Dec. 6, 1932. H. G. TRAVER 1,890,137

AMUSEMENT RAILWAY

Filed Nov. 14, 1930 6 Sheets-Sheet 1

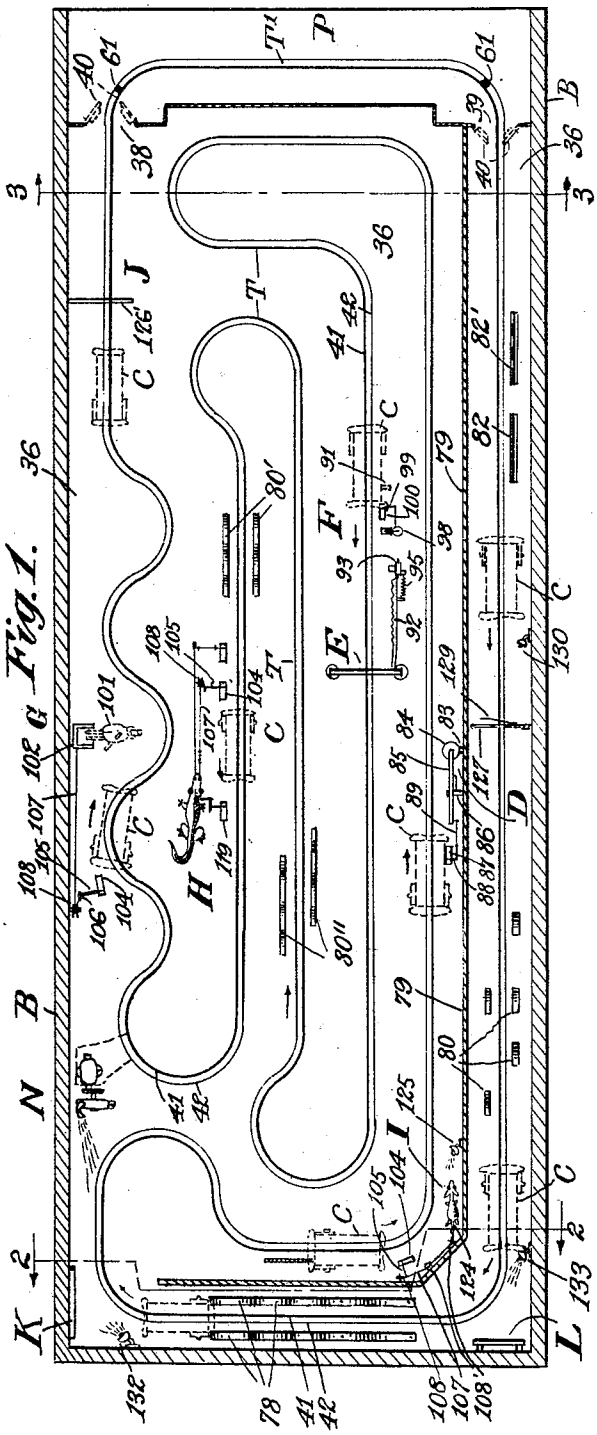

Fig. 1.

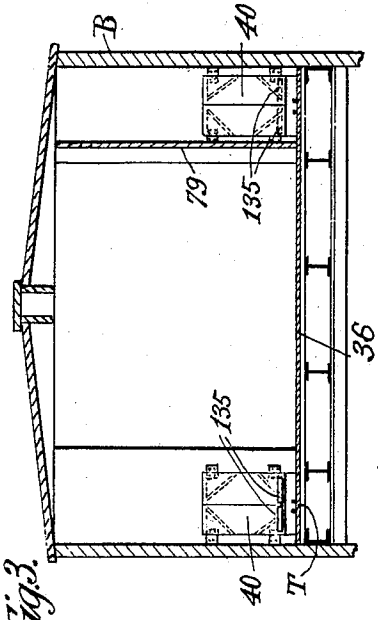

Fig. 3.

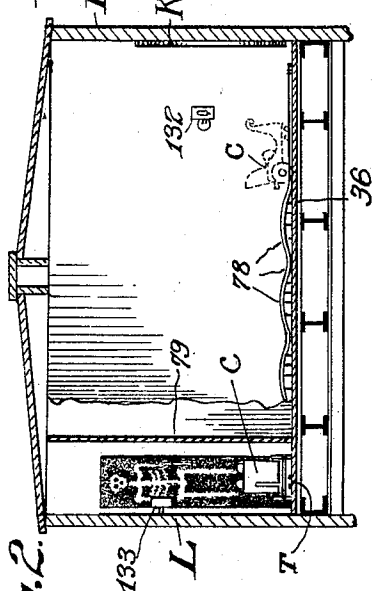

Fig. 2.

Inventor
H. G. Traver.
By John O. Seibert
Attorney

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AMUSEMENT RAILWAY

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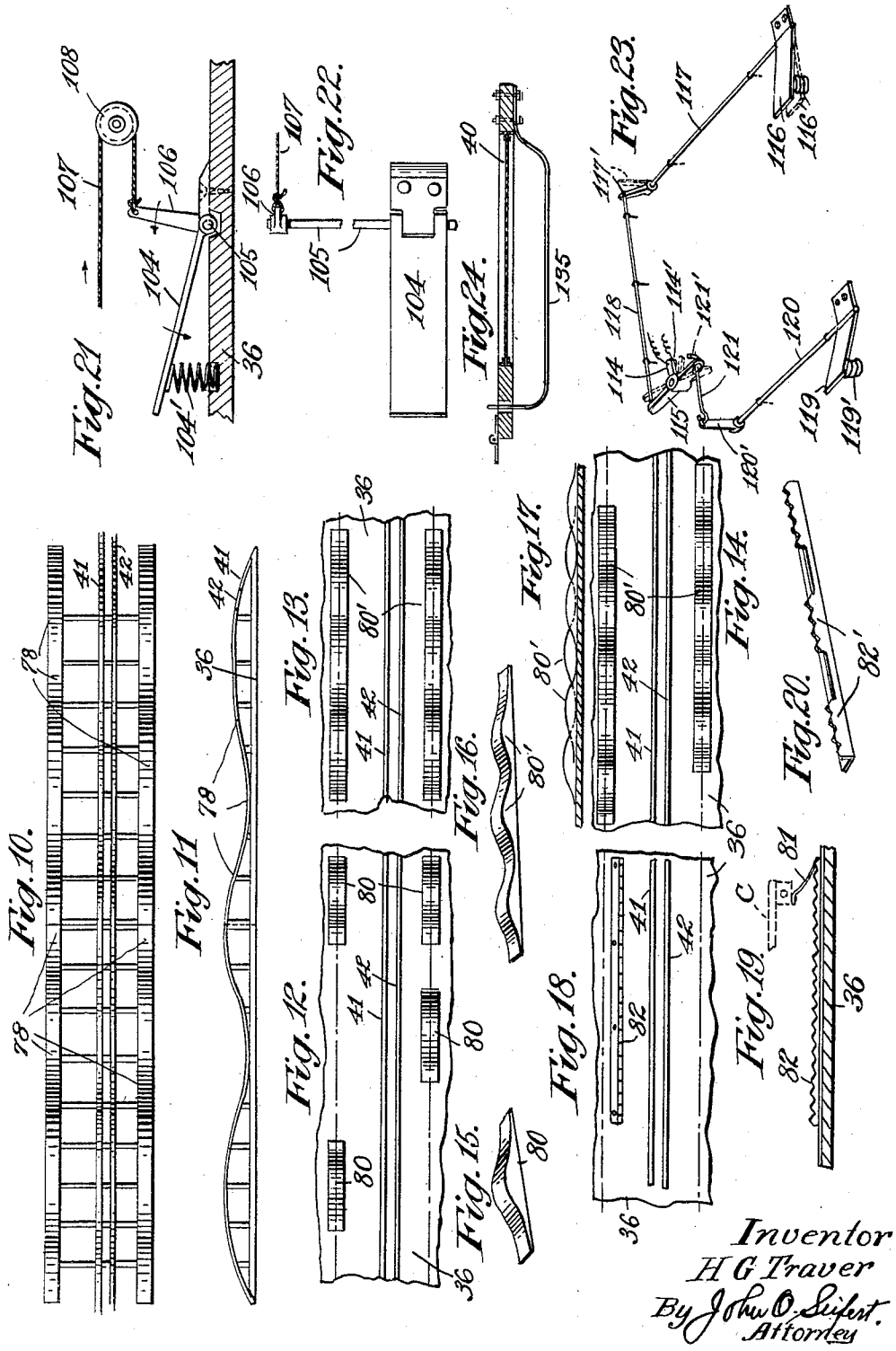

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AMUSEMENT RAILWAY

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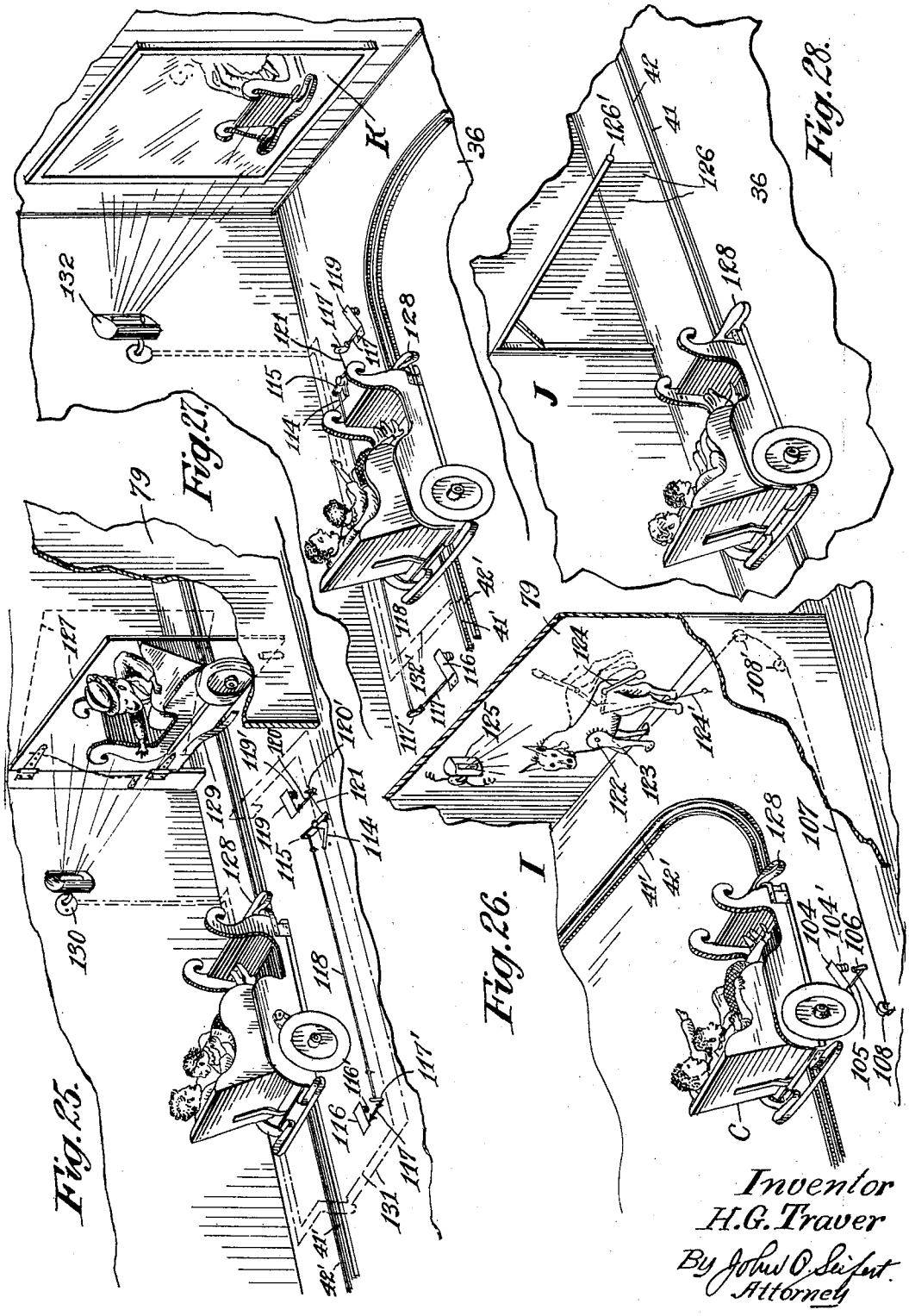

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AMUSEMENT RAILWAY

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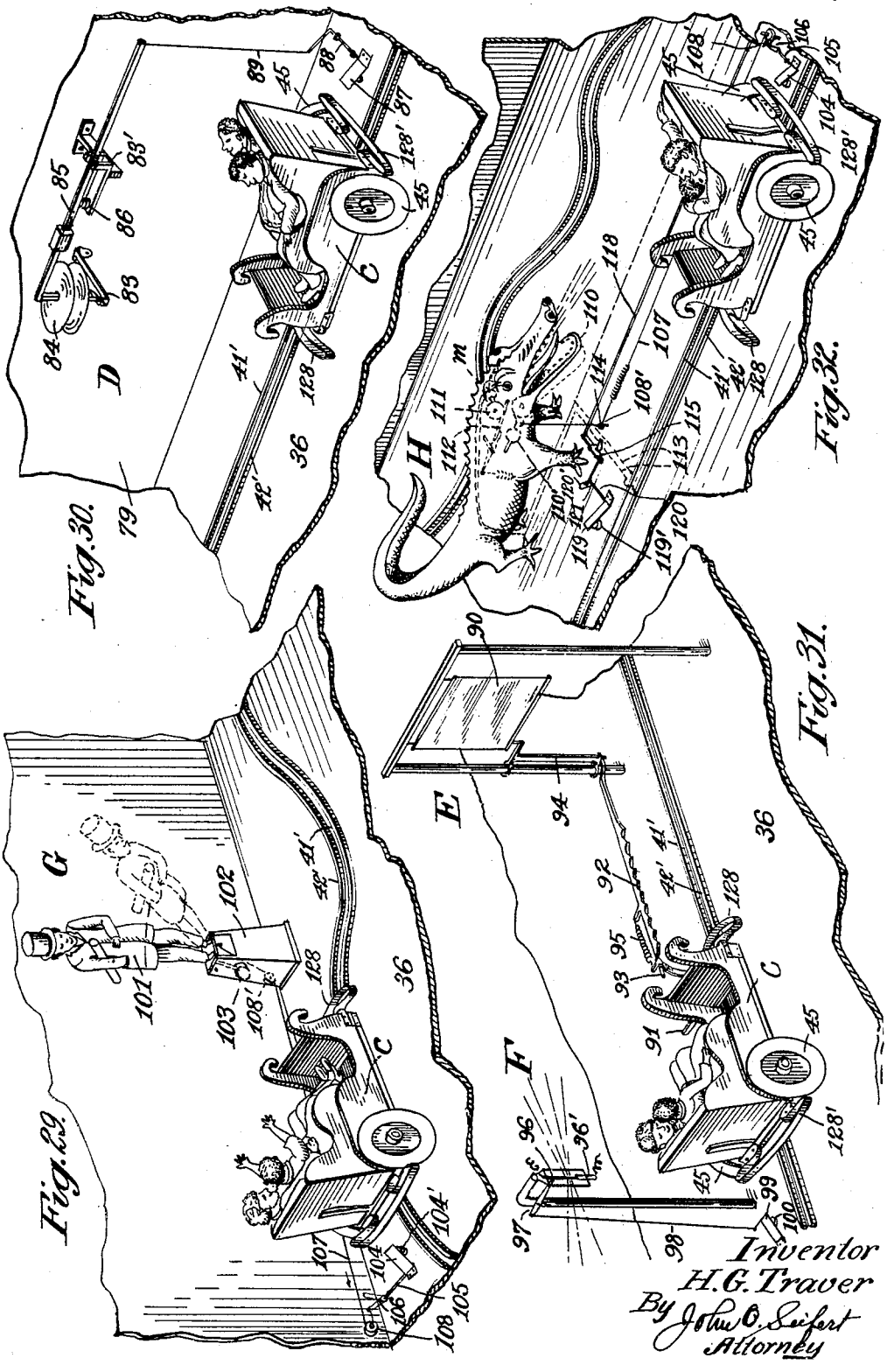

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AMUSEMENT RAILWAY

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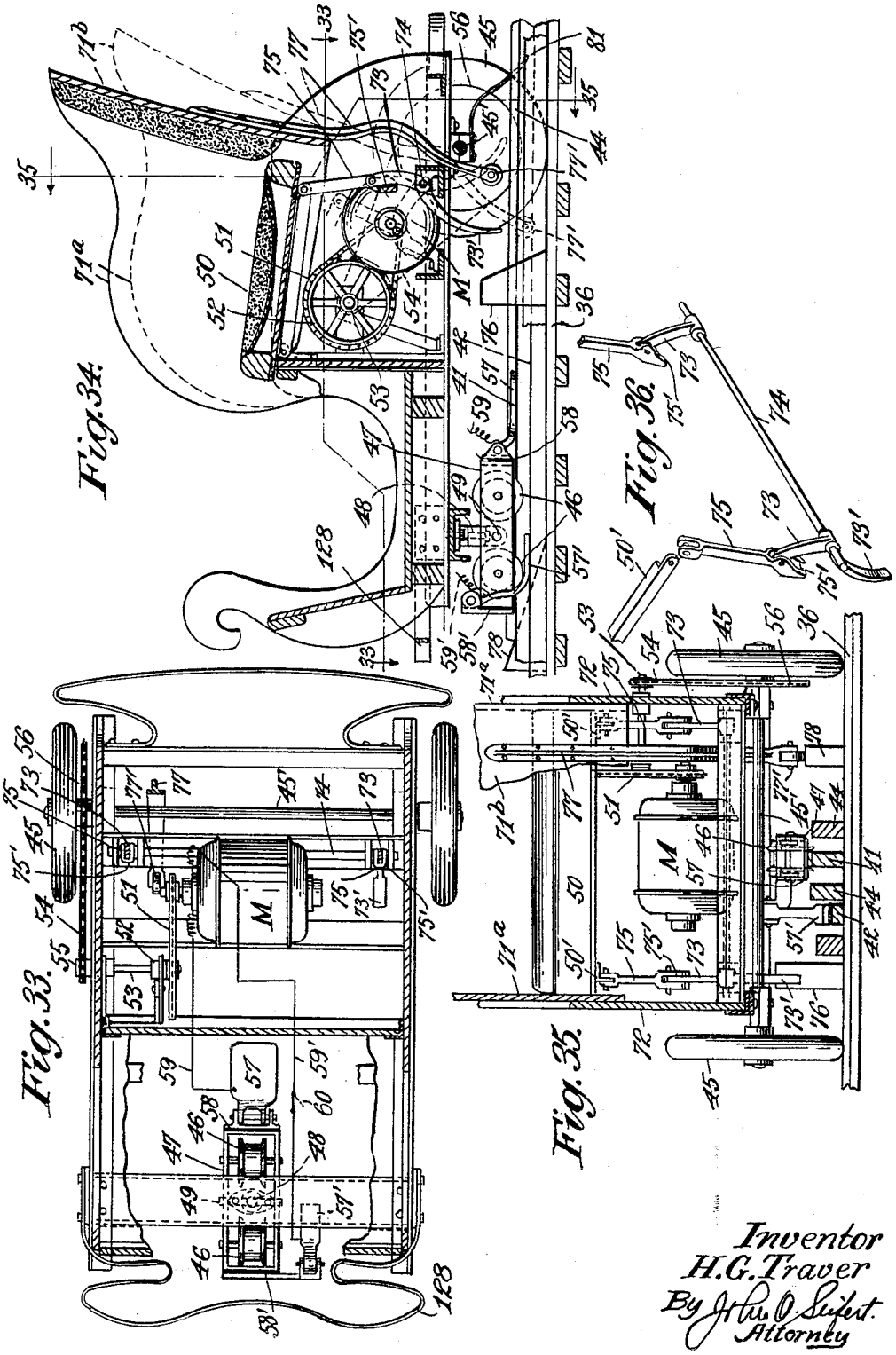

Fig. 34.

Fig. 36.

Fig. 33.

Fig. 35.

Inventor
H. G. Traver
By J. Lee O. Seifert
Attorney

Patented Dec. 6, 1932

1,890,137

UNITED STATES PATENT OFFICE

HARRY G. TRAVER, OF BEAVER FALLS, PENNSYLVANIA

AMUSEMENT RAILWAY

Application filed November 14, 1930. Serial No. 495,619.

This invention relates to amusement railways or rides wherein a motor driven car, or train of cars, is guided by a circuitous track relative to a supporting structure, and it is an object of the invention to provide an amusement railway of this character in which the car, or each car of a train of cars, is mounted at the forward end upon a guide and traction wheel support to have movement on said support on a vertical axis intersecting the longitudinal axis of the car and the wheel support tractionally engaging the track and thereby guiding the car in the travel thereof, the rear portion of the car being tractionally supported by wheels straddling and engaging a floor at opposite sides of the track and upon which floor the track is mounted.

It is a further object of the invention to provide an amusement railway of this character embodying a pair of parallel and insulated continuous electric current conducting rails and one rail constituting a car guiding rail, the car carrying current pick-up means in electrical connection with the driving motor of the car and adapted for slidable engagement with the current conducting rails during the travel of the car.

A further object of the invention is the provision of guard rails extending parallel of the current conducting rails to prevent the possible bridging of the conducting rails by and a consequent injury to patrons of the ride, and said guard rails also serving to permit of a limited lateral movement of the rear portion of a car relative to its front guiding support upon the track and prevent a metallic part of the car from coming into contact with the conducting rails with consequent creation of a short circuit and an electric arc and thereby possible injury to patrons of the ride.

Another object of the invention is the provision of thrill producing devices disposed along the track with actuating means for rendering said devices active operative by a car approaching or travelling by such device or devices.

Another object of the invention in rides of this character is the provision of a car having a backward tiltable seat with means to releasably support the seat in normal position and adapted to be moved to seat releasing and normal seat supporting positions by abutments disposed along the track.

Another object of the invention is to provide an amusement ride having a continuous track structure embodying a loading and unloading section or length of track and a pleasure ride section or length of track, and the provision of means for conducting current to and connecting the conductors of the pleasure ride length of track in circuit with a source of current supply, and independent switch controlled means for conducting current to and connecting at will the conductors of the loading and unloading length of track in circuit with the source of current supply, and the electrical pick-up means of the car being engageable with the conductors of either of said track lengths to conduct current to the car driving motor, whereby cars on the pleasure ride length of track may be in operation while cars on the loading and unloading length of track may remain idle as during the period of loading and unloading of the cars, or until such time as the operator of the ride desires to move the cars along said loading and unloading track length to advance the cars onto the pleasure ride length of track, and to effect such movement of the cars, or permit the cars to remain idle, on the loading and unloading length of track without interfering with the operation of the cars on the pleasure ride length of track.

A further object of the invention is the provision in amusement rides having a continuous track structure embodying pleasure ride and loading and unloading lengths of track, of arranging the pleasure ride length of track within a darkened building and the loading and unloading length of track relative to a loading and unloading platform exterior of the building, the building having entrance and exit openings provided with self-closing doors adapted to be moved to open position by a car propelled along the pleasure ride length of the track and during

the passage of the cars through said openings to or from the building.

Another object of the invention is the provision in amusement railways embodying a continuous track having a pleasure ride length within a darkened building and a loading and unloading length exterior of the building of thrill producing devices positioned along the track within the building with a portion of the track within the building partitioned off from the remainder of the track and having electrical illuminating means, connected in a normally open electric circuit, associated with and adapted to illuminate a thrill producing device or devices within said partitioned portion of the building with circuit closing and opening means therefor operative by a travelling car to illuminate a thrill producing device or devices during the approach and passage of a car by such a device.

Other objects and novelties of the invention will hereinafter appear.

In the drawings accompanying and forming a part of this application Figure 1 is a horizontal sectional view of a building and showing a track layout of an amusement railway in relation to the floor of the building, and showing in a diagrammatic manner thrill producing devices arranged along the track structure.

Figure 2 is a cross sectional view of the building taken substantially on the line 2—2 of Figure 1 looking in the direction of the arrows to show a portion of the track partitioned off from the main portion of the building and the arrangement of a particular track section, as well as a thrill producing device arranged relative to the track.

Figure 3 is a cross sectional view of the building taken substantially on the line 3—3 of Figure 1 looking in the direction of the arrows to show the arrangement of door closed entrance and exit openings at one end of the building.

Figure 4 is a horizontal sectional view of the entrance and exit end portion of the building to show the arrangement of a loading and unloading length of track relative to the pleasure ride length of track, and showing in a diagrammatic manner the electrical connections of said track lengths in independent circuits with a source of current supply.

Figure 5 is a view similar to Figure 4 but showing the track structure as embodying a pleasure ride length of track, a loading, unloading and car storage lengths of track, and showing in a diagrammatic manner the electrical connections of said track lengths in independent circuits with a source of current supply.

Figure 6 is a plan view of a portion of the floor of the building and the arrangement and of the track structure mounted thereon, and showing in dotted lines a car tractionally supported in relation to the floor and track.

Figure 7 is a cross sectional view looking at the right hand end of Figure 6.

Figures 8 and 9 are side elevations, partly in section, to show the mounting and electrical connection of sections of the current conducting and car guiding rails.

Figure 10 is a plan view of a vertical undulated section of the floor of the building and track mounted thereon.

Figure 11 is a side elevation of the floor and track arrangement shown in Figure 10.

Figures 12, 13 and 14 are plan views of vertically undulated obstructions mounted on the floor of the building for the floor engaging wheels of the car to encounter and ride over.

Figure 15 is a perspective view of the car wheel obstruction shown in Figure 12.

Figure 16 is a perspective view of the car wheel obstruction shown in Figure 13.

Figure 17 is a side elevation of the car wheel obstruction shown in Figure 14.

Figure 18 is a plan view of a portion of the floor and showing a ratchet bar mounted thereon in parallel relation to the track.

Figure 19 is a longitudinal sectional view to show the arrangement of the ratchet bar mounted on the floor and a pawl carried by a car to engage and ride over said ratchet bar as the car travels relative thereto.

Figure 20 is a perspective view of a modification of the ratchet bar shown in Figure 19.

Figure 21 is a side elevation and Figure 22 a plan view of means mounted on the floor over which the floor engaging car wheels ride to operate means to actuate a thrill producing device depicting an object in an inanimate posture and giving the illusory effect of rendering said object animate.

Figure 23 is a plan view of a portion of the track and floor, and showing in a diagrammatic manner illuminating means and means operative by a car travelling on a track to close and open the circuit of said illuminating means.

Figure 24 is a cross sectional view of a door for the openings in the building and showing the same arranged with a bumper for engagement by a car.

Figures 25 to 32, inclusive, are perspective views of thrill producing devices arranged at different portions of the track.

Figure 33 is a horizontal sectional view of the car taken substantially on the line 33—33 of Figure 34 to show the arrangement of wheel traction means to support the forward end of the car upon and guide the car by the track, as well the operative connection of the driving motor of the car with the floor engaging traction wheels and electrical con-

nections of the electric pick-up means with the motor.

Figure 34 is a longitudinal sectional view of the car to show the traction support and guiding means therefor and the backward tiltable seat with the means to releasably support the seat in normal position and the means to move the seat supporting means to seat releasing position and to seat supporting position.

Figure 35 is a cross sectional view of the car taken substantially on the line 35—35 of Figure 34; and

Figure 36 is a perspective view of the releasable car seat supporting means and the means to move the car supporting means to seat releasing position.

In the embodiment of the invention illustrated the track structure comprises a continuous circuitous track embodying straight portions connected by curved portions, as shown in a conventional manner at T in Figure 1, the track being mounted on a floor 36 of a building B, preferably darkened and of rectangular form, having a loading and unloading platform at the front of the building with stairs leading to the platform and the loading and unloading portions separated by a railing R. A portion of the track leads through an exit opening 38 to the platform and from the platform through an entrance opening 39 to the building, each of said openings having a pair of doors 40 hingedly supported at the opposite sides of the openings and normally urged to closed position to constitute self-closing doors, the doors at the entrance opening into and at the exit opening outward from the building and adapted to be engaged and moved to open position by a car travelling on the track through said openings.

The track comprises an electric current feeding or conducting and car guiding rail 41, and an electric current feeding or conducting rail 42 arranged in parallel and insulated relation to the rail 41. These rails are of any suitable construction, and are shown as comprising sills of insulating material, such as wood, secured upon and extending upward from the floor and having sectional flat metallic strips or bars 41′ and 42′ secured upon the sills and the strips electrically connected by blocks 43 of conducting material interposed in the sills, as shown in Figures 7 and 8. Guard or safety rails 44 are arranged in juxtaposed relation to the track rails to extend above the rail 42 and substantially to the height of the rail 41 whereby to prevent patrons from stepping on and bridging the conducting rails with a consequent electrical shock and possible injury to patrons, and for a further purpose to be hereinafter described.

The cars, shown in a conventional manner at C, are of the motor driven type and are tractionally supported at the rear portion upon the floor 36 by wheels 45 rotatable on an axle 45′ carried by the car to permit of differential movement of the wheels relative to each other, said wheels engaging the floor at the outer sides of and the car straddling and engaging over the track. At the forward end the cars have a wheel traction and guide support upon the rail 41 and comprising a pair of flanged wheels 46 rotatably carried in tandem by a truck member 47, whereby the wheels engage the car guiding rail 41 one forward of the other with the flanges of the wheels engaging at opposite sides of the rail, and the car connected to and supported by said truck member intermediate the wheels, as shown at 48 in Figures 33 to 35, to have movement relative to said truck on a vertical axis preferably intersecting the longitudinal axis of the car and permit of the car truck to have movement on a horizontal transverse axis intermediate the wheels, as at 49, whereby the rear portion of the car may have movement in a direction laterally of the track and in a vertical direction and thus preventing the wheels 46 from leaving the track rails 41 by such movements of the car. The driving motor M for the car is mounted on the car frame below a seat 50 and has a driving connection with one of the floor engaging wheels through suitable speed reducing gearing whereby the traction wheel is rotated and the car propelled at a reduced and slow speed, said driving connection comprising a sprocket chain 51 passing around a sprocket wheel on the motor shaft and a sprocket wheel 52 fixed to a shaft 53 rotatably mounted on the car frame, and said shaft connected with the traction wheel by a sprocket chain 54 passing around a sprocket wheel 55 fixed to an end of the shaft 53 extended from the side of the car and about a sprocket wheel 56 rotatable with the traction wheel.

The current is conducted from the conductors 41′, 42′ to the motor by suitable current pick-up means, shown as comprising a pair of shoes 57, 57′, the shoe 57 being pivotally carried by a bracket 58 mounted on the rear end of and insulated from the wheel carrying truck 47, the shoe being engageable by gravity with the current conducting rail 41′ and connected with the motor by a conductor 59. The shoe 57′ is pivotally carried at the side of the wheel carrying truck 47 by a bracket 58′ connected to the front of and insulated from the truck 47, said shoe being engageable by gravity with the current conducting rail 42′ and electrically connected with the motor by a conductor 59′, which may have a switch 60 interposed therein at a convenient place to render the motor inoperative should it be desired. By the construction and arrangement of mounting of the forward end of the car the rear end portion may have lateral movement relative to the track and maintain the motor in electrical connection

with the current conducting rails 41′, 42′, such lateral movement of the car being limited by the safety rails 44, and said rails preventing a metallic part of the car from coming in contact with the current conducting rails with a consequent creating of a short circuit and an arc and possibly starting a fire and injury to passengers of a car.

The track is of a continuous circuitous structure and embodies electrically separated sections or lengths, the one length within the building comprising a pleasure ride length of track and the section on the platform may comprise a loading and unloading length of track T′ extending for the length of the platform, as shown in Figure 4, or the portion of the track upon the platform, as shown in Figure 5, may comprise a loading section or length of track T2, an unloading section or length of track T3 and a car storage section or length of track T4. As shown in Figure 4 the loading and unloading track length embodies the current feeders or conductors 41′, 42′ which are insulated from the feeders or current conductors 41′, 42′ of the pleasure ride length of track by interposing insulated blocks, as shown at 61 in Figure 9, between and separating the feeders or conductors of the pleasure ride and loading and unloading lengths of the track.

The current conductors or feeders 41′, 42′ of the track lengths T and T′ (Figure 4) are connected in independent circuits, the conductor 41′ of the track length T′ by a conductor 62 and the conductor 42′ of said track length by a conductor 63, said conductors being connected with lead in wires *a*, *b* from a source of current supply with a normally closed switch interposed in the conductors, as shown in a conventional manner at 64. The conductor 63 has a normally open switch interposed therein of the electromagnetically operated type, shown in a conventional manner at 65, connected in a local actuating circuit therefor with the source of current supply by a conductor 67 leading from the conductor 62 to said switch, and a conductor 68 leading from the switch connected with the conductor 63, said conductor 68 having a manually operated switch 69 connected therein whereby to close the circuit of and actuate the switch to close the circuit of the conductors or feeders 41′, 42′ of the track length T′ at will. The conductor or feeder 41′ of the pleasure ride length of track T is connected in circuit with the source of current supply by a conductor 62′ leading from conductor 62, and the conductor or feeder 42′ of said track length by a conductor 63′ leading from the conductor 63. The conductor 62 may have a switch 70 interposed therein which is normally closed so that current will be continuously conducted to the conductors or feeders 41′, 42′ of the pleasure ride length of track. The switch 69 is normally in position to open the electromagnetic switch circuit 67, 68 and the circuit of the track length T′. The circuit of track length T being normally closed cars upon said track length will be driven, and when they leave said track length will travel onto the normally dead track length T′ and will either coast to a stop or are brought to stop by brake mechanism co-operating with the car or other suitable means. During the period of rest of the cars on the track length T′ they are unloaded and loaded, and when the cars are loaded, or it is otherwise desired, the cars are moved along said track length, which is effected by the actuation of the switch 69 to close the actuating circuit through conductors 67, 68 for the switch 65 to render said switch active to close the circuit through the conductors 62, 63 and thereby feed current to the conductors 41′ and 42′ of said track length T′ and the car driving motor of the car stationed thereon, the circuit being maintained closed until the car travels onto the track length T.

In the arrangement of the track structure shown in Figure 5 the conductor or feeder 41′ of the pleasure ride and other lengths of the track are in continuous electrical connection, and the conductor or feeder 42′ of the loading, unloading and car storage lengths of track are separated and insulated from each other and the conductor or feeder 42′ of the pleasure ride length of track, and said conductors are connected with said latter conductor 42′ in independent circuits with the source of current supply. For instance, the conductor or feeder 41′ is connected by the conductor 62 with the lead in wire *b* and the conductor or feeder 42′ of the pleasure ride length of track T is connected by conductor 63′ with the lead in wire *a* similar to that shown in the Figure 4 arrangement. The circuit of the unloading length of track T3 is completed similar to that of the track length T′ in Figure 4 by conductor 63 connected with lead in wire *a* and having switch 65 interposed therein and the local actuating circuit 67, 68 for switch 65 with the manually controlled switch 69 interposed therein. The circuit of the loading length of track T2 is completed through conductor 63*a* connected with conductor 63 through a normally open electromagnetically operated switch 65*a*, similar to switch 65, connected in a local switch operating circuit by a conductor 68*a* connected with conductor 67, and through conductor 68′ with conductor 63 and having a control switch 69*a* connected therein. The circuit of the car storage length of track T4 is completed through conductor 63*b* connected with conductor 63 and having a normally open electromagnetic switch 65*b*, similar to switch 65, interposed therein, and said switch being connected in a local controlling circuit 68*b* connected with conduc-

tors 67 and 68′, 63 and having a control switch 69*b* interposed therein. The switch 70 is also interposed in the conductor 62 normally closing the circuit through said conductor to continuously conduct current to the conductors or feeders 41′, 42′ of the pleasure ride length of track T. The cars travel from the pleasure ride length of track to the unloading length of track and are brought to a stop thereon. To move the cars from the unloading track length T3 to the storage length of track T4 the circuit of track length T3 is closed thereby conducting current to the conductors 41′, 42′ of said track length and the motor of the car thereon. To move the cars from the storage length of track T4 and the loading length of track T2 the circuit of the conductors 41′, 42′ of said respective track lengths are closed. It will be obvious that in the operation of the ride that either one or more of the track lengths T2, T3 and T4 may be eliminated and only one of said track lengths utilized, as when operating the ride at peak load and providing the ride with a loading and unloading length of track only in conjunction with the pleasure ride length, by closing the circuits of the track lengths desired to be eliminated and maintaining the control switches of the local circuits therefor closed.

To impart a thrill to patrons the cars are arranged with a backward tiltable seat by providing the seat with a releasable support to support the seat in normal position and adapted to be released to permit of backward tilting movement of the seat and impart to patrons the sensation of falling backward out of the car. For this purpose the seat 50 is pivotally or hingedly connected at the forward end to a vertical fixed support mounted on the car frame, as shown at 71 in Figure 34, the seat embodying members extending transversely of the car and secured to seat sides 71*a* having an integrally connected back rest 71*b* with the seat sides lapping and being slidable relative to side members 72 of the car, as shown in Figure 35. The seat is supported in normal position by arms 73 (Figure 36) fixed to a shaft 74 extending transversely of and rotatably mounted in the car frame. the levers having a pivotal connection with bifurcated ends of links 75 pivotally connected with transverse members 50′ of the seat, said levers and links forming in effect a toggle link connection between the seat and shaft 74, which links in seat supporting position are moved slightly beyond the exhausted position and held against movement in one direction when in said position by a lever engaging a transverse wall portion 75′ of the bifurcation at the ends of the links with which the levers are connected, as shown in Figure 34. The seat supporting means is released during the travel of the car to permit the seat to assume a backward tilted position by the weight of passengers seated in the car, by an arm 73′ constituting a part of one of th levers and extending downward from the shaft 74 engaging an abutment 76 mounted on the floor adjacent a straight portion of the track, thereby rocking the lever shaft 74 and moving the seat supporting means to the dotted line position shown in Figure 34. To move and return the seat to normal position an arm 77 is secured to the seat back at the side of the car opposite to the lever arm 73′, said arm extending down from the seat back below the car frame and carrying a roller 77′ at said end to ride up an inclined surface of an abutment block 78 mounted on the floor at the side of the track opposite to that at which the abutment 76 is mounted and in advance of said latter abutment.

To impart a further thrill to patrons of the cars a section of the floor and the track mounted thereon, preferably at a straight portion of the track, is arranged with a correspondingly formed vertically undulated portion 78 over which the cars will ride, as shown in Figures 10 and 11, and said section of the floor and track being arranged along a portion of the track separated from the major portion of the building by a partition 79, as shown in Figures 1 and 2, and extending from the entrance opening 39 along one side and end of the building.

Further thrill producing means comprises obstructions mounted on the floor in the path of travel of the floor engaging car wheels 45 and over which obstructions said wheels ride. These obstructions are in the form of blocks 80 having an upper convex surface, as shown in Figure 15, arranged at one side of the track for one wheel 45 to ride over, or they may be arranged oppositely or in staggered relation at opposite sides of the track, as shown in Figures 1 and 12. These obstructions are also in the form of successive humps or undulated surfaces, as shown in Figure 16, arranged at opposite sides of the track with the raised portions in alinement, as shown in 80′ in Figures 1 and 13, whereby as the car wheels 45 ride over said obstructions a vertical undulated movement will be imparted to the rear portion of the car. At another section of the track these undulated obstruction members are arranged in staggered relation longitudinally of the track, as shown at 80″ in Figures 14 and 17, whereby the raised or convex portions and the dips of the obstruction at one side of the track are opposite to the dips and raised or convex portions of the obstruction at the opposite side of the track, as shown in Figure 17, and as the rear car wheels ride over said obstructions there is imparted a side swaying as well as a vertical undulated movement to the rear portion of the car.

To impart a further thrill or thills to

patrons of the ride means are positioned along the track adapted to be actuated by a car travelling along the track relative to said means to produce a sudden noise. One of such devices is the provision of means to produce a noise simulating a clapper effected by a resilient pawl 81 carried by a car engaging and riding over ratchet teeth of a bar 82 (Figures 18 and 19) arranged relative to a straight portion of the track. This bar may have the ratchet teeth extended continuously along the same, or the ratchet teeth may be arranged in successive sections on the bar, as shown at 82′ in Figure 20. These clapper noise producing bars are preferably arranged one in advance of the other as shown in Figure 1. Another of said means is adapted to produce a noise simulating the crashing of cymbals, shown in a conventional manner at D in Figure 1 and in detail in Figure 30, and comprises a cymbal mounted on a fixed support, as at 83, and a cymbal 84 carried at one end of a weighted lever 85 pivotally supported by a bracket 83′ mounted on the partition wall 79 and normally positioned with the cymbal 84 out of engagement with the other cymbal by a spring interposed between the lever and bracket, as at 86. The lever is actuated by a travelling car to lift the cymbal carrying end of the lever and then releasing the same to permit it to move to engage the cymbals by a rear car wheel riding over an obstruction 87, which is in the nature of a lever connected to one end of a rock shaft 88 mounted on the floor, and said shaft having a lever arm fixed thereto connected by a flexible member to the cymbal carrying lever, as at 89.

A further device is provided to make a noise simulating thunder, shown in a conventional manner at E in Figure 1 and in detail in Figure 31, said device comprising a resilient metallic sheet 90 suspended at one edge over the track by a cross member supported upon standards mounted upon the floor at opposite sides of the track. The noise is produced by a vibrating of the sheet which is effected by an arm 91 extended from the side of the car engaging the serrated edge of a bar 92 during the travel of the car, said bar being slidably supported at one end in a bracket 93 mounted on the floor and connected to and supported at the opposite end by a frame 94 rotatably mounted on one of the standards of the sheet support and connected to the sheet at the edge opposite to that at which the sheet is suspended and adjacent one side of the sheet, the rod being urged in a direction opposite to that in which the car travels by a spring 95 connected with the bar and its supporting bracket 93. As the car arm 91 engages and rides over the bar serrations it will impart a vibratory movement to the bar which is imparted through the frame 94 to the sheet.

Means are provided to produce an effect simulating lightning just prior to the actuation of the thunder producing device, shown in a conventional manner at F in Figure 1 and in detail in Figure 31, said means embodying a pair of electric arc creating members, such as carbon sticks 96, 96′, connected in circuit with a source of electricity, such as the conductors 41′ and 42′ of the pleasure ride length of track, the members being mounted upon a suitable support with the member 96 to have movement toward and away from the other member and normally positioned in contact therewith whereby to establish an electric current flow through said members and the current conductors connected therewith, and adapted to be moved away from the other member to provide a gap sufficient to create an electric arc. Means are provided to actuate the movable member 96 away from the other member by a travelling car and comprises a lever 97 carried and insulated from the member 96 pivotally mounted on a standard carrying the support for the carbon sticks and connected by a rod 98 to the free end of a lever member 99 pivotally mounted at the opposite end upon the floor and the free end normally urged upward from the floor by a spring 100 interposed between said member and the floor and positioning the carbon stick 96 in contact with the stick 96′. The lever member 99 is in the nature of an obstruction positioned for a rear car wheel to ride over and move the same against the tension of the spring 100 and thereby actuate lever 97 to actuate the stick 96 away from the other stick and create an arc, represented in a conventional manner by dot and dash lines.

A further thrill producing device comprises a representation of an object falling in the path of travel of the car, shown in a conventional manner at G in Figure 1 arranged at the side of a lateral undulated section of the track, and shown in detail in Figure 29 as a statue 101 characterizing a man. This object is pivotally supported on a pedestal 102 at the side of the track opposite a curved portion of the undulated track section to have movement in a plane transversely of the track and is normally urged to assume an upright or standing position by a counterweight 103. The object is tilted against the force of the weight by means actuated by a car as it approaches said object, comprising an obstruction 104, over which a wheel of the car rides, said obstruction being in the form of a lever similar to the obstruction 87 with the exception that there is a spring 104′ interposed between said member and the floor to normally urge the member in a direction away from the floor. The obstruction 104, as shown in detail in Figure 29, is fixed to a rock shaft 105 having an arm 106 fixed thereto connected by a cable 107 passed around a pulley 108 mounted on the wall of the building and a pulley 108′ rotatably carried by the object

supporting pedestal and having connection with the object whereby as the car rides over the lever obstruction the shaft 105 is rocked and tilting movement imparted thereby to the object in a direction toward the track, as shown in dotted lines. As shown in Figure 1 said object is arranged at a portion of an undulated track section curving away from the object, and tilting movement is imparted to the object by the car as it travels relative to the preceding reverse curved portion of said undulated track section, and should the object fail to return to its normal position it will not be in position so that the car will collide with the same.

Another thrill producing device comprises a representation of a dragon facing toward the direction from which the car approaches, shown in a conventional manner at H in Figure 1 and in detail in Figure 32. The head is provided with a pivoted jaw 110 having a counterbalancing weight 110′ connected thereto within the structure, which is hollow, and the jaw is adapted to be set in vibration to move the jaw to mouth closing and opening position by a car riding over an obstruction similar to the obstruction 104 associated with the means for the tiltable object 101, and the same reference characters have been applied thereto, with the exception that the wheel 108′ is mounted upon the floor instead of a pedestal support for the object and the cable has a spring interposed therein. The eyes of the dragon consist of electric light bulbs and means are provided to generate and emit sparks from the mouth of the dragon, said means comprising an electric motor *m* within the head of the object having a carborundum wheel 111 upon the shaft thereof and a yielding metallic plate 112 engaging with said wheel and co-operating therewith to generate the sparks, the wheel rotating in a direction to direct the sparks outward from the mouth. The motor and lamps are connected in a normally open circuit with a source of current supply, which may be the conductors 41′, 42′, by conductors 113, as shown in dotted lines in Figure 32, having a switch interposed therein and actuating means associated therewith operative by a travelling car to move the switch to circuit closing and opening position. This switch actuating means may be of any suitable form, and as shown in detail in Figure 23 comprises mechanically actuated means embodying a contact maker 114 carried by a lever 115 and connected in the circuit and adapted to be moved into and out of bridging relation with a further contact 114′ connected in the circuit. To actuate the circuit maker 114 to circuit closing position by the travel of the car an obstruction 116, in the form of a lever plate, is positioned on the floor in the path of travel of a car wheel 45, said lever plate being connected at one end to one end of a rock shaft 117 mounted in relation to the floor and carrying an arm 117′ at the opposite end, the free end of the plate 116 being urged upward from the floor by a spring 116′ interposed between the plate and floor with the arm 117′ engaging an end of a rod 118 slidably mounted on the floor and the opposite end of the rod engaging an arm of lever 115. As the car wheel rides over plate 116 it will actuate the lever 115 from the dotted to the full line position moving contact maker 114 into contact with contact 114′. To open the circuit there is provided a second lever plate 119 connected to a rock shaft 120 and urged to upward position by a spring 119′ similar to lever 116, the shaft having an arm 120′ connected with the lever 115 by a rod 121 pivotally connected with said arm and having a lost motion connection with the arm of lever 115 opposite to that connected with the rod 118 by extending the rod through an elongated opening in said arm and bending the end of the rod laterally to maintain the connection, as shown at 121′. In the normal position of the parts the bent end of the rod 121 is out of engagement with the lever 115 and when said lever is moved to circuit closing position through the actuation of rod 118 it is moved into engagement with the bent end of the rod, and as the car wheel rides over obstruction 119 said obstruction through the connection thereof with lever 115 will move the latter lever to circuit opening position.

Another thrill or mirth producing device comprises an object, such as an animal and shown in simulation of a mule normally assuming an inanimate posture and adapted to be actuated to simulate animation thereof, said device being shown in a conventional manner at I in Figure 1 and in detail in Figure 26. The device is supported adjacent a wall of the building, shown as the partition 79 in the corner at the juncture of the portions extending along the side and end of the building, and at a curved portion of the track connecting straight portions. The device is adapted to be actuated to represent the mule as kicking, and for this purpose the front legs are secured to the floor and the remaining portion pivotally supported on the wall, as at 122, and being rendered active by means operated by a car approaching said object, said means being similar to the means for actuating the object 101 to tilted position with the exception that two cable guiding pulleys 108′ are provided. The cable is connected to a lever arm 123 at the forward end of the object and the actuating means is operated by a car wheel riding over the obstruction 104. The device is provided with a pivoted lever 124, representative of the tail of the mule, having a cable 124′ attached thereto and to a part secured in the floor whereby as movement representative of kicking is imparted to the object an up-

ward movement is imparted to said lever. To momentarily illuminate the object a lamp 125, which is connected in open circuit with the conductors 41′, 42′ and the circuit of the lamp closed and opened by means actuated by a passing car, said means being the same as that illustrated in Figure 23.

A further thrill producing device comprises what is termed a "tickler", shown in a conventional manner at J in Figure 1 at a straight portion of the track and in detail in Figure 28, and comprising strands 126 of flexible material, such as fibre, suspended from a support 126′ extending transversely of and above the track, the strands being of a length to brush the heads of passengers in cars travelling relative thereto.

Another of such devices is shown in Figure 25 and comprises a plate 127 shown as of rectangular form pivotally supported at one edge and normally urged to position to extend transversely and adapted to be moved laterally of the track, as shown in dotted lines, said plate having depicted thereon a car with a passenger therein and giving the illusion of a derailed car as extending transversely of the track. The device is adapted to be engaged and moved to position laterally of the track by a car travelling relative thereto, the shock of the car engaging therewith being absorbed by a bumper 128 on the front of the car engaging a resilient bumper member 129 extending transversely of the plate 127. This device is located in the passage formed by the partition 79, and means are provided to illuminate said device as a car approaches and travels by the same. For this purpose there is provided an electric lamp 130 arranged with a reflector to direct the light rays against the device, said lamp being connected in a normally open circuit with a source of current supply, such as the conductors 41′, 42′, as indicated by dot and dash lines 131. The circuit is opened and closed by circuit making and breaking means connected therein and operative by a travelling car, such means being the same as that shown in Figure 23.

A further thrill producing device comprises a reflective surface or mirror shown in a conventional manner at K in Figure 1 and in detail in Figure 27. This mirror is mounted on the side wall of the building at a corner of the building and curved portion of the track to extend in a plane transversely of the track, an electric lamp 132 being also provided to illuminate said mirror, and the lamp connected in a normally open electric circuit with the conductors 41′, 42′, indicated by dot and dash line 132′, and having a circuit closing and opening means as shown in Figure 23 interposed therein and operative by a travelling car to periodically illuminate the mirror, the travel of the car being reflected to be visible by passengers in the car and giving the illusory effect of a car approaching in the opposite direction on the track.

Another thrill producing device comprises the representation of a skeleton, shown in a conventional manner at L in Figure 1 and in detail in Figure 2 and arranged on the side wall of the building at the outlet of the passage formed by the partition 79 to also extend in a plane transversely of a straight portion of the track. Illuminating means, shown in a conventional manner at 133 in Figure 1 and similar to the illuminating means for the mirror device, are utilized to illuminate the device as a car travels relative thereto, said illuminating means being connected in a normally open electric circuit and the means illustrated in Figure 23 operated by a passing car being provided to close and open said circuit.

A further means for this purpose comprises a blower to direct a blast of air against a travelling car, said blower being shown in a conventional manner at N in Figure 1, and is operated by an electric motor connected in circuit with the conductors 41′, 42′. The blower may operate continuously, or it may be periodically actuated by means operated by a travelling car as shown in Figure 23.

To take up the shock of the car engaging the doors at the entrance and exit openings of the building each of the doors is provided with resilient bumper means, comprising a bow shaped member of resilient metal 135 secured at one end to the marginal portion of the door opposite to which it is hingedly supported and extending transversely of the door, as shown in Figure 24, the free end of the bumper slidably engaging a slot in the door. This bumper is arranged in a plane to be engaged by the car bumper 128. The cars are also provided with bumpers 128′ at the rear end.

Having thus described my invention, I claim:

1. In an amusement railway, a floor, a pair of rails extending in parallel spaced relation along the floor, one rail constituting a conductor rail and the other a conductor and guide rail, a car embodying wheels to support the car at one end by said floor in straddling relation to the rails and a traction wheel support at the opposite end upon the guide rail to permit the car to have movement on a vertical axis relative to said support, and guard rails in parallel relation to said rails adapted for the abutment of the floor supported car wheels to permit limited movement of the car on the floor in a direction transversely of the rails.

2. An amusement railway, comprising in combination, a floor, a pair of parallel conductor rails extending along the floor and one rail constituting a car guiding rail, and a car to straddle the rails embodying a pair of

wheels tractionally supporting the car at one end on the floor at the outer sides of the rails, and a truck carrying a pair of flanged wheels in tandem tractionally engaging the guide rail and the car pivotally supported at the opposite end on the truck to have movement on a vertical axis intersecting the longitudinal axis of the car.

3. In an amusement railway as claimed in claim 2, obstructions on the floor over which the floor supported wheels are adapted to ride in the travel of the car.

4. In an amusement railway as claimed in claim 2, guard rails for the conductor rails adapted for the abutment of the floor supported car wheels to limit lateral movement of the car on the vertical pivotal support thereof on the truck for the tandem guide wheels.

5. An amusement railway, comprising in combination, a floor, parallel conductor rails mounted on the floor and one of said rails constituting a car guiding and traction rail, said rails embodying a circuitous continuous rail structure having straight portions connected by curved portions and a laterally undulating section, and a car embodying rear wheels tractionally supported by the floor at the outer sides of the rails and a wheeled traction and guide support at the forward end on the guide and traction rail to permit the car to have movement on a vertical axis relative thereto.

6. An amusement railway, comprising in combination, a floor, parallel and circuitous, continuous conductor rails mounted on the floor and one of said rails constituting a car guiding and supporting rail and said floor and rails having a correspondingly formed vertically undulated section.

7. An amusement railway, comprising in combination, a floor, a circuitous car guiding track mounted on the floor having straight sections connected by curved sections, a car straddling the track embodying rear wheels supported by the floor at the outer sides of the track and a wheel support at the forward end upon the track, and vertical undulated raised surfaces provided on the floor parallel with the straight track sections in the path of travel of and over which the floor supported wheels are adapted to ride to impart a thrill to the passenger in the car.

8. A amusement railway, comprising in combination, a floor, circuitous parallel conductor rails mounted on the floor and one of said rails constituting a car guiding rail, a car embodying a pair of wheels engaging the floor at the outer sides of the rails to tractionally support one end of the car and having a guide wheel support at the opposite end upon the guide rail, an electric motor carried by the car operatively connected with the floor supported wheels, and conductor shoes carried by the car in electrical connection with the motor for slidable engagement with the rails.

9. An amusement railway, comprising in combination, a floor, a circuitous car guiding track mounted on the floor having straight sections connected by curved sections, a car to straddle the track having a traction wheel support on the floor at opposite sides of the track and a guide wheel support upon the track, obstructions on the floor at the outer sides of and parallel with straight sections of the track and over which obstructions the floor supported wheels are adapted to ride in the travel of the car, a ratchet bar disposed parallelly of the track, and a yielding pawl carried by the car adapted to engage the ratchet bar during the travel of the car relative to the bar.

10. In an amusement railway, the combination with a track and a car guided thereby, of thrill producing devices disposed along the track, and control means for rendering said devices active operative by a car as it approaches and travels relative to said devices, one of said thrill producing devices comprising an object simulating a man pivotally supported at the side of the track and normally urged to assume an upright standing position and adapted to assume a position tilted transversely of the track, and the control means operative by a car adapted to actuate said object to tilted position.

11. An amusement railway as claimed in claim 10, wherein a thrill producing device comprises cymbals, and the control means operative by a car adapted to actuate said cymbals to make a noise.

12. An amusement railway as claimed in claim 10, wherein a thrill producing device comprises a suspended metallic sheet, and the control means operative by a car adapted to vibrate said sheet to make a noise simulating thunder.

13. An amusement railway as claimed in claim 10, wherein a thrill producing device comprises electric arc creating members in simulation of lightning connected in a normally closed electric circuit, and the car control means operative by a travelling car adapted to actuate one of said members toward the other to close the circuit and effect a creating of an electric arc.

14. An amusement railway as claimed in claim 10, wherein a thrill producing device comprises an object in simulation of a dragon embodying electric illuminating means connected in an electric circuit having circuit making means interposed therein normally positioned to open the circuit, and the control means operative by a car adapted to actuate the circuit making means to close the circuit and effect a periodic illumination of said object.

15. An amusement railway as claimed in claim 10, wherein a thrill producing device

comprises an object in simulation of a dragon having a pivoted jaw movable to mouth closing and opening positions and electric illuminating and spark generating means connected in an electric circuit having circuit making means interposed therein normally positioned to open the circuit, and means to actuate the jaw to impart mouth opening and closing movements thereto and the control means operative by a car adapted to actuate the circuit making means to close the circuit of the illuminating and spark generating means and set the jaw actuating means in operation.

16. An amusement railway as claimed in claim 10, wherein a thrill producing device comprises a plate pivotally supported at the side of the track to have angular movement in a horizontal plane and normally urged to position transversely of the track and intersecting the path of travel of a car, said plate having depicted thereon a car and adapted to be engaged by a car travelling relative to said device and thereby moved out of the path of travel of the car.

17. An amusement railway as claimed in claim 10, wherein a thrill producing device comprises a plate pivotally supported at the side of the track to have angular movement in a horizontal plane and normally urged to position transversely of the track and intersecting the path of travel of a car, said plate having depicted thereon a car and adapted to be engaged by a car travelling relative to said device and moved out of the path of travel of the car, illuminating means for said device connected in an open electric circuit having circuit making means interposed therein normally positioned to open the circuit, and the control means operative by a car adapted to actuate said circuit making means to close the circuit of the illuminating means.

18. An amusement railway as claimed in claim 10, wherein a thrill producing device comprises a blower arranged at the side of the track and adapted to direct an air blast against a car travelling by the same.

19. An amusement railway as claimed in claim 10, wherein the track is a continuous circuitous structure having straight and curved portions, and a thrill device comprises a reflective surface arranged at the juncture of a curved track portion with straight track portion and extend in a plane transversely of the straight track portion to give the illusion of a car approaching in the opposite direction on the straight track portion.

20. An amusement railway as claimed in claim 10, wherein a thrill producing device comprises a movably supported object simulating an animal assuming normally an inanimate posture, and the means operative by a travelling car adapted to impart movement to said object to simulate animation of the animal.

21. An amusement railway, comprising in combination, a floor, a car guiding track, a car having a traction wheel support upon the floor at opposite sides of the track and upon the track, and a backward tiltable seat, means to releasably support the seat in normal position, and abutment means positioned relative to the track for engagement and actuation of the seat supporting means to successively release the seat and permit of backward tilting movement thereof and return said means to seat supporting position.

22. An amusement railway as claimed in claim 21, wherein the seat is pivotally supported at the forward end and the releasable seat supporting means and means to return the seat to normal position comprises levers pivotally supported upon a fixed part of the car and having a toggle link connection with the seat and having a part for engagement of an abutment, and an arm connected with the seat for engagement of an abutment to return the seat and the seat supporting means to normal seat supporting position.

23. An amusement ride as claimed in claim 10, wherein a thrill producing device comprises a plate pivotally supported on a vertical axis at one side of the track to have movement to position to extend transversely of the track and intersect the path of travel of a car on the track and to the side of the track, said plate being normally urged to position to extend transversely of the track and adapted to be engaged by a car travelling along track relative to said device to give the illusion of running into an obstruction on the track and be moved to position away from and at one side of the track by the car.

Signed at Beaver Falls, in the county of Beaver and State of Pennsylvania, this 3rd day of November, 1930.

HARRY G. TRAVER.