

April 18, 1933.

C. R. GRAHAM

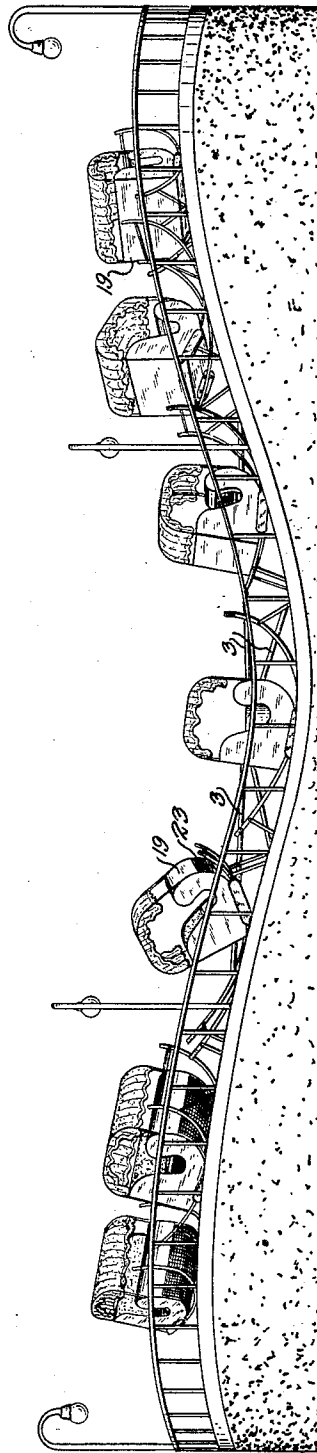
1,903,995

AMUSEMENT DEVICE

Filed Sept. 8, 1928

3 Sheets-Sheet 1

Fig. 1.



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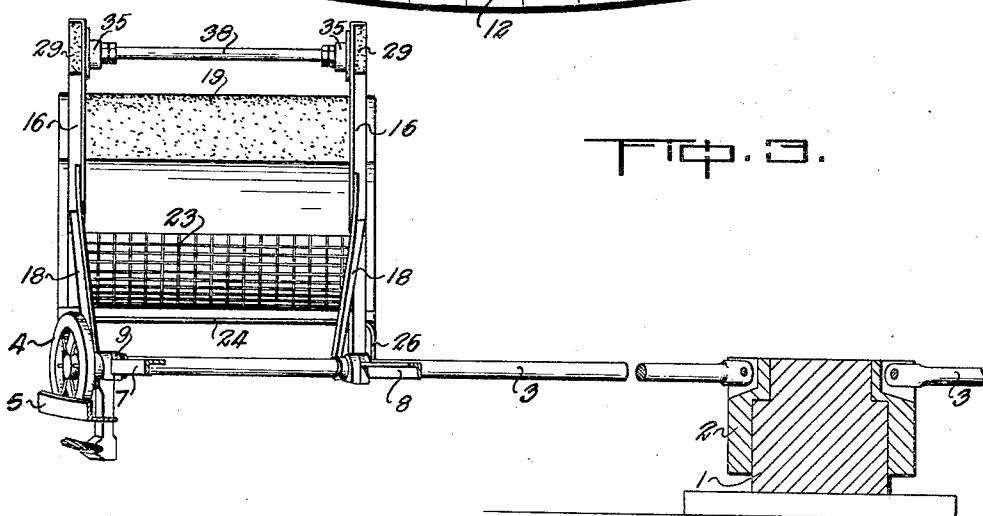
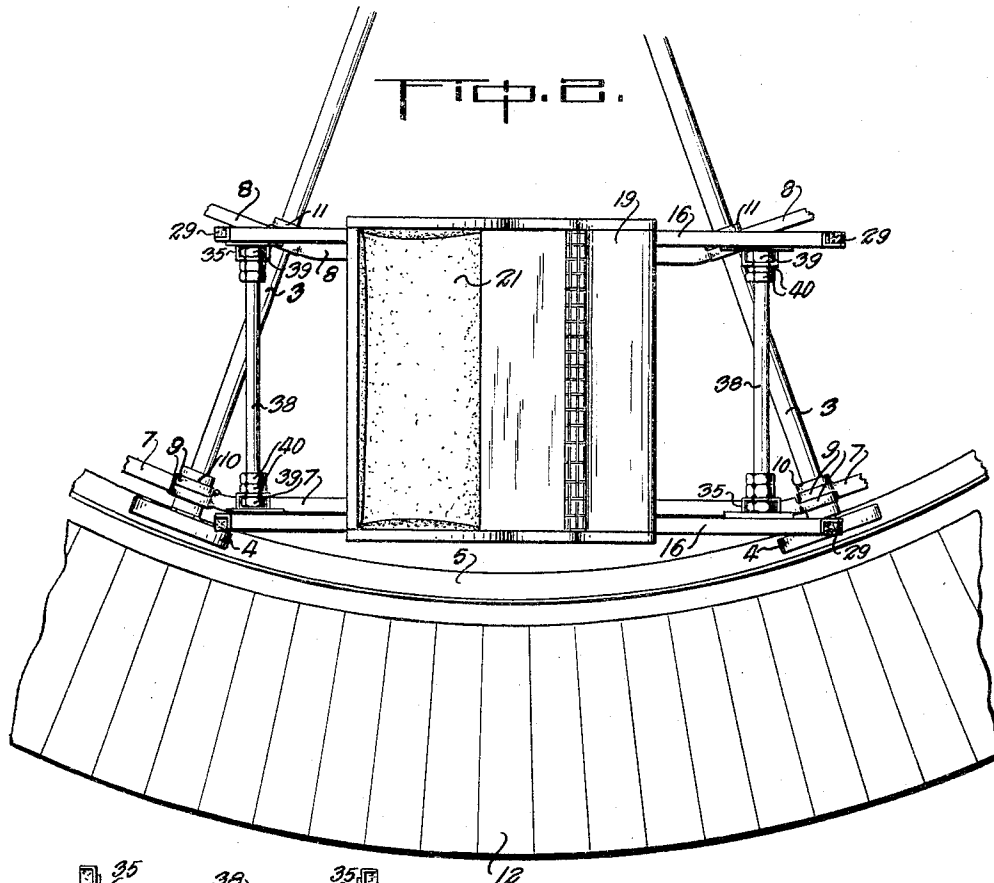
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FIG. 4.

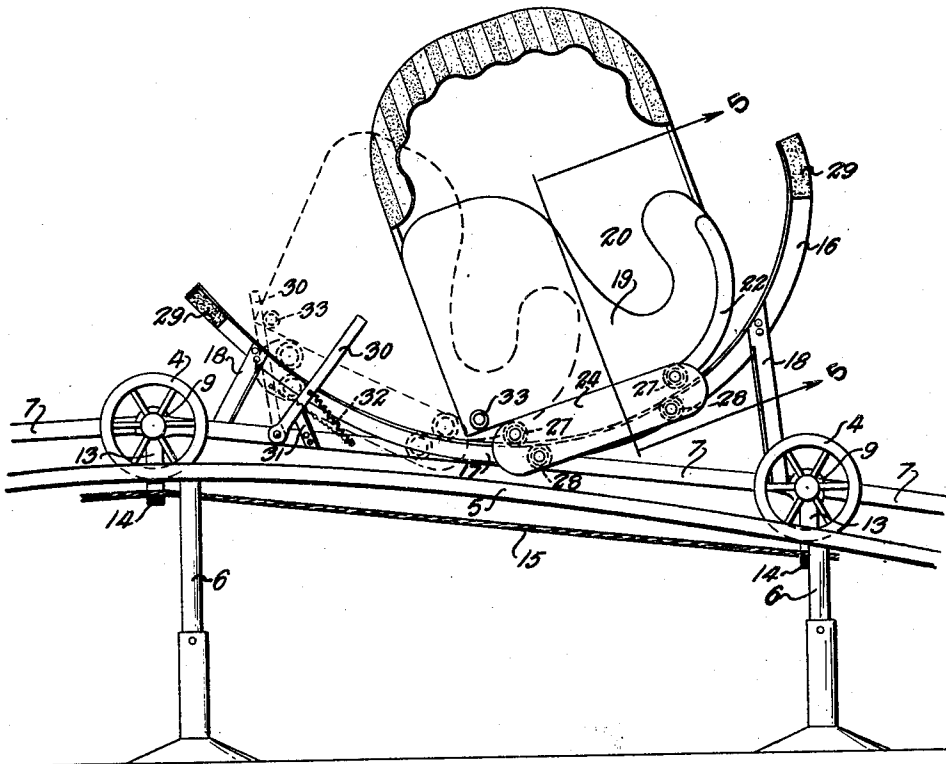


FIG. 5.

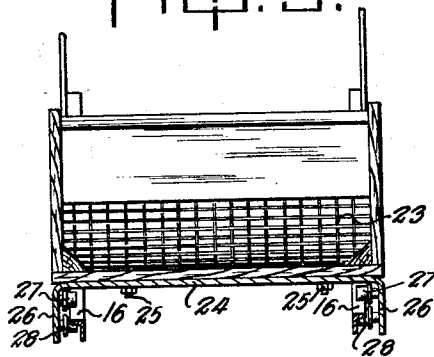
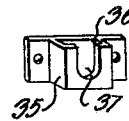


FIG. 6.



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## UNITED STATES PATENT OFFICE

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## AMUSEMENT DEVICE

Application filed September 8, 1928. Serial No. 304,719.

My invention relates to improvements in amusement devices, and the object of my invention is to construct a device in which a plurality of passenger carrying cars are incorporated and in which a swinging or oscillating movement is imparted to the cars in the course of their travel.

A further object of my invention is to construct a device having an undulated passenger car carrying track and to utilize such undulations as a means for imparting the swinging or oscillating movement to the cars as they pass thereover, and a still further object is to freely mount each of the cars upon a separate pair of upwardly curved tracks upon which they freely move, such pairs of tracks being carried upon a moveable flexible structure which is carried upon the undulated track.

Another object of my invention is to provide the forward or foot rest portion of my cars with suitable gratings so that air currents may freely pass into the bottoms of the cars during the times when they are being rapidly swung in a forward direction, and another object of my invention is to construct an amusement device of a simple type composed of a relatively small number of similar parts thus facilitating its erection, knocking down and transporting, which is necessary in moving this type of machine from place to place.

My invention consists of an amusement device, constructed and arranged all as hereinafter more particularly described and illustrated in the accompanying drawings in which:

Figure 1 is a side elevational view of my amusement device in motion.

Figure 2 is an enlarged plan view of a broken away portion of my device showing one of the passenger carrying cars.

Figure 3 is a side elevational view of the portion of the structure illustrated in Figure 2.

Figure 4 is a front elevational view of the portion of the structure illustrated in Figure 2.

Figure 5 is a vertical cross sectional view of the car and pair of tracks upon which it

is mounted, being taken through the line 5—5 Figure 4, and

Figure 6 is a perspective view of the mounting used in securing the tie rods between the pairs of passenger carrying tracks.

Like characters of reference indicate corresponding parts in the different views.

The understructure of my device comprises a central pedestal 1 upon which a hub 2 is rotatably mounted, sweeps 3 which are pivoted at their inner ends to the hub 2 and furnished upon their outer ends with running wheels 4 which are mounted upon a circular undulated track 5 suitably supported upon a plurality of spaced apart standards 6, such track being positioned concentrically of the hub.

The rotatable sweeps 3 are equi-distantly spaced apart and connected together by pairs of suitably disposed links 7 and 8, the links 7 being positioned upon the outer ends of the sweeps and the links 8 which extend in parallel relation to the links 7 being positioned intermediately of the lengths of the sweeps. The links are preferably constructed of angle iron for strength and rigidity and are furnished upon their ends with inverted U shaped members 9 which are hooked over the sweeps. For retaining the links in their adjusted positions I furnish pairs of collars 10 and 11 upon the sweeps between which the U shaped members 9 are inserted.

12 is a ring shaped platform extending around the periphery of the device, such platform following the undulations of the track and being in close proximity for the passenger carrying cars for the convenience of the passenger.

Each of the sweeps 3 is furnished in the vicinity of its outer end with a depending bracket 13 which is provided upon its lower end with a V shaped jaw 14 adapted to receive an endless driving cable 15 which passes from jaw to jaw, extending around the device and constituting the driving connection. Such driving cable leaves the understructure at one point and passes over a pair of spaced apart driving and tensioning pulleys of the type illustrated in United

States Letters Patent #1,672,959, July 12, 1928. It will be readily understood that when the cable is driven through the medium of the driving mechanism that the sweeps

5 will rotate about the central pedestal 1 and through their pivotal connection with the hub 2 follow the undulations of the track 5, the pairs of links 7 and 8 swinging vertically in relation to the sweeps.

10 Upon each pair of links 7 and 8 a pair of upwardly curved parallel tracks 16 are mounted, such tracks being in the same spaced apart relation as the links 7 and 8 and at their lower portions 17 secured there-

15 to by welding or any other suitable means, the upwardly extending end portions of the tracks being supported by suitable strut members 18 which extend between the tracks and the links.

20 For retaining the upwardly extending portions of the curved tracks in their correct spaced apart relation I provide tie rods which extend between the tracks being connected therebetween in the manner illustrated

25 in Figure 6. This form of attachment consists of a pair of boxes 35 oppositely positioned upon the inner faces of the tracks, such boxes having open tops 36 and downwardly extending slots 37 in their outer

30 walls. 38 are the tie rods which are threaded upon their ends and furnished upon each end with an outer nut 39 and pair of lock nuts 40, the tie rods being of sufficient length to extend from the interior of one box to

35 the interior of the other. When a tie rod is being placed in position the lock nuts 40 are threaded away from the end nuts 39 and the rod dropped into the slots 37 so that the end nuts are contained in the boxes

40 35, before this is done the end nuts are adjusted upon the rod so that they will maintain the correct distance between the tracks. The nuts 40 are then screwed outwardly against the slotted faces of the boxes and

45 upon being tightened up will of course retain the tie rod in its adjusted position.

Upon reference to Figures 4 and 5 of the drawings it will be seen that I preferably form these tracks from angle iron positioned

50 so that the horizontal webs extend outwardly. As the passenger carrying cars are mounted upon the pairs of tracks 16 the curvature given to the tracks will depend upon the amount of oscillation or swing

55 it is desired to impart to the cars.

The passenger carrying cars which can be of any suitable size or type are each mounted upon a pair of tracks 16, the type of car 19 illustrated in the drawings is slightly

60 wider than the width between the tracks and is adapted to carry two persons, and entrance way 20 and rear seat 21 being furnished. The front lower curved foot rest portion 22 of the car is provided with a

65 grating portion 23 so that when the car is

swung rapidly forward a draft of air passes in about the legs of the passengers seated therein.

Any suitable lower assembly can be used for mounting the cars upon the pairs of tracks and in the construction illustrated in the drawings I furnish an inverted U shaped plate 24 of greater width than the outside distance between the pairs of tracks 16 and which extends across the bottom of the car

70 19, being secured thereto by bolts 25. The downwardly extending portions 26 of this plate each carry a pair of freely mounted upper and lower flange rollers 27 and 28. The pair of rollers 27 riding upon the upper

80 faces of the horizontal webs of the tracks and the lower pairs of rollers 28 upon their lower faces. With this form of mounting the cars are permitted to freely roll upon their respective pairs of tracks but as the rollers engage the tops and bottoms thereof there is no possibility of the cars becoming

85 displaced.

For preventing the cars from leaving the ends of the tracks, I provide rubber bumpers 29 which are secured to the track ends and engage the lower rollers 28. It is found in practice that the rearward motion of the cars due to the steep forward incline is very rapid; so in order to prevent a great impact between the rear rollers 28 and the rear bumpers 29 I furnish a device for reducing the momentum of the car as it swings backwardly towards the rear end of its track.

100 This device consists of an upwardly extending arm 30 which is pivoted at its lower end to the adjacent link 7 in the vicinity of the rear end of such link. This arm is normally inclined upwardly, resting upon a stop 31 secured upon the link 7 held in this position

105 by a spiral spring 32. The car is furnished upon its outer face in the vicinity of its rear corner with a lug 33 which is adapted to come in contact with the arm 30 as the car moves rearwardly. When this contact occurs the arm 30 is of course swung in an anti-clockwise direction due to the momentum of the car, but as such arm is moving

110 against the spring 32 it will readily be seen that it will materially reduce the car speed.

The operation of my device is as follows:

When my amusement device is at rest the cars 19 being freely moveable, will remain in substantially vertical positions at the bottoms of the curved tracks 16, which will enable the passengers to freely enter from the platform 12. When the device is loaded the under structure is revolved by means of the driving cable 15, and the sweeps 3 and links

120 7 and 8 will of course follow the undulations of the track 5. As the links swing upwardly and downwardly following the undulations of the track, the pairs of tracks 16 mounted upon such links will of course also

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swing and cause the cars to roll to and fro along their tracks. When the device has completed about the one revolution the cars will all be swinging at various speeds dependent upon the curvature of the undulation over which they are passing at the moment, the steeper the curvature the more rapid will be the swing. It will also be appreciated that the faster the structure is rotated the more violent will be the oscillation of the cars due to the rapid changes of inclination of the pairs of tracks 16.

When the ride has been completed and the device brought to rest the cars 19 will swing to the bottoms of their respective curved tracks 16 and remain in substantially vertical positions thus enabling the passengers to dismount.

From the foregoing description it will be apparent that I have constructed an extremely simple and inexpensive type of an amusement device which will impart the thrills and exhilaration which are so essential in this type of machine, and furthermore, though I have devised a machine in which the thrill of rapid movement is imparted I have also kept the very essential factor of "safety to passengers" well in mind. Although I have illustrated and described a particular embodiment of my invention it is to be understood that I can make such changes or alterations as I may deem necessary without departing from the spirit of my invention as set forth in the appended claims.

What I claim as my invention is:

1. In an amusement device, a structure moving in an undulated path, a curved track supported thereon and lying substantially in the same direction as the path of travel of the structure and having its ends upwardly extending, and a passenger car mounted upon the track for free movement apart from the undulating movements of the structure.

2. In an amusement device, a circular undulated track, a rotatable member positioned centrally of the track, a plurality of swingable sweeps extending from the member and riding upon the track, means for rotating the central member and sweeps, link members extending between the sweeps and pivotally connected thereto, track sections mounted upon the links, and a plurality of passenger cars each carried by a track section.

3. In an amusement device, an endless undulated track, a structure movable upon said track, a curved track mounted upon said structure and extending substantially in the direction of movement of the structure, and a passenger car freely rollable upon said curved track, and solely supported thereby.

4. In an amusement device, a rotating undulating structure, a passenger car carried upon the structure, and freely swingable in

a vertical arc substantially tangential to the path of rotation of the structure, the car having its swinging path of travel underneath the focus point of the arc.

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