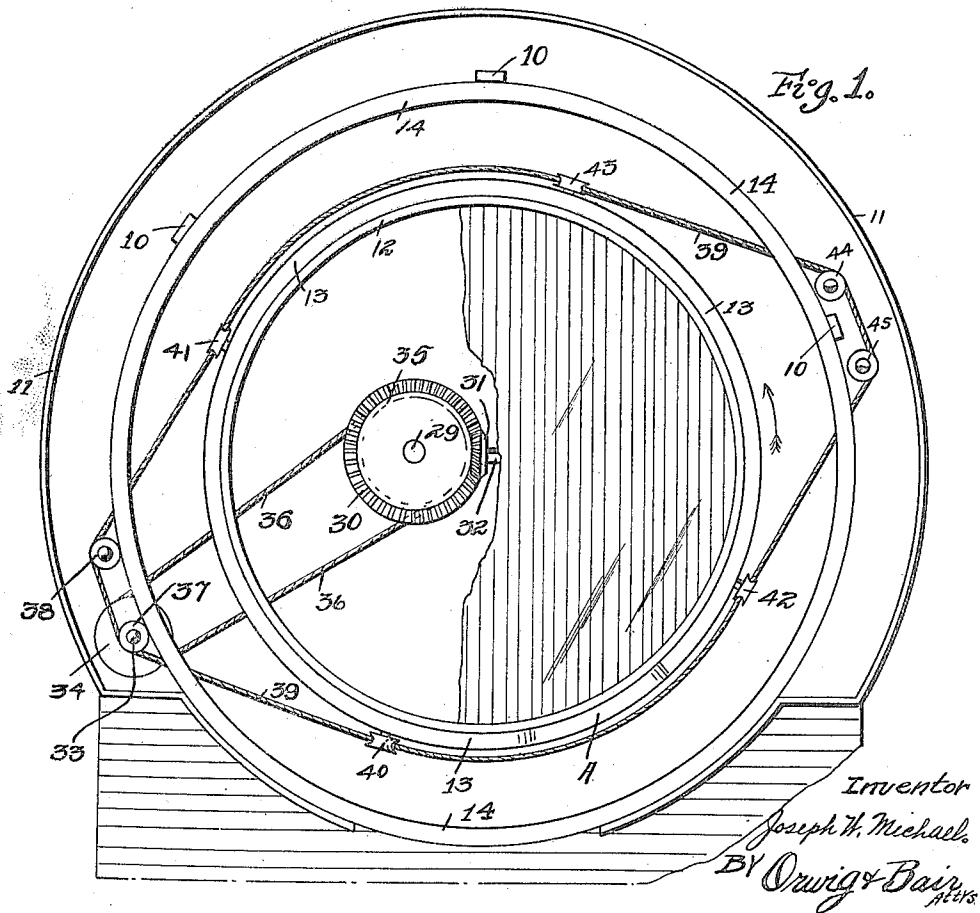
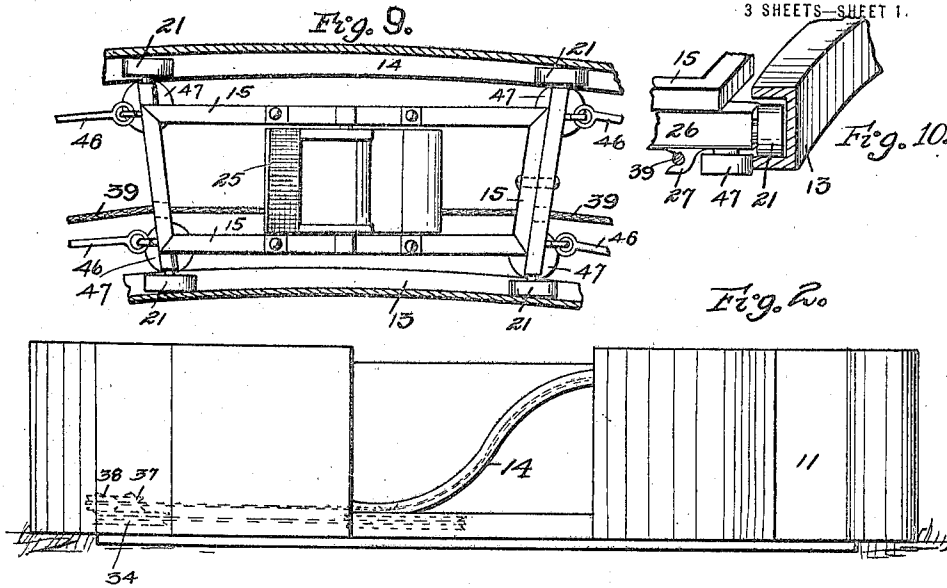


1,301,476.

J. W. MICHAEL.  
AMUSEMENT RIDING DEVICE.  
APPLICATION FILED MAY 6, 1918.

Patented Apr. 22, 1919.

3 SHEETS—SHEET 1.

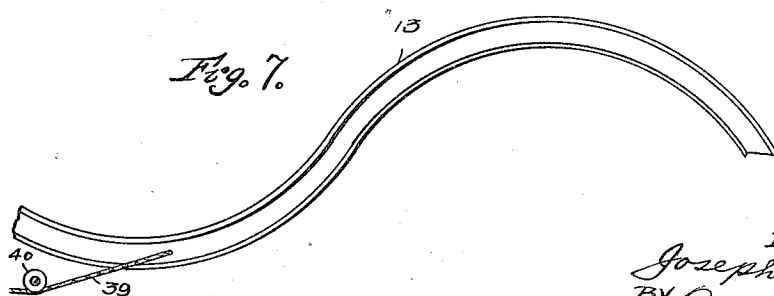
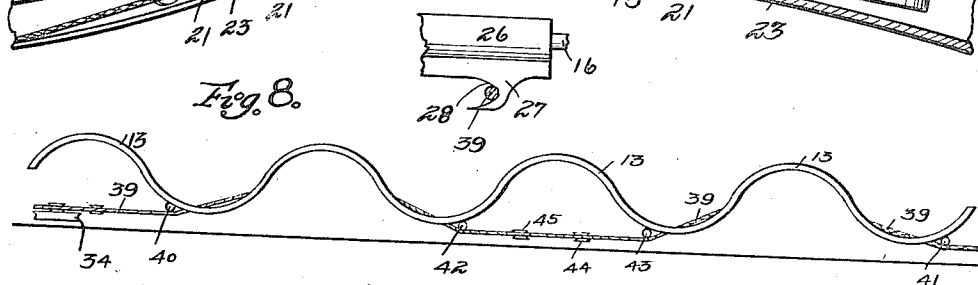
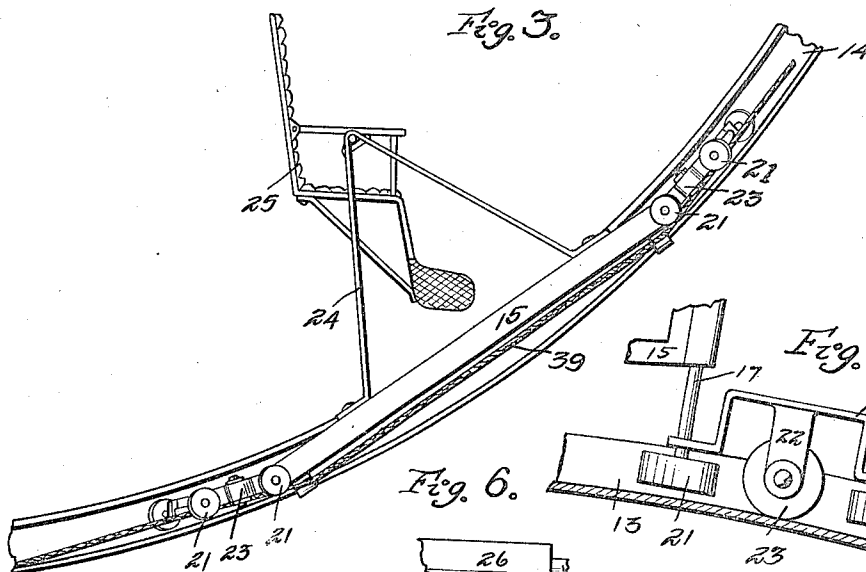
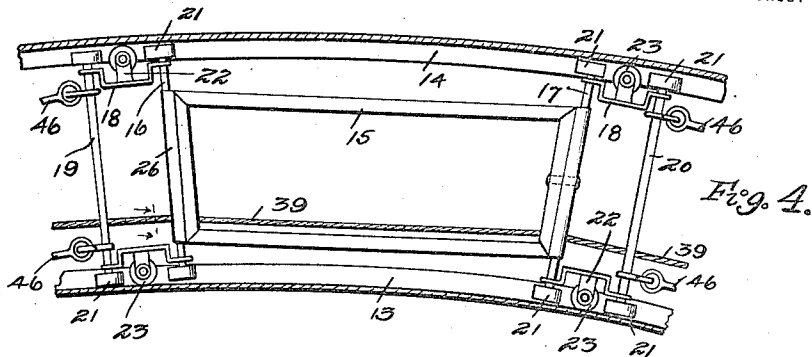


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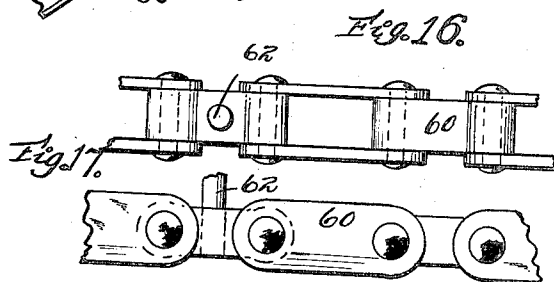
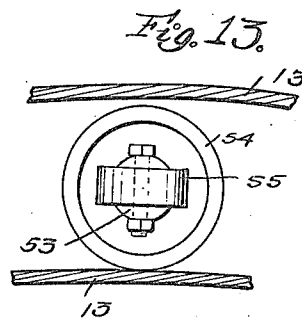
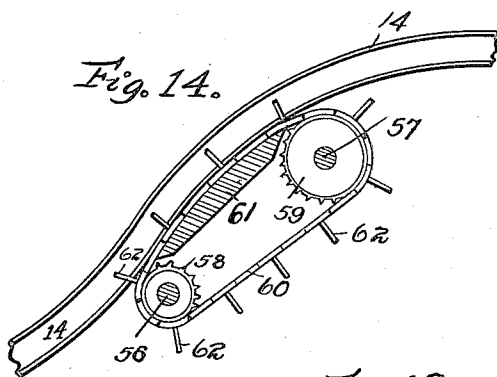
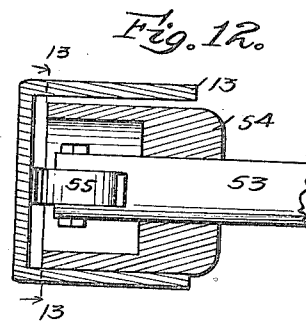
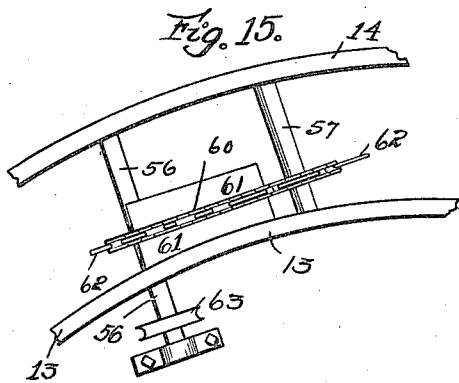
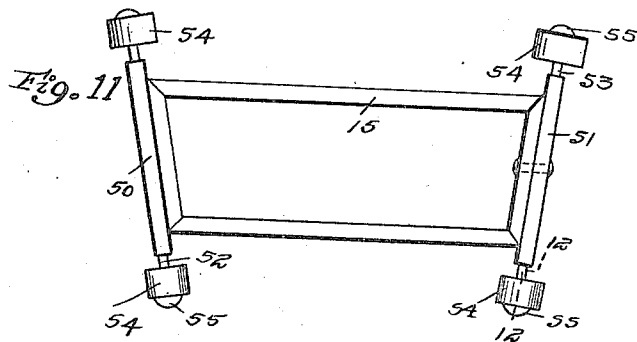
Inventor  
Joseph W. Michael  
BY *Orwig & Bair* Attys.

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3 SHEETS—SHEET 3.



Inventor  
Joseph W. Michael  
BY *Orwig & Baird* Attys

# UNITED STATES PATENT OFFICE.

JOSEPH W. MICHAEL, OF WOODBURN, IOWA.

## AMUSEMENT RIDING DEVICE.

1,301,476.

Specification of Letters Patent.

Patented Apr. 22, 1919.

Application filed May 6, 1918. Serial No. 232,904.

*To all whom it may concern:*

Be it known that I, JOSEPH W. MICHAEL, a citizen of the United States, and resident of Woodburn, in the county of Clarke and State of Iowa, have invented a certain new and useful Amusement Riding Device, of which the following is a specification.

The object of my invention is to provide an amusement riding device of the type employing a plurality of cars which are given a peculiar motion in travel.

More particularly it is my object to provide a device of the general type mentioned, having a large circular frame structure provided with tracks, whereby cars may be carried around the structure in a circle, and during their circular travel may also be given wave-like motion or travel. In other words, it is my object to provide such a device whereby cars may be caused to travel around a circle and during such travel may be given successive up-and-down motion.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a top or plan view of a device embodying my invention.

Fig. 2 shows a side elevation of the same, part of the side walls being broken away.

Fig. 3 shows a detail view, illustrating a portion of one of the tracks with the car trucks supported therein, the truck being shown in side elevation.

Fig. 4 shows a top or plan view of one of the cars, the tracks being shown in longitudinal section.

Fig. 5 shows a detail view partly in section, of a portion of one of the trucks, showing the manner in which the wheels travel in the track.

Fig. 6 shows a detail view of the catch device on the rear axle.

Fig. 7 shows a detail view of a portion of one of the tracks in side elevation, illustrating the curvature thereof.

Fig. 8 shows a diagrammatic view of one of the tracks laid out in plan, illustrating the wave-like form thereof, and illustrating also the relation of the cable thereto.

Fig. 9 shows a top or plan view of a modified form of car.

Fig. 10 shows a detail, sectional view of a portion of the track, illustrating a portion also of the car shown in Fig. 9.

Fig. 11 shows a top or plan view of still a different form of truck for the cars.

Fig. 12 shows a detail, sectional view, taken on the line 12—12 of Fig. 11.

Fig. 13 shows an end view of one of the axles of the truck shown in Fig. 11, the track being shown in section.

Fig. 14 shows a side elevation partly in section, of a portion of the track with a car moving device of a modified form.

Fig. 15 shows a top or plan view of the device shown in Fig. 14, and

Figs. 16 and 17 show detail views of the chain used in the form shown in Fig. 14.

In the accompanying drawings I have used the reference numeral 10 to indicate generally a framework which in general outline is substantially circular. The framework may be of any desired height, but I may say that for practical purposes I prefer a frame standing about twenty feet high. I preferably provide a fence 11, spaced outwardly from the framework, to prevent access to the machinery by curiosity seekers.

For convenience sake, I may call the frame 10 the outer frame.

Spaced inwardly from the frame 10 is an inner frame 12. Mounted on the inner frame 12 is a track 13 having the form of an outwardly opening channel bar such as that illustrated in Figs. 5 and 10. The channel bar track 13 extends around the circular frame 12, and also has a wave-like formation, such as is illustrated in a diagrammatic way in Fig. 8, and also in Fig. 7.

Mounted on the frame 10 is a track 14, comprising an inwardly opening channel bar also extending around the circular frame 10, and having a wave curvature.

The tracks 14 and 13 are substantially horizontal and parallel with each other at all points. It may be desirable in some instances to locate the track 14 slightly above the track 13 in order that the car hereinafter described may lean inwardly during the travel around the large circle.

I provide a plurality of cars, preferably six, one for each of the waves illustrated for instance in Fig. 8. Each car preferably comprises a frame 15 having secured to its rear portion an axle 16 preferably arranged to be in radial lines of the large circular structure. A front axle 17 is pivoted to the

front part of the frame to have limited vertical movement with relation to said frame 15. The front axle is also arranged on such a radial line as that indicated.

It will thus be seen that the axles 17 and 16 are farther apart at their outer ends than at their inner ends. This feature is somewhat exaggerated in Fig. 4 for purposes of illustration.

- 10 Yoke members 18 are pivotally mounted on the axles 16 near their ends, and extend rearwardly therefrom. Rotatably mounted in the rearward ends of the members 18 are shafts 19. Similar yoke members 18 are pivoted to the axles 17 near their ends, and extend forwardly from said axles.

- 15 Rotatably mounted in the forward ends of the forward yokes 18 of each car are shafts 20. On the axles 16 and 17 and the shafts 19 and 20 are rollers 21 arranged to travel in the tracks 13 and 14. The yokes 18 carry laterally extending brackets 22, which support rollers or wheels 23 which also travel in the tracks 13 and 14.

- 20 It will be seen that the rollers 21 and 23 are arranged at right angles to each other, and that the rollers 21 support the weight of what may be called the car truck, while the rollers 23 take the side thrust. Supported on each frame 15 are brackets or the like 24, on which are pivotally supported swinging seats or baskets or the like 25.

- 25 Each axle 16 is mounted in a housing 26 on the frame 15. On each housing 26, near the inner end thereof, is a hook or catch member 27, having a notch 28 on its side facing the outer track.

- Suitably mounted is an upright shaft 29, on which is a beveled gear 30 in mesh with the beveled gear 31 on a power shaft 32. The shaft 32 may be operated from any suitable source of power.

- Suitably mounted just outside the track 14 and preferably near the ground or floor on which the entire device rests, is an upright shaft 33 on which is a pulley 34, arranged in line with a pulley 35 shown in dotted lines in Fig. 1. On the pulleys 35 and 34 is a belt 36. On the shaft 33 is a smaller pulley 37, spaced a short distance from which, outside the track 14, is another pulley 38. An endless cable 39 is extended around the pulley 37 and around the pulley 38, and is thence extended, as shown in Fig. 1, beneath the track 14, toward the track 13 in different directions, and around vertically arranged guide pulleys 40 and 41, thence around the track 13 in opposite directions, and around similar vertical pulleys 42 and 43, thence beneath the track 14 and around horizontally arranged pulleys 44 and 45.

- In the operation of the device, the stretches of the cable 39 between the pulleys 40 and 42, and between the pulleys 41 and 43, are held considerably above said pulleys by the

cars. In the original installation of the machine, the various cars are arranged in immediate succession and are suitably connected by links 46 or the like. The parts are so arranged that one of the raised portions of the track 13 lies intermediate of the pulleys 40 and 42, and another raised portion lies intermediate of the pulleys 41 and 43, as illustrated, for instance, in Fig. 8. I preferably use a plurality of cars for each wave of the tracks.

When the cars are installed, the stretches of the cable 39 between the pulleys 40 and 42, and between the pulleys 41 and 43, are threaded over the catch members 27, which will hold those stretches of the cable 29 just mentioned outwardly, so that the cable tends to draw tightly against the catch devices 27 and to press the cars inwardly.

When rotation is imparted to the shaft 29 for thereby causing the cable 39 to travel, it will be seen that the cable will move the cars which are connected therewith by the catch members 27, and inasmuch as all of the cars are connected together, all of the cars will be caused to travel around the tracks.

As one of the cars between the pulleys 40 and 42 travels for instance in the direction indicated by the arrow in Fig. 1, and approaches the pulley 42, the cable 39 will simply slide laterally beneath the axle housing 26 away from the catch device 27, and the car in its travel will be disconnected from the cable and will leave the cable while it travels on that portion of the track 13 between the pulleys 42 and 43. After the same car passes the pulley 43, the cable will strike the under surface of the housing 26 and will gradually move over to position for engaging the member 27.

These operations are successively repeated by the respective cars.

It may be noted that the reference character A, Fig. 1, indicates one of the high points in the track between the pulleys 40 and 42, and it is the engagement of the cable 39 with the catch members on the car traveling over or near this high point which raises the cable above the pulleys 40 and 42, and also prevents the cable between said pulleys from drawing into a straight line.

It will, of course, be understood that the cars between the pulleys 43 and 41 operate in the same way with relation to the cable.

By the peculiar arrangement of the cable hereinbefore described, I am enabled to draw the cars around the peculiarly curved tracks. It will be seen that at all times some of the cars are operatively connected with the cable, and others are disconnected therewith.

In Fig. 9 I have shown a slightly modified form of car. The parts are very similar to those of the car already described and more particularly illustrated in Figs. 3 and 4.

However, in the form of car shown in Fig. 9, the yoke members 18 and parts thereof with connected are omitted, with the exception that the axle housings carry horizontally mounted rollers 47 which engage the tracks 13 and 14 and take the side thrust of the car. The connecting links 46 are connected directly with the axle housings when the form of car used in Fig. 9 is employed.

In Fig. 11 is shown the truck of another form of the car, comprising the frame 15 similar to that already described, having at the rear end the axle housing 50 and at the forward end the axle housing 51. The axle housing 51 is pivoted for limited vertical movement. The housing 50 carries the axle 52, and the housing 51 carries the axle 53.

On the outer ends of each axle 52 and 53 are rollers 54, designed to travel in the channel tracks 13 and 14. Each axle 53 and 54 carries in its outer end, a rotatably mounted, substantially horizontally arranged roller 55, to take the end thrust of the axle.

In Figs. 14 to 17 inclusive, I have shown another form of mechanism for moving the cars. The cars being all fastened together by the links 46, it will be obvious that the movement of any one car imparts movement to all the other cars in the train.

There may be mounted adjacent to the track 13, for instance, a pair of spaced shafts 56 and 57, on which are sprockets 58 and 59. A chain 60 travels on said sprockets. A guide member 61 with a curved upper surface is arranged to cause the upper stretch of the chain to travel in a path of substantially the same curvature as that of the adjacent track 13. The chain 60 is provided with outwardly extending pins 62, which may be properly set in the links of the chain, and these pins project into the path of travel of the axles of the cars in such a way that when movement is imparted to the chain, the pins 62 will engage the axles of the cars and move them along. The chain 60 is of such length and is so located that before one car has entirely left the chain, the next car will be in position so that its front axle will be engaged by the pins on the chain.

On the shaft 56 is a pulley 63, to which rotation may be imparted in any suitable way from an engine or the like.

It will be seen that I have devised a device in which a plurality of cars are successively connected together and supported

to travel on tracks which extend around a circular structure, and which also have a wave formation, so that the cars not only travel around the circle of the main structure, but also travel up and down during their travel around the large circle.

Various modifications may be made in the construction and arrangement of the parts of my improved amusement riding device, without departing from the essential purposes and intents of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be included within the reasonable scope of said claims.

I claim as my invention:

1. In a device of the class described, a pair of spaced, concentric circular frames, substantially parallel tracks on the outer and inner frames, having wave-like shape, a series of cars connected together, each having rollers traveling on said tracks, a moving power device, coacting members on the power device and on said cars, whereby the different cars are successively intermittently engaged on said power device for imparting continuous movement to the series of cars.

2. In a device of the class described, a pair of spaced substantially parallel tracks opening toward each other and having wave-like form, a series of cars connected together, each having at each end a pair of axles, one pair of axles being mounted for limited vertical tilted movement with relation to the car on which it is mounted, yokes at the ends of each pair of axles, for connecting the axles, vertically arranged rollers on the axles, and horizontally arranged rollers supported on said yokes and located between the respective pairs of rollers and the adjacent ends of the pairs of axles.

3. In a device of the class described, a pair of spaced substantially parallel tracks opening toward each other and having wave-like form, a series of cars connected together, each having at each end a pair of axles, one pair of axles being mounted for limited vertical tilted movement with relation to the car on which it is mounted, yokes at the ends of each pair of axles, for connecting the axles, vertically arranged rollers on the axles, and horizontally arranged rollers supported on said yokes and located between the respective pairs of rollers and the adjacent ends of the pairs of axles, and between the seats on said cars.

Des Moines, Iowa, April 20, 1918.

JOSEPH W. MICHAEL.