Nov. 9, 1948. H. J. NEWMAN ET AL 2,453,380

VEHICULAR AMUSEMENT APPARATUS

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FIG. 1.

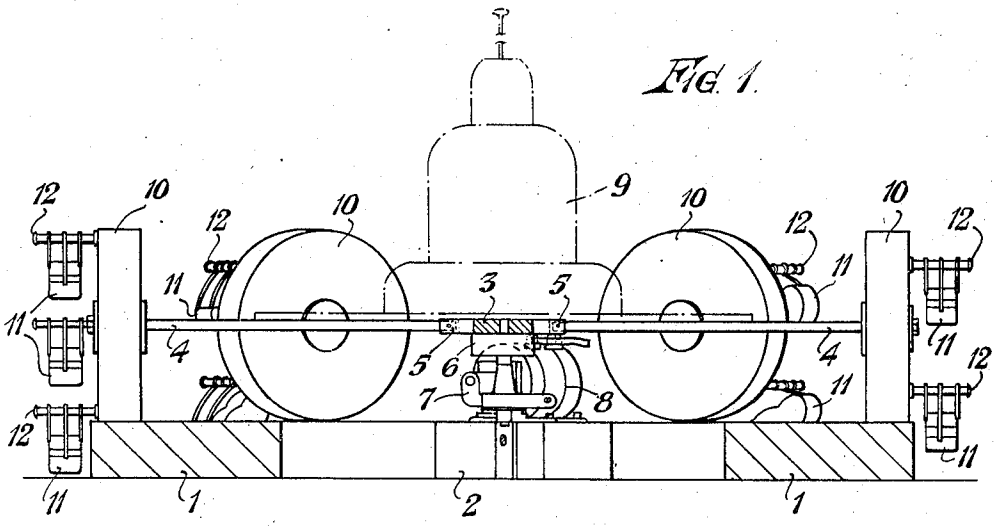

FIG. 2.

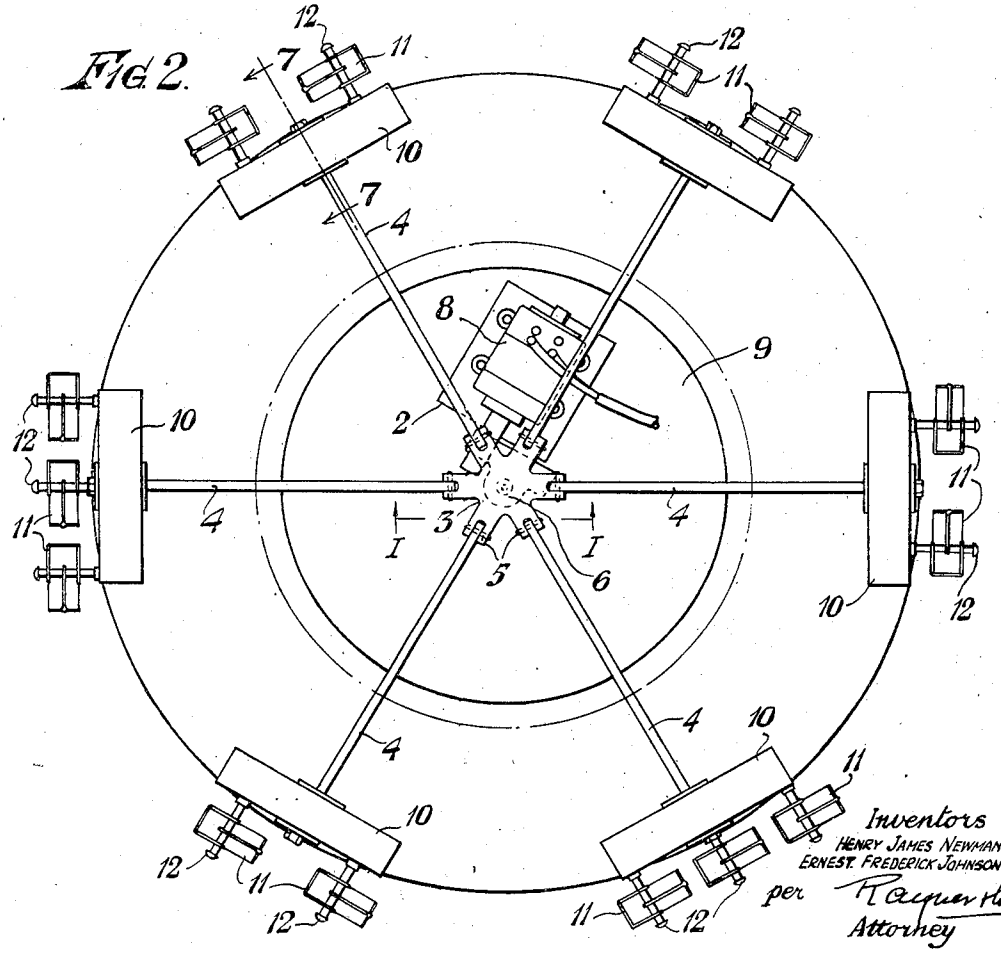

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Fig. 4

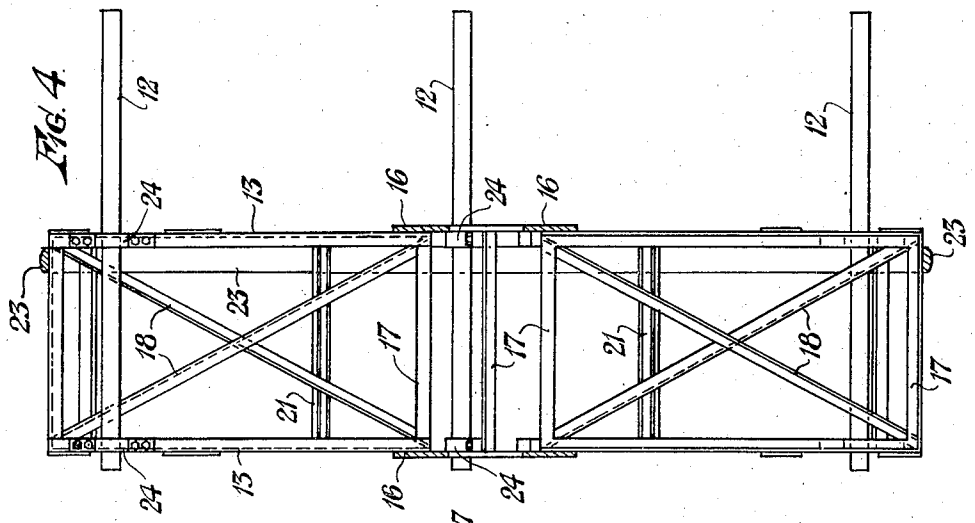
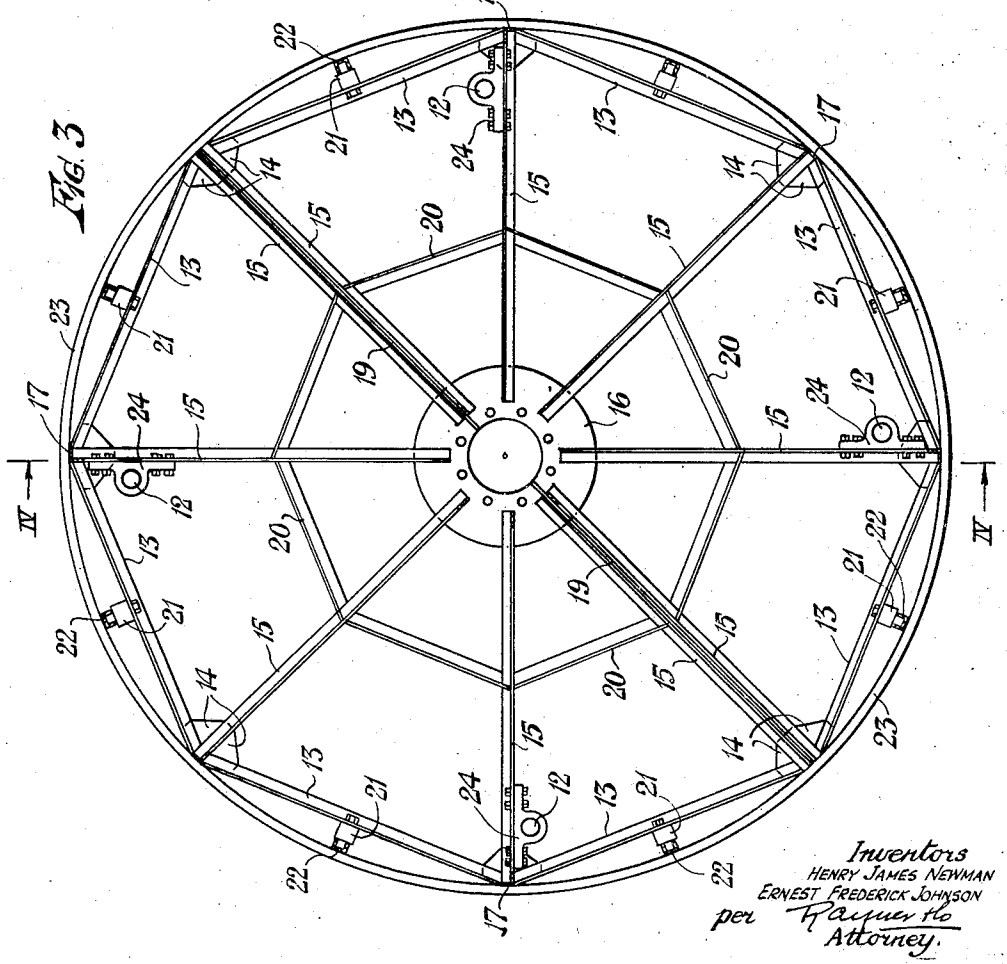


Fig. 3



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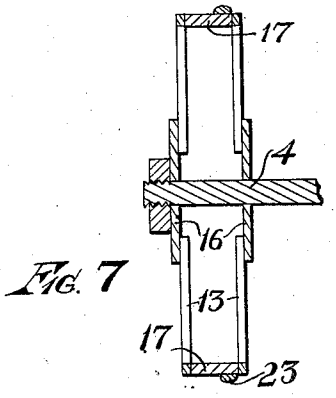

FIG. 7

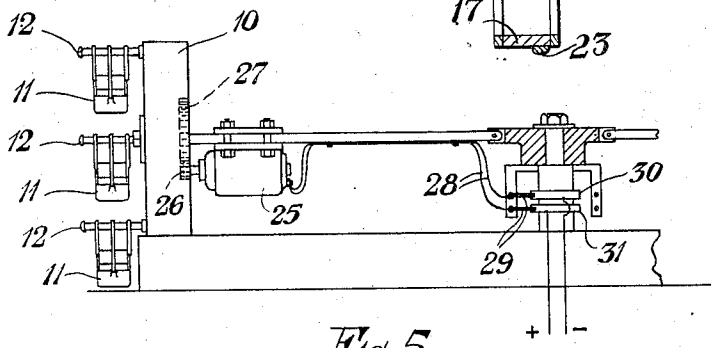

FIG 5

FIG. 6

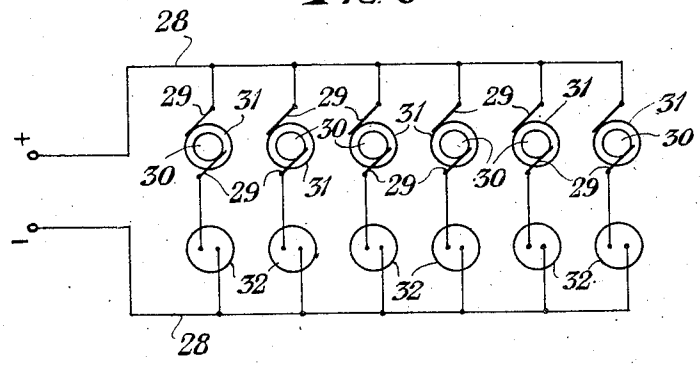

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FIG. 8

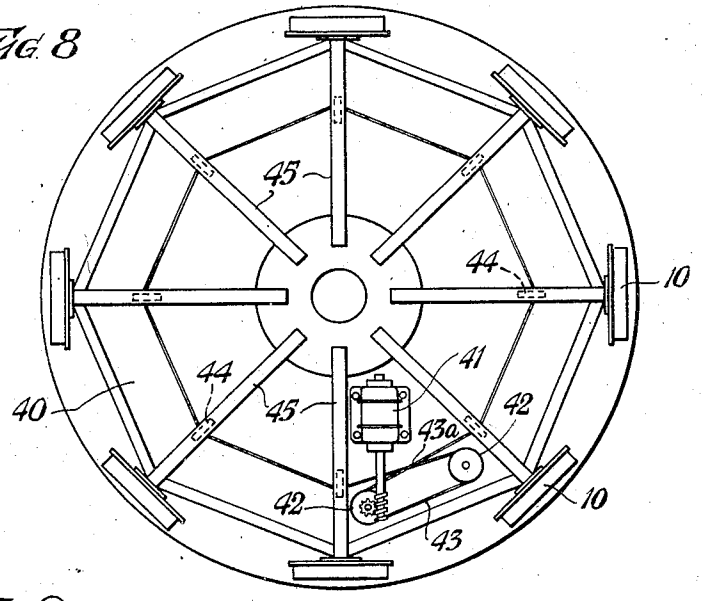
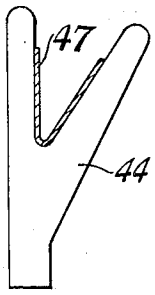


FIG. 9.



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UNITED STATES PATENT OFFICE

2,453,380

VEHICULAR AMUSEMENT APPARATUS

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Application November 17, 1944, Serial No. 563,846
In Great Britain December 9, 1943

5 Claims. (Cl. 272—36)

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This invention relates to amusement apparatus of the type in which a number of vehicles or carriages are carried by means for driving them over a circuitous track so that they traverse an endless path. The object of this invention is to add to the variety and mode of travel of the vehicles or carriages and another object of the invention is to provide apparatus of the type specified which will handle a larger number of passengers for each operation of the apparatus than is possible with existing apparatus of a given floor area of such type. A still further object of this invention is to afford a wide range of adjustment for speed and adequate control of the moving masses so as to ensure the maximum safety.

According to this invention amusement apparatus of the type set forth comprises a plurality of carriages, means to traverse them in an endless path of travel and means to impart a substantially orbital path of movement to the individual carriages simultaneously with their movement in the aforesaid endless path of travel.

The invention will now be described with reference to the accompanying drawings in which—

Fig. 1 is a side elevation, partly in section, of the amusement apparatus.

Fig. 2 is a plan view with the ornamental central structure omitted so as to show the driving mechanism.

Fig. 3 is an end elevation of the structure of one of the rolling wheels which support the travelling carriages.

Fig. 4 is a sectional elevation of one of the wheels showing how the suspension shafts for the carriages are supported.

Fig. 5 is a part sectional detail showing an alternative method of driving each wheel by means of a separate motor.

Fig. 6 is a diagram showing the electric connections for the driving motors of Fig. 5.

Fig. 7 is a section taken along the line 7—7 of Fig. 2.

Fig. 8 is a diagrammatic plan view showing a modified form of rope drive for rotating a central platform, and

Fig. 9 is a detail of a fitting for this driving gear.

Referring to the drawings, Figs. 1 and 2 show the general arrangement of the amusement apparatus in which an annular platform 1 is supported on the ground and may be of solid or hollow construction built in sections and adapted to be assembled and secured together upon a fair ground or other place of amusement. Within the opening in the platform 1 is provided a support 2

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for the rotatable hub 3 of a series of radiating arms 4 each of which is hinged to the hub 3 at 5 so that the hinged arms may rise and fall about the hinge points 5. The radiating arms 4 may be interconnected or braced together by hinged coupling rods or flexible connections in any suitable known manner. On the support 2 is mounted a suitable bearing 6 for mounting the hub 3 and a gear casing 7 containing suitable gearing by which the hub is rotated at a suitably reduced speed from the electric motor 8 through the gearing in the gear casing 7. Over the driving mechanism is mounted a suitable ornamental structure or canopy 9.

At the end of each radiating arm is mounted a strong wheel 10 each of which supports a series of passenger carriages 11 suspended from supporting shafts 12 projecting laterally from the wheels 10 so that the passenger carriages 11 will traverse an orbital path of travel as the wheels 10 roll round the platform 1. The wheels 10 are of any suitable steel frame construction to effectively carry the passenger carriages and the passengers and to stand the stresses and strains to which they will be subjected. The frame work of the wheels 10 may be enclosed in sheet metal or plywood covering so as to conceal the constructional material and to enable the exterior of the wheels to be suitably painted or otherwise decorated.

A suitable construction for the wheels 10 is illustrated in Figs. 3, 4 and 7 in which the frame of each wheel comprises a pair of octagonal side frames built of angle iron bars 13 joined together at their corners by welding and reinforced by suitable fish plates 14. Each side frame 13 has radiating arms 15 of angle iron extending from the corners to the central hub plates 16. The two side frames are connected together by the cross-connecting bars 17 of angle iron and diagonal bracing members 18 as shown in Fig. 4. Each side frame 13 is split diametrically at 19 and are bolted together by the twin radiating arms 15. Additional stiffening angle bars 20 connect the radiating arms 15. Each angle iron bar 13 has a pad 21 which may be rigidly or resiliently bolted near to its centre and the ends of an inverted channel shaped bar 22 are secured to the pad 21. The channel shaped bars 22 support a metal rim 23 which contacts with the surface on which the wheel is to roll. This arrangement enables a relatively narrow rim to be provided to avoid undue wear due to dragging friction on the surface of the platform on which the wheels 10 roll. The rim 23 may be provided

with a tread of rubber, leather, brake lining material or other suitable hard wearing material. Four pairs of the radiating arms 15 have brackets 24 bolted to them and these brackets 24 support the laterally projecting shafts 12 on which the passenger carriages 11 are suspended.

In Fig. 5 is illustrated a modification in which each wheel 10 is driven by its own electric motor 25 mounted on its radiating arm 4 and having a toothed pinion 26 which gears with a gear wheel 27 to rotate the wheel 10 round the track at the desired speed. The electric leads 28 are connected to brushes 29 which contact with slip rings 30 and 31. As shown in the diagram in Fig. 6 a separate fuse 32 is connected in the lead of each motor.

Figs. 8 and 9 illustrate another method of driving a platform 40 having the passenger carrying wheels 10 mounted one at each corner of the octagonal platform. The whole weight of the apparatus is supported on the wheels 10 which roll upon the surface of the track formed on the foundation of the apparatus. An electric motor 41 drives one of a pair of pulleys 42 through worm and wheel or other suitable reduction gearing. A driving cable 43 passes round the pulleys 42 and crosses itself at 43*a* and passes round and engages in the jaws of fork-shaped clasps 44 secured to the underside of the platform 40 on each of the radiating arms 45 and at equal distances from the centre of the platform. Each fork-shaped clasp 44 (shown in detail in Fig. 9) has its forked end facing outwardly from the centre of the platform and the fork is lined with fabric or brake lining material 46 to provide the desired friction and to protect the cable against undue wear.

The platform and/or the peripheries of the wheels can be lined with suitable durable material, e. g. brake lining material, to ensure a suitable driving and silent running contact between the wheels and the track constituted by the said annular platform. The radiating arms may be suitably braced together by suitable links so as to stiffen the whole structure and to maintain the spacing between the wheels.

We claim:

1. Amusement apparatus comprising an annular track, a series of radiating arms mounted for rotation about the center of the track, a wheel mounted to rotate at the end of each arm, said wheel comprising a pair of strong skeleton metal frames having radial members connected to hub plates and also to peripheral connecting bars, cross-members and diagonal bracing members connecting the two side frames, brackets on some of the radial members, shafts for suspending passenger carriages engaging in these brackets and projecting laterally from the side of the wheel, and a relatively narrow rim supported by cross-members of the wheel structure and adapted to roll on the track, and passenger carriages suspended from said shafts.

2. An amusement apparatus in accordance with claim 1 which includes means for rotating the assembly of radiating arms about the center of the track so that the wheels will roll around the track and impart the orbital movement to the carriages.

3. An amusement apparatus in accordance with claim 1 which comprises a driving motor adapted to rotate each wheel about its arm so that the wheel will simultaneously roll around the track.

4. An amusement apparatus in accordance with claim 1 which comprises an endless driving cable passing around pulleys driven by a driving motor and a series of fork-shaped clasps mounted on each radiating arm and with each of which the endless cable engages so as to rotate the assembly of radiating arms about the center of the track.

5. An amusement apparatus in accordance with claim 1 in which the radiating arms are connected to form a platform adapted to rotate about the center of the track, the wheel being supported from the edge of the platform.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
169,797	Forrester	Nov. 9, 1875
713,070	Cronin	Nov. 11, 1902
852,308	Watson	Apr. 30, 1907
898,056	Malsin	Sept. 8, 1908
1,599,075	Burris	Sept. 7, 1926
2,320,555	Bartlett	Jun. 1, 1943