H. A. LOCKWOOD.

PLEASURE RAILWAY.

APPLICATION FILED JAN. 16, 1913.

1,074,185.

Patented Sept. 30, 1913.

3 SHEETS—SHEET 1.

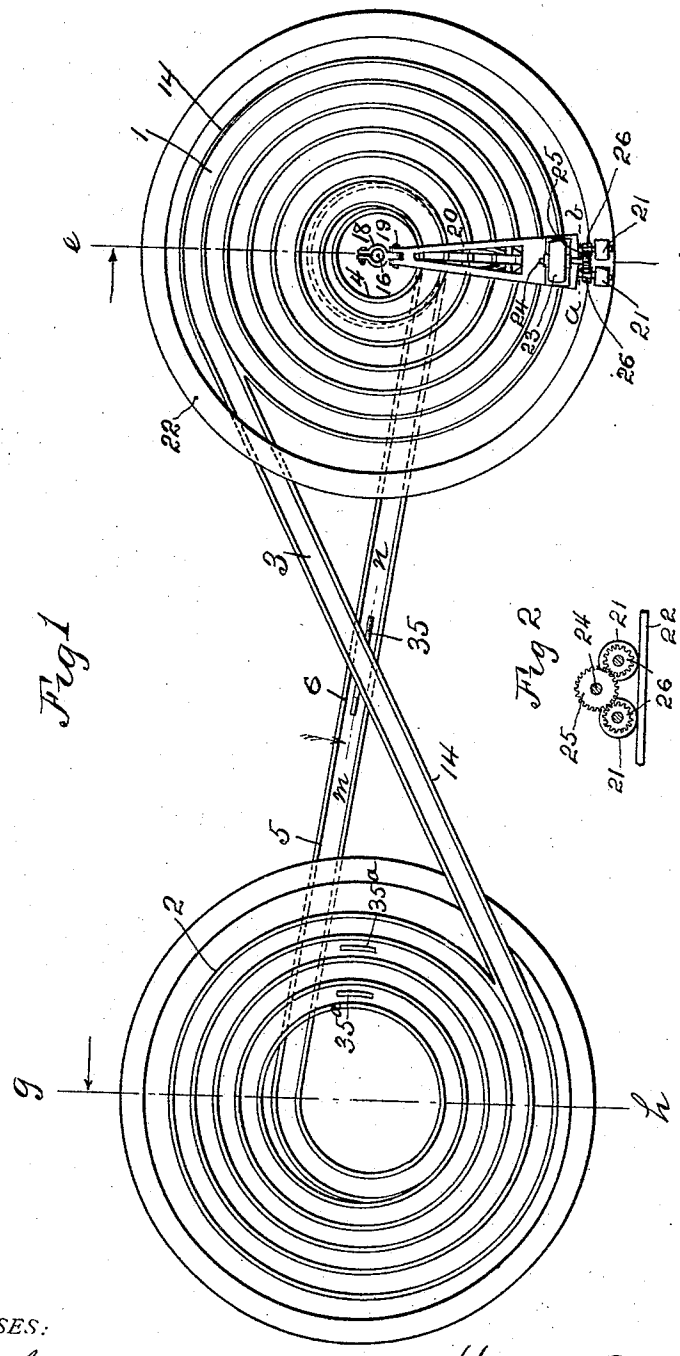

Fig 1

Fig 2

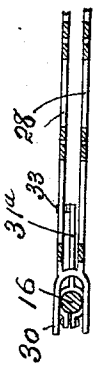

Fig 3

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3 SHEETS—SHEET 2.

Fig 4

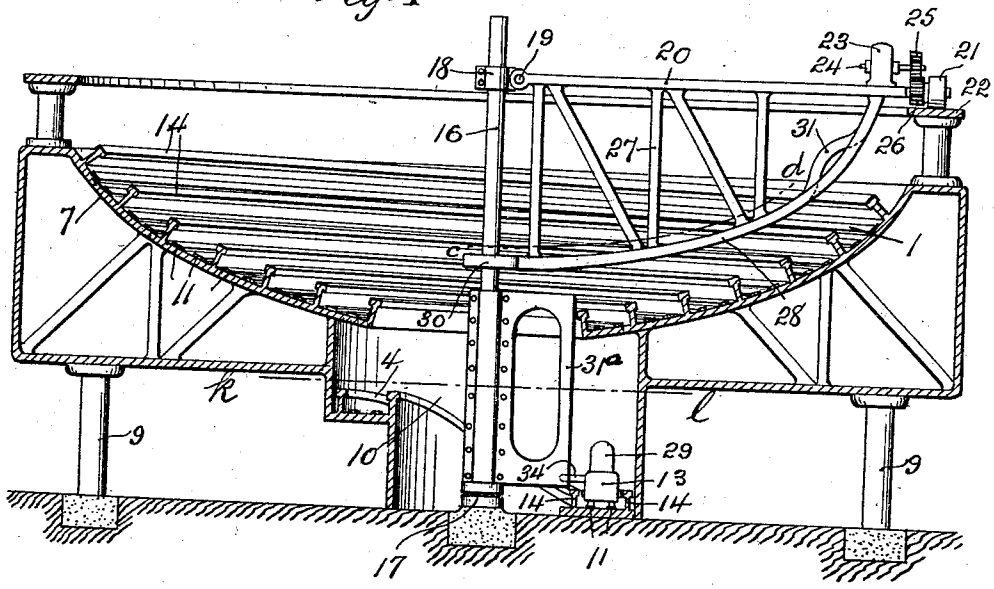
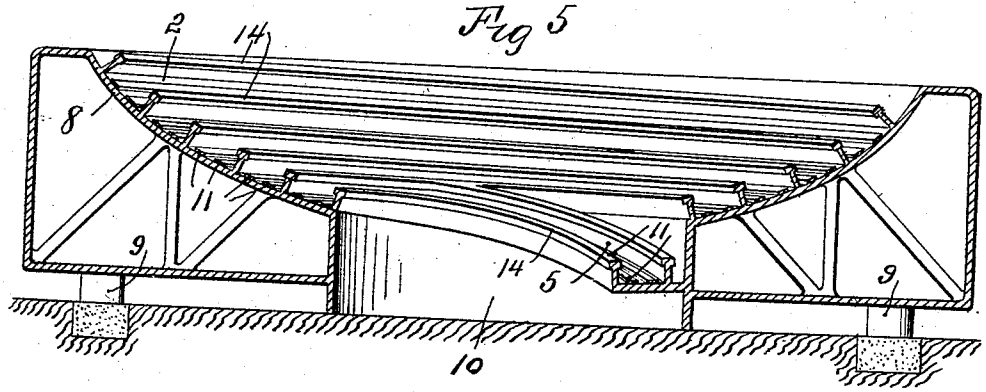


Fig 5



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3 SHEETS—SHEET 3.

Fig 6

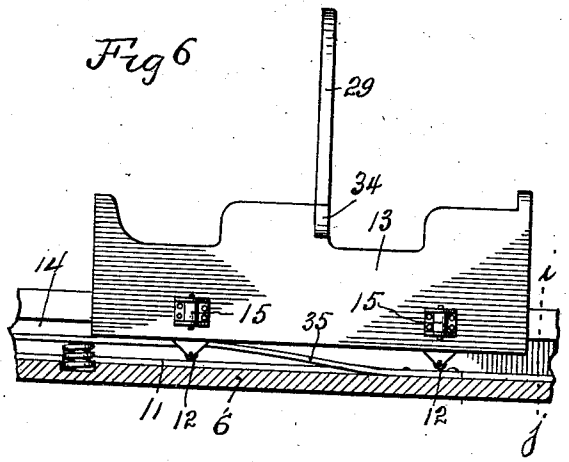
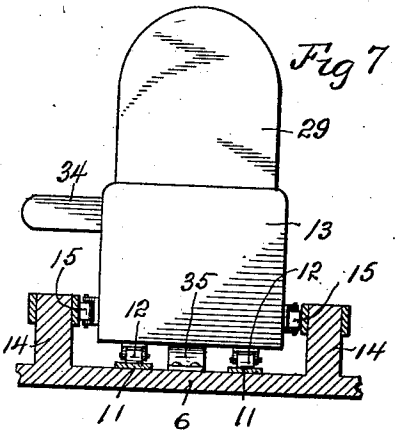


Fig 7



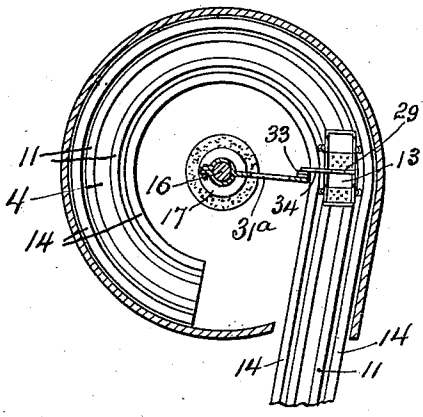
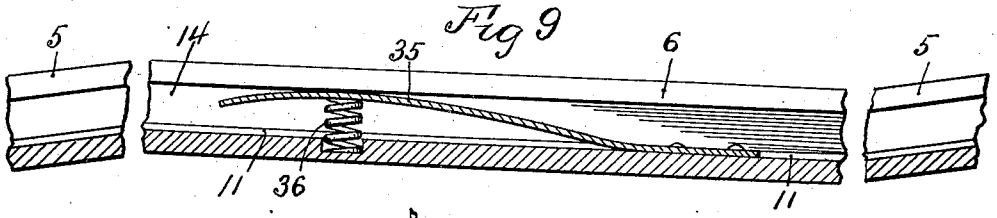


Fig 8.

Fig 9



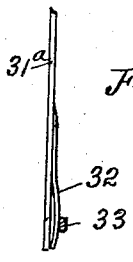


Fig 10

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UNITED STATES PATENT OFFICE.

HORACE A. LOCKWOOD, OF KANSAS CITY, MISSOURI.

PLEASURE-RAILWAY.

1,074,185. Specification of Letters Patent. Patented Sept. 30, 1913.

Application filed January 16, 1913. Serial No. 742,409.

To all whom it may concern:

Be it known that I, HORACE A. LOCKWOOD, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Improvement in Pleasure-Railways, of which the following is a specification.

My invention relates to improvements in pleasure railways.

The object of my invention is to provide a pleasure railway in which cars are propelled around an endless track in a manner similar to that illustrated and described in Letters Patent issued to me Jan. 21, 1908, No. 877,100.

My present invention is an improvement upon that described and claimed in the aforesaid Letters Patent, the novel features being hereinafter fully described and claimed.

In the accompanying drawings, which illustrate the preferred form of my invention:—Figure 1 is a plan view of the track and car propelling mechanism. Fig. 2 is a sectional view, enlarged, on the line *a—b* of Fig. 1. Fig. 3 is a sectional view on the line *c—d* of Fig. 4. Fig. 4 is a vertical sectional view on the line *e—f* of Fig. 1. Fig. 5 is a vertical sectional view on the line *g—h* of Fig. 1. Fig. 6 is a side elevation of one of the cars, shown mounted on the loading portion of the car track, which is shown in vertical section. Fig. 7 is a view taken on the dotted line *i—j* of Fig. 6. Fig. 8 is a horizontal section on the line *k—l* of Fig. 4. Fig. 9 is a vertical section enlarged, on the dotted line *m—n* of Fig. 1. Fig. 10 is an edge elevation of a portion of the lower car-propelling member.

Similar characters of reference designate the same parts in the different views.

The endless track comprises two spiral portions encircling vertical axes and being preferably volute spirals 1 and 2; a portion 3, which connects the upper ends of the spirals 1 and 2; a circular spiral portion 4, encircling the axis of the spiral 1, and having its upper end connected to the lower end of the spiral 1; and a portion 5, having a horizontal intermediate landing portion 6 and having its ends connected respectively to the lower end of the spiral 2 and to the lower end of the spiral 4. The convolutions of the volute spirals 1 and 2 run, preferably, in opposite directions, and the connecting portions, 3 and 5, cross each other.

The spirals 1 and 2, are mounted, preferably, upon the upper sides, respectively, of two saucer-shaped supports, 7 and 8, which may be mounted upon vertical posts 9. The supports, 7 and 8, are each provided centrally with vertical openings 10, through which the cars running on the endless track, may pass. The rails 11, of the track, support the carrying wheels 12, of each car 13, which runs between upstanding guards 14, between which the rails 11 are laid. Each car 13 is provided with side wheels 15, having vertical axes and adapted to run against the guards 14.

A vertical support, comprising, preferably, a vertical rotary shaft 16, is located in the axis of the volute spiral 1, its lower end being provided with an ordinary ball bearing support 17, and its upper end being suitably held by guide rod mechanism, not shown. Rigidly secured to the shaft 16, near its upper end, is a clip 18 to which is pivoted, by a horizontal bolt 19, the inner end of a radially extending member 20 the outer end of which is supported by carrying wheels 21, which run upon a circular horizontal track 22, having its center in the axis of the shaft 16. Supported by the member 20 is a motor 23, having an armature shaft 24, to which is secured a gear wheel 25, which meshes with two gear wheels 26, which are secured respectively to the carrying wheels 21. When the motor 23 is operated the carrying wheels 21 are driven along the track 22, thereby revolving the member 20.

The member 20 has a depending portion 27, provided at its lower end with two parallel arcuate bars 28, which are adapted to receive between them a vertical plate 29, provided on each car 13. The depending portion 27 is provided at the inner ends of the bars 28 with a yoke 30, which embraces the shaft 16, as best seen in Fig. 3. The forward one of the bars 28 is provided with an upwardly curved portion 31, located near the outer end of the said bar 28, and designed to permit the plate 29 of each car, to pass from between the bars 28, when the car has arrived at the upper end of the volute portion 1 and is adapted to enter upon the portion 3.

For the purpose of forcing the cars 13, up the circular spiral track 4, into position for the engagement of the plates 29 with the bars 28, there is secured to the shaft 16, below the bars 28, a vertical member 31ª,

which, as shown in Fig. 3 is located in a vertical plane between the bars 28. The forward side of the plate 31ª, as is best shown in Fig. 10, has secured to it a vertical spring plate 32, provided on its forward side near its lower end, with a cushion 33, which is adapted to strike the rear side of a horizontal, laterally extending arm 34, with which each car 13 is provided.

For automatically stopping each car 13, on the horizontal landing portion 6, I provide a brake, comprising, preferably, a flexible member 35, having one end secured to the portion 6 between the rails 11, said member 35, also resting upon the upper end of a coil spring 36, which also rests upon the portion 6. When the car runs over the member 35, said member will bear against the underside of the car with sufficient pressure to stop it.

If desired, at suitable points between the rails of the volute portion 2, brake planks 35ª and coil springs 36 may be arranged in the same manner as described with reference to the horizontal portion 6, as illustrated in Fig. 1.

In the operation of my invention, the motor 23 is kept running, thereby, in the manner described, revolving the members 20 and 31ª. The cars are filled with passengers while located upon the horizontal portion 6, and after being loaded are shoved along the inclined portion 5, along which the car will pass by gravity to the lower end of the circular portion 4. When the member 31ª has arrived at a position behind the arm 34, for engagement therewith, the car, filled with passengers, will be forced upwardly by the member 31ª along the portion 4, to a position in which the plate 29 will enter the space between the bars 28, at which time the car will enter upon the volute portion 1, its speed gradually increasing until it has reached the upper end of the volute portion 1, at which time the plate 29 will pass from under the arched portion 31, following which the car will be impelled by its momentum and by gravity along the portion 3, to the upper end of the volute portion 2. As the car descends the volute portion 2, if the inclination of the track is not too great, its speed will be reduced by the increased lateral friction of the wheels 15, against the guards 14. The track brakes 35ª, may also be arranged, as hereinbefore stated, to reduce the speed of the car as it nears the lower end of the spiral portion 2, so that it may be readily stopped by the brake plate 35 upon the horizontal loading portion 6.

By having the motor mounted upon the car propelling member 20, and the driving wheels 21, located at the outer end of said member for the purpose of supporting and also revolving it, a much lighter structure may be employed for the member 20, and much less power will be required to revolve said member than is the case with structures corresponding to that illustrated and described in my patent, hereinbefore referred to. By pivotally supporting the member 20 on the shaft 16, the driving wheels 21 may readily follow the track 22 in such inequalities as the track may possess. By supporting the member 20 at its inner and outer ends, the mechanism may be readily adapted to a structure having a volute portion of very large diameter.

I do not limit my invention to the structure shown and described, as modifications, within the scope of the appended claims, may be made without departing from the spirit of my invention.

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

1. In a railway, a spiral car track, revolving means for propelling a car along said track, a motor carried by said revolving means, and means actuated by the motor for revolving said revolving means.

2. In a railway, a spiral track, a circular track, revolving means for propelling a car along the spiral track, a driving wheel running upon said circular track and movable with said revolving means, and means for rotating said driving wheel.

3. In a railway, a spiral car track, revolving means for propelling a car along said track, a driving wheel, a motor carried by said revolving means, actuating means connecting the motor and driving wheel, and means by which the revolving means is revolved when the driving wheel is rotated.

4. In a railway, a spiral track, a circular track, revolving means for propelling a car along the spiral track, a driving wheel running upon the circular track and movable with the revolving means, a motor carried by said revolving means, and means actuated by the motor for driving the driving wheel.

5. In a railway, a spiral car track, a vertical shaft in the axis of said track, a revoluble member carried by said shaft and extending across said track for propelling a car along said track, a driving wheel movable with said member, and means carried by said member for driving said driving wheel.

6. In a railway, a spiral car track, a vertical shaft in the axis of said track, a revoluble member extending across said track for propelling a car along the track and having its inner end carried by said shaft, and a carrying wheel supporting the outer end of said member.

7. In a railway, a spiral car track, a vertical shaft in the axis of the track, a revoluble member extending across said track

for propelling a car along said track and having its inner end supported by said shaft, a carrying wheel supporting the outer end of said member, and means for driving said wheel.

8. In a railway, a spiral car track, a vertical shaft in the axis of said track, a revoluble member extending across said track for propelling a car along the track and having it inner end supported by the shaft, a driving wheel movable with the outer end of said member, a motor carried by said member, and means actuated by the motor for driving the driving wheel.

9. In a railway, a spiral car track, a support in the axis of said track, a revolving member extending across said track for propelling a car along the track and having its inner end pivoted to said support, a carrying wheel supporting the outer end of the member, and means for revolving said wheel.

10. In a railway, a spiral car track, a support in the axis of said track, a revolving member pivoted to said support and extending across said track for propelling a car along said track, a driving wheel at the outer end of said member, and means carried by the member for driving said driving wheel.

11. In a railway, a spiral track, a support in the axis of said track, a revolving member pivoted to said support and having means for propelling a car along the track, a circular track, a driving wheel at the outer end of said member and running on the circular track, a motor, and means actuated by the motor for driving the driving wheel.

12. In a railway, a spiral car track, a support in the axis of said track, a revolving member pivoted to said support and having means for propelling a car along the track, a driving wheel at the outer end of said member, a track upon which the driving wheel runs, a motor carried by the member, and means actuated by the motor for driving the driving wheel.

13. In a railway, a spiral car track, a vertical rotary shaft in the axis of said track, a circular track, a member carried by said shaft and having means for propelling a car along the spiral track, a carrying wheel supporting the outer end of said member and running upon the circular track, means for driving the carrying wheel, and a member carried by said shaft and located below the first named member and adapted to propel a car along said spiral track to a position in which the car will be engaged by the first named member.

14. In a railway, a spiral car track, a vertical rotary shaft in the axis of said track, a circular track, an upper member pivoted to the shaft and having means for propelling a car along the spiral track, a carrying wheel supporting the outer end of said upper member and running along the circular track, means for driving the carrying wheel, and a member carried by the shaft below the upper member and having means for propelling a car along the spiral track to a position in which the car will be engaged by the upper member.

15. In a railway, an endless car track comprising two spiral portions having vertical axes, a portion connecting the upper ends of said spiral portions, and a portion connecting the lower ends of said spiral portions, the last named connecting portion having a horizontal intermediate portion and inclining from said horizontal portion to said spirals.

16. In a railway, an endless track comprising two volute spiral portions having vertical axes, a portion connecting the upper ends of said volute portions, a circular spiral portion having a vertical axis and having its upper end connected to the lower end of one of said volute portions, and a connecting portion connected to the lower end of the other volute portion and to the lower end of the circular spiral portion.

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

HORACE A. LOCKWOOD.

Witnesses:
WARREN D. HOUSE,
E. B. HOUSE.