proximity to the terminal point of the main tracks, of rollers carried by the car and adapted to support the weight of the car on the guide-tracks when the car leaves the main tracks.

3. In a pleasure-railway, the combination of main tracks arranged one over the other, guide-tracks arranged in proximity to the terminals of said main tracks, with a car mounted on wheels adapted to run on said main tracks and provided with vertically-movable rollers adapted to run on said guide-tracks and sustain the weight of the car when the wheels of the same leave the main tracks as the car moves in one direction and to pass under said guide-tracks as the car moves in the opposite direction.

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

JOHN H. BROWN.

Witnesses:

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