H. F. MAYNES.

AMUSEMENT APPARATUS.

APPLICATION FILED AUG. 10, 1920.

1,362,886. **Patented Dec. 21, 1920.**

2 SHEETS—SHEET 1.

Fig. 1,

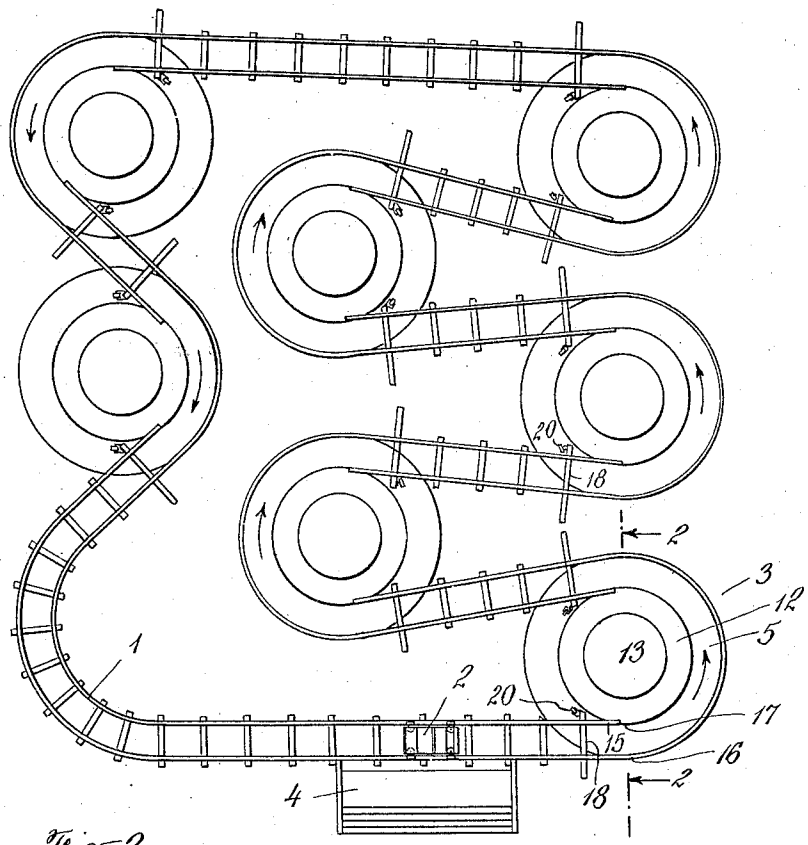


Fig. 2,

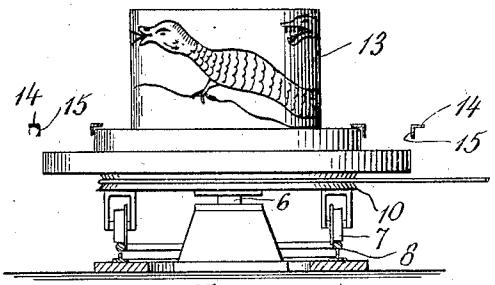


Fig. 3,

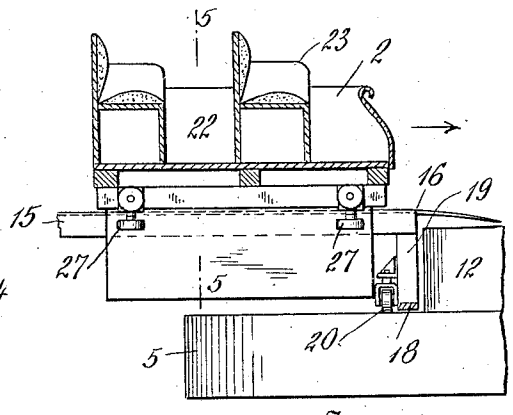
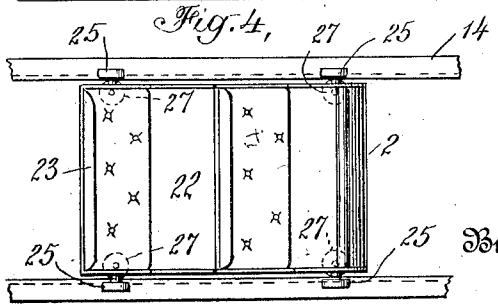


Fig. 4,



Inventor

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2 SHEETS—SHEET 2.

Fig. 6,

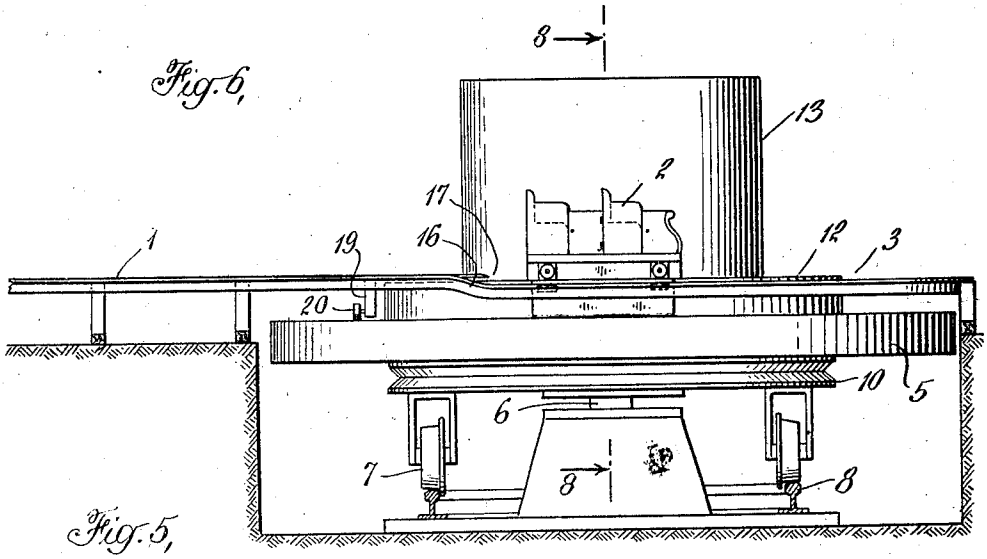


Fig. 5,

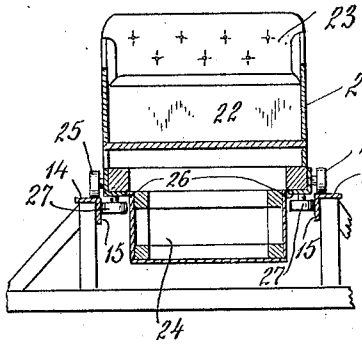


Fig. 7

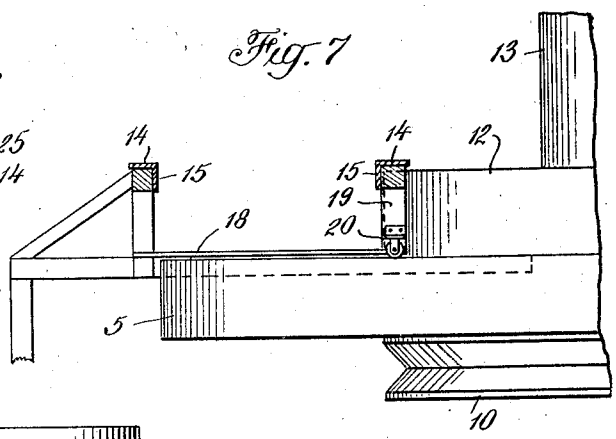
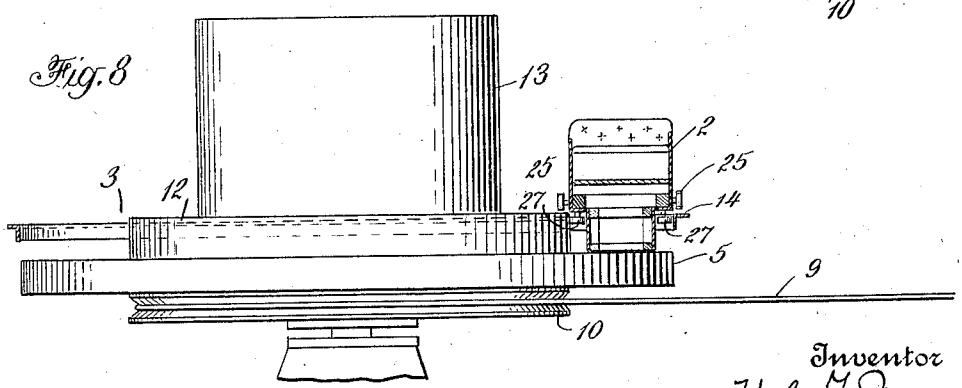


Fig. 8



Inventor

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UNITED STATES PATENT OFFICE.

HYLA FREDERICK MAYNES, OF GAINES, PENNSYLVANIA.

AMUSEMENT APPARATUS.

1,362,886. Specification of Letters Patent. Patented Dec. 21, 1920.

Application filed August 10, 1920. Serial No. 402,637.

To all whom it may concern:

Be it known that I, HYLA FREDERICK MAYNES, a citizen of the United States, residing at Gaines, in the county of Tioga, State of Pennsylvania, have invented certain new and useful Improvements in Amusement Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an amusement apparatus, the amusement being that afforded by a short car ride, preferably a winding tortuous guideway abounding in unexpected curves, and at the same time subjecting the rider to sudden speed changes.

The ordinary roller-coaster, upon which the passenger rides up and down successive inclines and declines, is well known. The speed at which the passenger carrying cars travel may be very high indeed, but the changes in speed are never very sudden nor unexpected. The present invention relates to a type of apparatus wherein the passenger is hurled from curve to curve around a tortuous, winding guideway under suddenly varying speed conditions, and in an irregular and jerky fashion. The cars are propelled by means of horizontally rotating projectors or turn-tables situated to move immediately beneath the guideway on which the car travels, so that as the car rides upon these projectors, their motion is imparted to it, and the car is shot or hurled forward to the next projector. A device of this general character has been disclosed and claimed in a copending application, Serial No. 361,953, filed by August P. Lauster, February 28, 1920, which matured into Patent No. 1,353,918, September 21, 1920. This application relates more particularly to the projector itself, and its relation to the adjacent portions of the guideway. Applicant's co-pending application, Serial No. 364,468, March 9, 1920, which matured into Patent No. 1,353,929, September 21, 1920, discloses and claims a winding, tortuous guideway abounding in reverse and unexpected curves, and having situated at its various turns projectors of the type disclosed and claimed in the application of August P. Lauster noted above. The projectors of the two foregoing applications comprise horizontally rotating disks, upon the outer peripheral faces of which the car rolls, and gradually picking up momentum from the rotating projector, is thrown forward to the next one. In the applicant's co-pending application, Serial No. 402,636, filed on even date herewith, another type of projector is shown and described in connection with a winding, tortuous guideway. The projector of this application contacts at its peripheral edge with the car and thus imparts its motion thereto. Of these two types of projector the first permits of a very easy acceleration of the car's motion due to the fact that the car is supported upon the face of the projector upon its own rollers. The second type of projector, however, permits of practically no slippage and the car is more suddenly hurled forward.

It is an object of the present invention to provide a projector for use in the above described type of apparatus, which shall impart its motion to the on-coming car neither too gently nor yet too suddenly. This is accomplished by allowing the car to rest bodily upon the peripheral face of the projector, the frictional contact between the bottom of the car and the projector being just sufficient to permit of a proper pickup and thus accelerate the speed of the car swiftly enough to make the sensation a pleasant one, but not so swiftly as to make it unnecessarily abrupt.

It is a further object of this invention to provide a car specially adapted to be used in connection with such a projector in such an apparatus.

In order that the invention may be more clearly understood reference is had to the accompanying drawings disclosing a preferred embodiment thereof, and in which;

Figure 1 represents a plan view of the general layout of the tortuous guideway with the projectors in position at the several turns;

Fig. 2 is an elevation of one of the projectors taken along line 2—2 of Fig. 1;

Fig. 3 is a vertical section taken through one of the cars just as it approaches the projector;

Fig. 4 is a plan view of a car showing it in position upon the guideway;

Fig. 5 is a transverse section through a car taken on line 5—5 of Fig. 3;

Fig. 6 is an elevation of one of the projectors taken on a larger scale than that shown in Fig. 2, and showing the relation of the guideway thereto. In this figure a

car is shown immediately after having reached the projector;

Fig. 7 is a vertical section through the guideway at the point where it is tangent to a projector; and

Fig. 8 is another elevation of a projector showing in vertical transverse section a car in position thereon, taken on line 8—8 of Fig. 6.

In the drawings 1 represents the tortuous, winding guideway upon which the car 2 is adapted to travel. This guideway contains a series of irregular and reverse curves, at many of which are situated projectors 3, whose function it is to speed the car from curve to curve along the guideway, and finally return it to its starting point, indicated on Fig. 1 as a platform 4.

Each projector comprises a large circular disk 5 rotatably mounted upon a vertical axle 6, and supported by a series of wheels or rollers 7 adapted to revolve continuously upon an annular track 8. Power is supplied to the projectors through a cable 9 which encircles a sheave 10, fixed to the lower face of the disk. A single cable may pass around the sheaves of all the projectors, or each one may be separately driven in any approved manner. Fixed to the upper face of the disk 5 is a smaller disk 12, the annular space comprised between the peripheries of the two disks being substantially the width of the guideway, as most clearly shown in Figs. 1 and 7. The thickness of disk 12 is somewhat less than half the entire height of the car, and this for a purpose which will be apparent later. Fixed upon the disk 12 is a cylinder 13 which rotates with the projector, and may have painted thereon figures of any desired kind which may add to the amusement of the passengers. This last feature, however, has no essential relation to the operation of the device itself.

The guideway comprises two parallel and horizontal track members 14 upon which the car is adapted to travel, and be supported, and guide members 15, the faces of which are vertical. These guide members prevent lateral movement of the car in a manner which will be more clearly brought out under a discussion of the structure of the car itself. These guide members approach the projectors tangentially. At the point 16 where outer track member 14, and guide member 15 become tangent to the projector, the level of the guideway drops a few inches, as shown most clearly in Figs. 3 and 6. As shown in the drawings, outer track member 14 continues around the periphery of the projector to the point at which the guideway leaves it, but this is not wholly essential, it being necessary only that to this outer half of the guideway the vertical guideway member 15 encircle the projector.

At both points of tangency the track member changes its level through a gradual slope. The inner track member 14 and guide member 15 approach disk 12 tangentially. At the point of tangency 17 inner guide member 15 ends and the vertical peripheral edge of the disk serves in its stead. Inner track member 14 also ends and runs down in a gentle slope toward the peripheral face of disk 12.

In order that the inner half of the guideway be supported where it passes over the face of disk 5, an arm 18 extends inwardly from the supporting frame work of the outer half of the guideway. At the inner end of this arm 18 is fixed a vertical post 19 which supports the inner half of the guideway, the weight being transmitted to the face of the disk 5 through a roller 20 fixed to the side of post 19.

Although the structure of the guideway has been described as it approaches the projector, it is, of course, clear that the structure diametrically opposite where it leaves is similar in every respect.

A car specially adapted to be used in connection with this apparatus comprises a body portion 22, in which are fixed the usual seats 23. The lower part of the body portion comprises a box-like base 24 which supports the entire car upon the projectors. Upon the sides of the car are rollers 25 which ride upon track members 14 and support the car upon the guideway. Between the base 24 of the car body and the upper sides of the car are shoulders 26 in which, mounted for horizontal rotation, are rollers 27 which contact with the vertical faces of guide members 15, and thus prevent lateral movement of the car.

The operation of the apparatus is as follows: The car leaves a platform 4 and descends, preferably by gravity, toward the first rotating projector 3. When it first rides over the peripheral face of disk 5 it is so supported upon the guideway that a clearance of a few inches exists between the bottom of the car body and the projector, as most clearly shown in Fig. 3. As the car proceeds farther it passes down the inclines at points 16 and 17 and is allowed to contact bodily with the face of the projector. There is now a clearance between rollers 25 and their respective track members 14 and the peripheral face of disk 12, as most clearly shown in Fig. 8. As the car is moving slowly, and the projector revolving rapidly, there is at first some slippage between the car and the projector, but in the course of a few seconds this is overcome and the car shot forward due to the frictional contact of its bottom with the face of disk 5. After passing through 180° more or less, as shown in Fig. 1, and having by that time required a considerable momentum of its own, the car rides up again upon the guide-

way, and proceeds at a rapid rate toward the next projector. It will be noted that during the passage around the projector rollers 27 are in operative contact, one with outer guide member 15 and the other with the peripheral edge of disk 12.

Although one preferred embodiment of the invention has been shown and described, it is to be distinctly understood that the invention in its broader aspects is not limited to these details of construction. It would be quite possible to devise other specific means for placing a car in bodily and frictional contact with the face of a projector during the time in which this car were being spun around on the projector. The present invention contemplates lowering the car to effect this contact, thus detaching the car from this guideway, but the same effect may be produced by slightly elevating the car. All such obvious modifications are considered fairly to fall within the scope of the invention.

I claim:

1. An amusement apparatus comprising a guideway, a car adapted to move along said guideway, a more or less horizontally rotating projector moving below the guideway adapted to make frictional contact with the car, and thus impart its motion to the car.

2. An amusement apparatus comprising a guideway, a car adapted to move along said guideway, a horizontally rotating projector moving near said guideway, the peripheral face of the projector being adapted to make frictional contact with the body of the car, and thus propel the car.

3. An amusement apparatus comprising a guideway, a car adapted to move along said guideway and be supported thereby, a projector moving below said guideway, the arrangement of the parts being such that when the car passes over the projector it is no longer supported by the guideway, but rests bodily upon the face of the projector.

4. An amusement apparatus comprising a guideway, horizontally supporting track members, a car adapted to move along said guideway and be supported by said track members, a horizontally moving projector below the guideway, a decline and incline in the track members where they respectively approach and leave the projector, the arrangement of the parts being such that the car rests bodily upon the face of the projector when moving thereover.

5. An amusement apparatus comprising a guideway, a car adapted to move along said guideway, anti-friction means to facilitate the movement of the car along the guideway, a horizontally moving projector below the guideway designed to impart motion to the car by frictionally contacting therewith, the anti-friction means being inactive during contact of the car with the projector.

6. In an amusement apparatus, a curved guideway comprising track members and vertical wall members, a car adapted to move along said guideway and be supported by said track members, a horizontally rotating projector situated below the guideway at the turn, the effective level of the track members being lowered where they pass over the projector so that the car is no longer supported thereby, but rests bodily upon the projector.

7. In an amusement apparatus, a curved guideway comprising horizontal track members and vertical wall members, a car adapted to move along said guideway and having supporting rollers adapted to run on the track members, the body of the car depending below said rollers, a horizontally rotating projector situated at a turn in the guideway, the arrangement of the parts being such that when the car passes over the projector it rests bodily upon the face thereof, and is no longer supported by the supporting rollers.

8. In an amusement apparatus, a curved guideway comprising horizontal track members and vertical wall members, a car adapted to move along said guideway and having supporting rollers adapted to run on the track members, the body of the car depending below said rollers, a horizontally rotating projector situated at a turn in the guideway, said projector comprising two superposed disks of different diameters, the outer track and guide members being tangent to the outer and larger disk and the inner track and guide members being tangent to the inner and smaller disk, the peripheral edge of the inner disk serving as an inner guide member for the car at the turn, the arrangement of the parts being such that when the car passes over the projector it rests bodily upon the face thereof and is no longer supported by the supporting rollers.

9. In an amusement device, a curved guideway comprising horizontal track members and vertical wall members, a car adapted to move along said guideway and having supporting rollers adapted to run on the track members, the body of the car depending below said rollers, a horizontally rotating projector situated at a turn in the guideway, said projector comprising two superposed disks of different diameters, the outer track and guide members being tangent to the outer and larger disk and the inner track and guide members being tangent to the inner and smaller disk, the peripheral edge of the inner disk serving as an inner guide member for the car at the turn, an arm extending from the outer half of the guideway over the peripheral face of the

projector to support the inner half of the guideway which extends over the face of the projector, the arrangement of the parts being such that when the car passes over the projector it rests bodily upon the face thereof and is no longer supported by the supporting rollers.

10. In an amusement apparatus, a curved guideway having a plurality of reverse curves and comprising horizontal track members and vertical wall members, a car adapted to move along said guideway and having supporting rollers adapted to run on the track members, the body of the car depending below said rollers, horizontally rotating projectors situated at most of the curves in the trackway so that the car is shot from curve to curve in an irregular and jerky fashion, the arrangement of the parts being such that when the car passes over each projector it rests bodily upon the face thereof and is no longer supported by the supporting rollers.

In testimony whereof I affix my signature.

HYLA FREDERICK MAYNES.

Corrections in Letters Patent No. 1,362,886.

It is hereby certified that in Letters Patent No. 1,362,886, granted December 21, 1920, upon the application of Hyla Frederick Maynes, of Gaines, Pennsylvania, for an improvement in "Amusement Apparatus," errors appear in the printed specification requiring correction as follows: Page 1, line 14, after the word "preferably" insert the word *along;* page 3, line 27, claim 1, strike out the words "more or less"; same page, line 47, claim 4, after the word "guideway" insert the word *comprising;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of January, A. D., 1921.

[SEAL.]

L. B. MANN,

Acting Commissioner of Patents.

Cl. 104—53.