

Sept. 13, 1932.

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1,877,656

AMUSEMENT DEVICE

Filed Oct. 24, 1929

2 Sheets-Sheet 1

Fig.1.

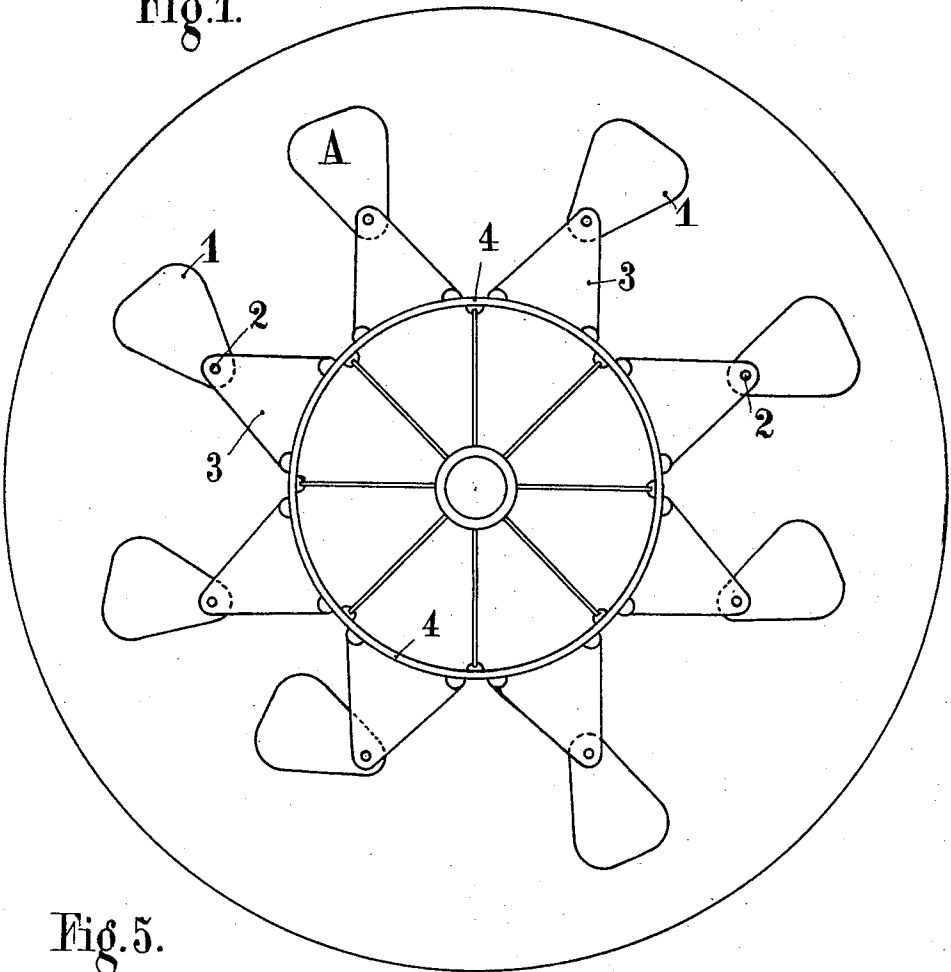
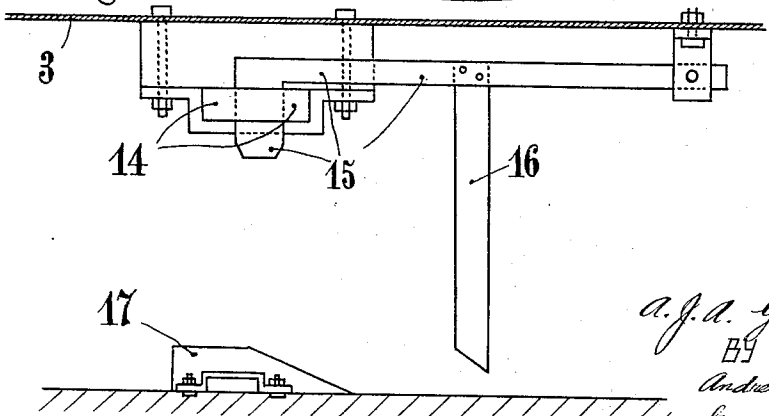


Fig.5.



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Fig.2.

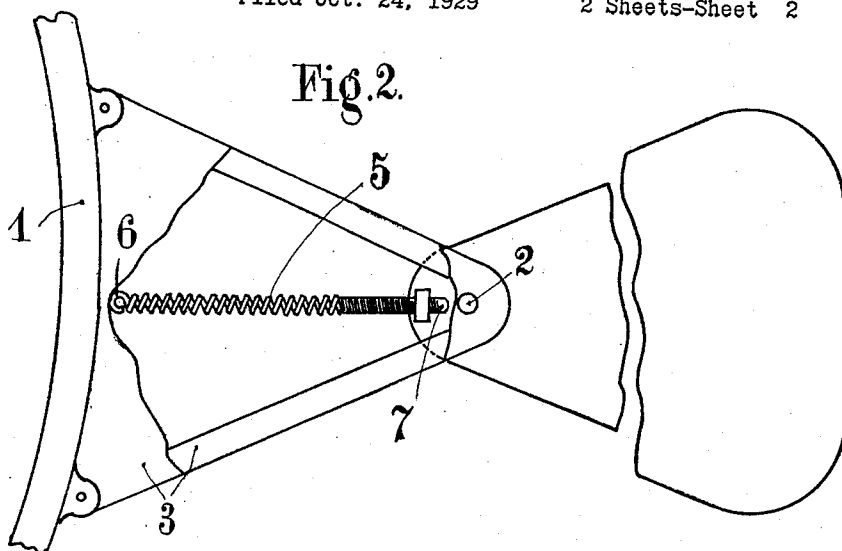


Fig. 3.

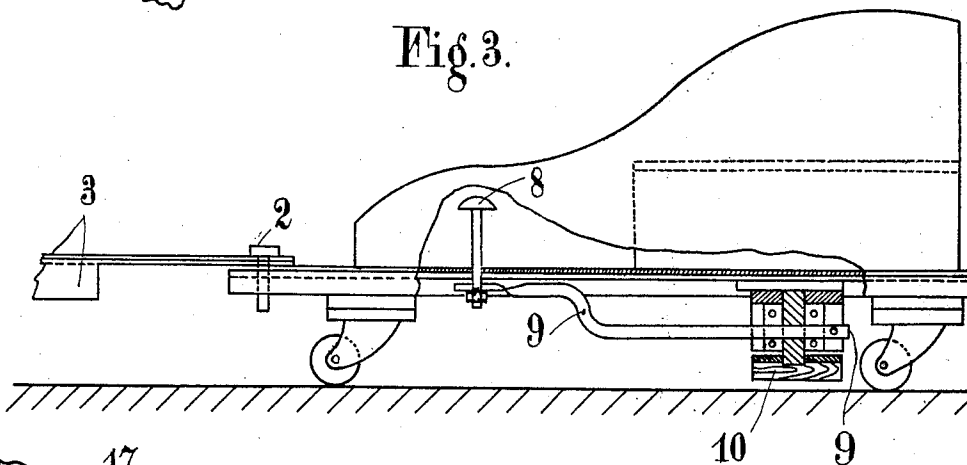
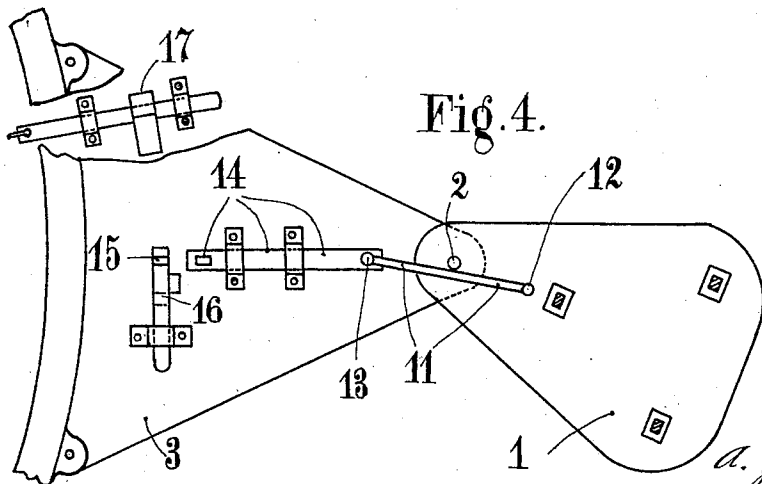


Fig.4.



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UNITED STATES PATENT OFFICE

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AMUSEMENT DEVICE

Application filed October 24, 1929, Serial No. 402,069, and in France July 8, 1929.

A great many nonresident entertainment structures comprise a plurality of carriages adapted for rotation about an individual pivot, the pivots being themselves mounted on a support to which a particular movement is imparted.

In some of the latest embodiments of such type of entertainment structures the pivots of the carriages are guided through an oval or elliptical path and the momentary action of the centrifugal force is used to produce a rotation of the carriages about their respective pivots.

In some other structures the said rotation is obtained through the direct action of the occupants of the carriage, by means of a rope secured to another point of the rotating system.

Entertainment structures in which carriages are imparted with a compound movement so that they may rotate about a vertical axis which in turn rotates about another vertical axis, are also well known.

This invention relates to devices of this type, and its main object consists in the use of special means for producing the said compound movement.

These means comprise brakes which are opposed to the movement of the carriages, the said brakes being operable in any manner.

This invention has for its further object an entertainment structure in which the centrifugal force is at all times taken advantage of in that the pivots of the various carriages describe a circumference. The rotation of the carriages about these pivots is obtained, according to this invention, by so influencing the angular speed of the said pivots, or the angular speed of the centers of gravity of the carriages as to create a difference between both angular speeds which normally would be equal in the freely moving system.

These angular speed differences are the cause of the rotational movement of the carriages and not the effect thereof as in such structures where the single cause of the rotation resides in the traction on a rope.

In the drawings and by way of example,

Figure 1 is a general plan view of the roundabout.

Figure 2 is a spring device for the carriages.

Figure 3 is a braking device fitted on every carriage.

Figure 4 is a locking device.

Figure 5 is a release for the locking device.

The carriages 1 are mounted upon pivotal rollers running on a track. They are adapted to rotate about pivots 2 by which they are secured to triangular iron frames 3. The frames 3 are rigid with either the center of the roundabout or a spur ring 4. The whole center of the roundabout or only the said spur ring is rotated about the center thereof by means of a suitable mechanism.

Therefore, the pivots 2 describe a circumference and their motion is imparted to the carriages which soon take such a position by virtue of the centrifugal force that their centers of gravity are thrown out at a maximum distance from the center of the roundabout, which is the position assumed by the carriage A. Therefore, the centers of gravity of the carriages also describe a circumference and the angular speed of these centers of gravity is equal to that of the pivots 2.

The object of the invention is to obtain a deformation in the moving system, i. e. to cause the carriages to rotate about their pivots 2 by setting up a difference between these angular speeds, said difference being the cause of the deformation in the moving system.

The carriages are provided with a single or multiple spring device adapted on one hand to limit the amplitude of their rotation about the pivot 2 and on the other hand to favour the thus limited oscillations about said pivot.

Figure 2 shows an embodiment of the said spring device. A tension spring 5 has one end thereof secured to a center pin 6 rigid with the frame 3 while the other end of the spring is secured to a center pin 7 rigid with the carriage 1.

It will be appreciated that if the speed of the spur ring 4 be varied suddenly by either

increasing or decreasing it, the carriages by virtue of their inertia will swing about their pivots 2 in one direction or the other. These rapid increases in speed may be obtained, for instance, by accelerating the engine or, preferably, by means of a very progressive clutch which is caused to slide at a given moment, after which it is roughly thrown in.

Decreases in the speed can be obtained, for instance, by slowing down the engine or the application of any other braking device on any part of the moving system or, again, by the partial disengagement of the clutch.

The angular setting of the carriages with respect to their position of balance A in the moving system depends on the intensity of such increase or decrease. The angle may be a very small one but a greater angle of oscillation can then be obtained by repeating the operation, that is, on the said small deflection being produced the overcome centrifugal force and that of the spring will reconstitute the stored energy and initiate a series of moderate oscillations; at this moment, the contrary operation done upon the speed will increase such energy restitution and allow to obtain a deflection increased by an amount due to this additional and reverse operation.

It is thus possible to progressively augment the deflection at each oscillation. A highly progressive clutch member will be sufficient by itself to provide these increases and decreases in the speed. By suitably timing the operation of this coupling member to the motion obtained in the first oscillation, however small it may be, a continuous swinging motion of the carriage about the pivot 2 can be obtained and even maintained. The difference in angular speed can be obtained, instead of by influencing the speed of circular motion of the pivots 2, by varying the speed of circular movement of the center of gravity of the carriage.

While the first oscillation can be produced by either increasing or decreasing the said speed, it will be easier to decrease the same by means, for instance, of a braking device fitted upon each carriage.

The braking action can exist only between the carriages and any other movable or stationary portion independent of the moving system. This braking action by influencing the angular speed will cause the deformation of the moving system, that is, the swinging about the pivots 2. This arrangement has nothing in common with that consisting in acting between the portions of the moving system to set up a direct deformation, but one difficult to obtain.

Figure 3 shows a possible embodiment of the braking means. The occupant of the carriage depresses a pedal 8 which through a set of transmission members 9 actuates a brake shoe 10 which comes into lighter or

heavier engagement with the track. In the manner described, such braking action sets up a preliminary oscillation which can be amplified by applying the brake each time the carriage swings about the pivot 2 in the direction contrary to the direction of rotation of the roundabout. Instead of stopping the swinging motion these brake applications favour the same by virtue of the movement composition with respect to the track.

The carriages may be fitted with a locking means as shown by way of example in Figure 4, which comprises a rod 11 one end of which is secured to the carriage and the other to the end of a sliding member 14. It will be appreciated that the rotation of the carriage about the pivot 2 will through the intermediary of the said rod 11 shift the member 14 which can engage into another stationary member 15 of latch-like construction.

In this manner, when the carriage has been swung beyond a certain amplitude, the sliding member 14 becomes locked by the said latch, whereby the rod 11 and the carriage are locked. The latch 15 which locks the member 14 carries a wedge-like member 16 which comes into engagement with another member 17 arranged on the track, whereby the latch is raised and the sliding member 14 and the carriage itself are unlocked. The said member 17 which can be arranged at one or more places on the track is adapted to slide in a guide actuated from the centre of the roundabout whereby it can be placed in the path of the member 16 or away therefrom, which allows the carriage to be unlocked or not at the will of the operator in charge of the roundabout in order to cause an effect of unexpectedness on the people in the carriages.

What I claim is:

1. In an amusement device, in combination with a member rotatable about a vertical axis, a plurality of carriages rotatable with said member and adapted to roll on a horizontal surface, a pivotal connection between each of said carriages and said member, whereby said member and carriages may be propelled at the same angular speed, and means for modifying at will the angular speed of said carriages independently of the angular speed of said member, said means including an element engageable with the horizontal surface.

2. In an amusement device, in combination with a member rotatable about a vertical axis, a plurality of carriages rotatable with said member and adapted to roll on a horizontal surface, a pivotal connection between each of said carriages and said member, whereby said member and carriages may be propelled at the same angular speed, and braking means for modifying at will the angular speed of said carriages, said braking

means being carried by said carriages and acting by friction with the said horizontal surface, said braking means being located within the polygon of sustentation of said
5 carriages.

3. An amusement device as set forth in claim 2, wherein the said carriages are provided with a pedal for operating the brake, the said pedal being actuatable by the users
10 of said carriages.

4. In an amusement device, in combination with a member rotatable about a vertical axis, a plurality of carriages rotatable with said member and adapted to roll on a horizontal surface, a pivotal connection between
15 each of said carriages and said member, cooperating locking means carried by said member and each of said carriages, whereby the carriages are positively locked to said
20 member when swinging a predetermined amount about said pivotal connection, and means for releasing said locking means comprising a stop carried by the horizontal surface, and an element carried by each of the
25 carriages.

In testimony whereof I affix my signature.

ANDRÉ JULES ACHILLE GIRAUD.

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