

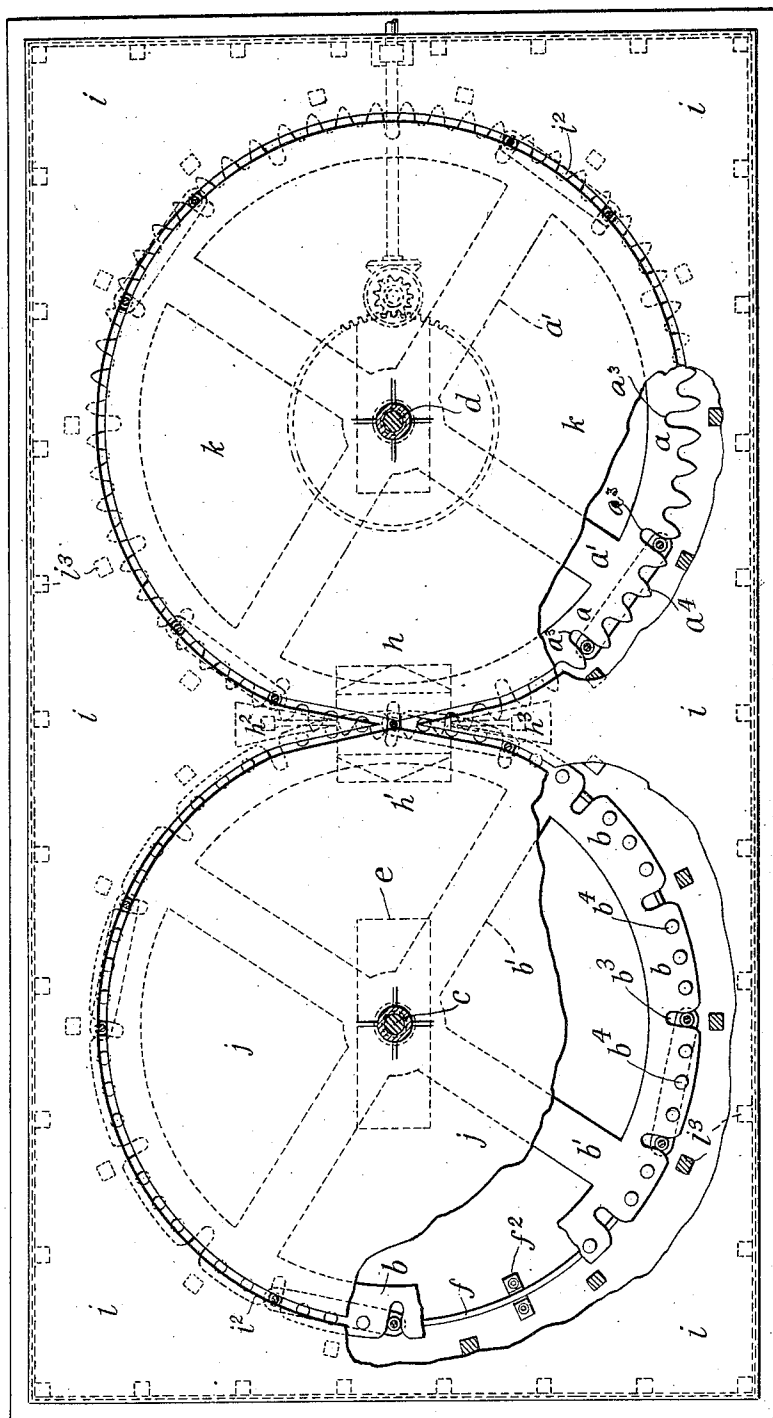
No. 879,872.

PATENTED FEB. 25, 1908.

H. HILL.
AMUSEMENT APPARATUS.
APPLICATION FILED MAR. 9, 1907.

3 SHEETS—SHEET 1.

Fig. 1



Witnesses
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3 SHEETS—SHEET 2.

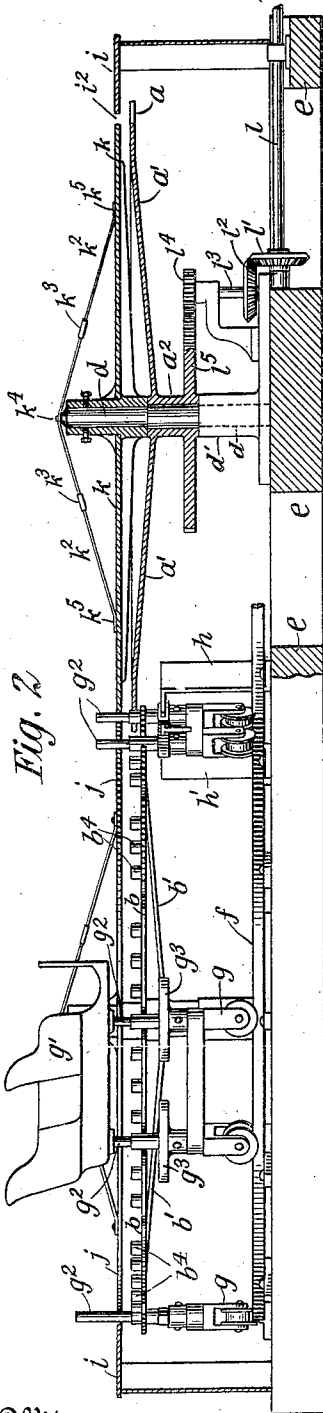


Fig. 2

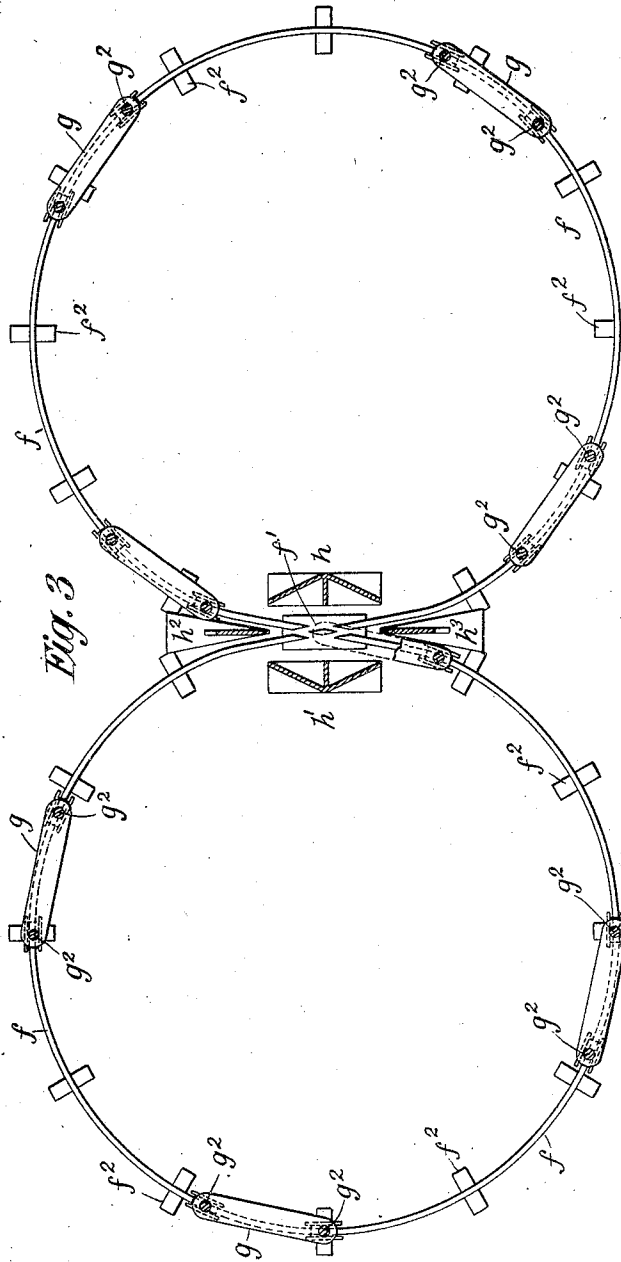


Fig. 3

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3 SHEETS—SHEET 3.

Fig. 8

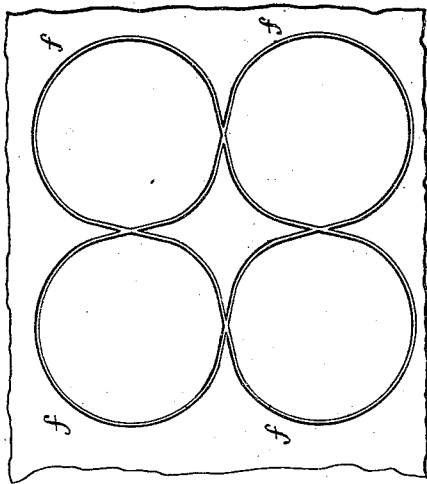


Fig. 7

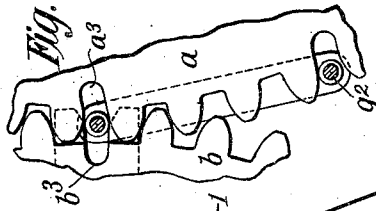


Fig. 6

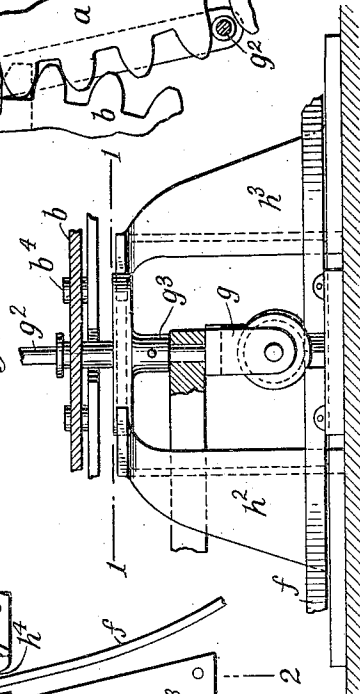


Fig. 5

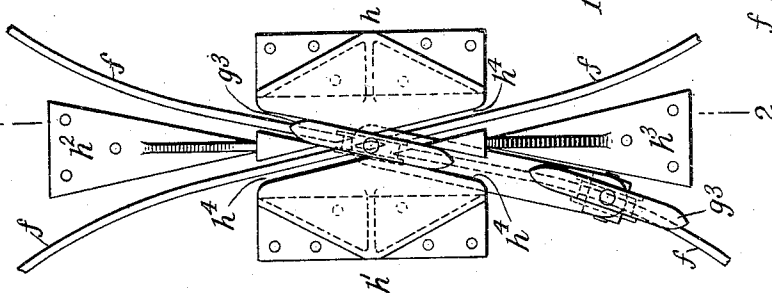
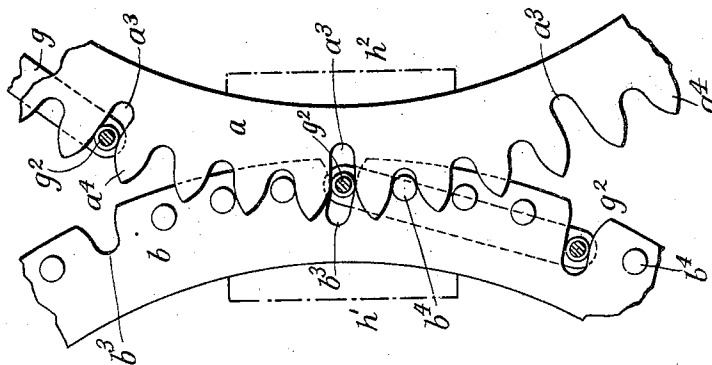


Fig. 4



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UNITED STATES PATENT OFFICE.

HERMANN HILL, OF GREENWICH, CONNECTICUT, ASSIGNOR TO DARCY & SPECK,
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AMUSEMENT APPARATUS.

No. 879,872.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed March 9, 1907. Serial No. 361,619.

To all whom it may concern:

Be it known that I, HERMANN HILL, a subject of the Emperor of Austria-Hungary, residing at Greenwich, in the State of Connecticut, have invented a new and useful Amusement Apparatus, of which the following is a specification.

My invention relates to that class of amusement apparatus known as merry-go-rounds, and more particularly to that class which has a plurality of rings and in which the vehicles or mechanical horses follow a path of travel which crosses itself at intervals.

One object of my invention is to provide a direct means of propelling the vehicles and vehicle carriers by means of toothed wheels without the use of sectional chains, fingers, rotating radial shafts, or other intervening mechanism between the toothed wheels and the vehicle carriers; another object is to provide means by which the vehicle carriers or supports may pass between toothed wheels while the wheels are engaged; another object is to provide direct means by which, in a merry-go-round having a plurality of rings and vehicles passing from one ring to another, vehicles may be propelled in all of said rings from power applied to one ring without the use of a belt or chain; another object is to provide a merry-go-round of the class described which may be driven at a high rate of speed with safety and small expenditure of power, and which is of simple and non-expensive construction. I attain these objects by the mechanism illustrated in the accompanying drawings in which:—

Figure 1 is a top view of my apparatus with vehicles and platform supports removed, and parts of the platform and part of one wheel cut away. Fig. 2 is a side view of one ring and a vertical section of the other. Fig. 3 is a plan view of the track and crossing. Fig. 4 is an enlarged detail view of gear wheels at and near point of engagement. Fig. 5 is a top view of guide ways, guide bars, and track at line 1—1 of Fig. 6. Fig. 6 is a vertical section of Fig. 5, at line 2—2. Fig. 7 is a modification of Fig. 4, showing two toothed wheels in lieu of a toothed and pin wheel. Fig. 8 is an outline view of tracks where four rings are used.

Referring to the drawings in which the same reference characters relate to the same or corresponding parts in all the views, *a* is a toothed gear wheel which engages and drives

the pin toothed wheel *b*. These gear wheels have spokes, *a'* and *b'*, which are dishd to give greater rigidity, and hubs, (the hub of *a*, *a*², being shown on drawing) and are revolvably mounted on upright shafts, *c* and *d*. The shaft *d* is fixedly mounted in a socket casting *d'*, bolted to the solid foundation *e*. The shaft *c* is mounted in the same way, but not shown on drawing.

Directly beneath the pitch lines of *a* and *b* is a track, *f*, mounted on ties, *f*², resting on the solid foundation *e*. This track, *f*, is directly beneath and follows the contour of the pitch lines of *a* and *b* except near its crossing point, *f'*, as will be hereafter more fully explained. At *f'* is a frog. Mounted on the track, *f*, are two wheeled trucks, *g*, which support and carry vehicles, *g'*, upon upright rods or supports, *g*². The rods, *g*², are round and of the same diameter as the pins *b*⁴. Fixedly mounted by means of set screws on the rods, *g*², at the level of the crossing guide way, *h*⁴, are guide bars, *g*³. These guide bars are slightly narrower in width than the crossing guide way, *h*⁴, and their purpose is to support and guide the vehicle rods and carriers, *g*³, above and near the crossing, *f'*. *g*³ runs beneath the wheels, *a* and *b*.

On two sides of the crossing, *f'*, inside of the track and beneath the wheels *a* and *b* are two castings, *h*, and *h'*, which are bolted to the foundation *e*, and on the other two sides of the crossing, *f'*, and outside of the rings are two castings, *h*² and *h*³, also bolted to the foundation *e*. These castings, *h*, *h'*, *h*², *h*³, are so positioned in relation to the track and each other as to form crossing guide ways, *h*⁴, through which pass the guide bars, *g*³, and the upright rods, *g*². Full details of their construction are shown in Figs. 5 and 6.

Covering the entire apparatus are an outer platform *i*, and inner platforms *j* and *k*. The platform *k* is centrally supported upon the shaft or post, *d*, which is prolonged above the hub, *a*², and is fixed thereto by set screws or bolts, *k'*, or other means, and is strengthened by truss rods, *k*², affixed to the top of the shaft at *k*⁴, and to the platform at *k*⁵. These truss rods may be three or more in number, and are provided with turn buckles, *k*³, for the purpose of correcting any contraction or expansion of the platform. Platform *j* is supported by *c*, and is similar in construction to *k*. Platform *i* is supported by posts, *i*³, resting on the foundation *e*.

Between the outer platform, i , and the inner platforms, j and k , is a space, i^2 , which forms a guide way for the upright rods, g^2 . There is also a space between the platforms, j and k , through which the rods, g^2 , pass.

Power may be applied to my machine from any source through gears, or belts and pulleys. In my drawing I show the power applied through the shaft, l , and beveled gear wheels, l' and l^2 , shaft, l^3 , pinion wheel, l^4 , and gear wheel, l^5 ; l^5 on the drawing being part of the same casting as the hub, a^2 . The gear wheels a and b may be run in either direction.

It will be observed that between the teeth, a^4 , of the toothed wheel a , at intervals are cut slots or recesses, a^3 . These recesses, a^3 , at the pitch line of the teeth, a^4 , are the same width and occupy relatively the same position as the space between the teeth a^4 . Inside of the pitch line of a^4 , the recesses, a^3 , are of the same width as at the pitch line, and they are cut inside of the base of the teeth, a^4 , to permit the rods, g^2 , to move inside the pitch line when the trucks, g , are on the straight portion of the track, f , as herein-after explained.

At intervals slots or recesses, b^3 , are cut from the periphery of the wheel b . On the wheel b , where the recesses, b^3 , appear, b^3 occupies the space that would be otherwise taken by a pin b^4 . The recesses, a^3 and b^3 , are not cut radial to the wheels, a and b , but are preferably cut at right angles to a straight line drawn from the center of the two rods, g^2 , of any truck with the truck mounted upon the track. The trucks, g , being mounted upon the track, f , the upright rods, g^2 , in position in the recesses, a^3 and b^3 ; upon the gear wheels a and b being put in motion, the trucks, g , the rods, g^2 , and the vehicles, g' , are propelled along the track, f . While the trucks, g , are on the curved portion of the track, f , the rods, g^2 , in the recesses, a^3 , and b^3 , are on the pitch lines of the wheels, a and b . The rods, g^2 , are also on the pitch lines of the wheels, a and b , at a point directly above the crossing point, f' , of the track, f . It will be observed that for a short distance before and after it reaches the crossing point, f' , the track, f , is straight. This straightening of the track f , is shown clearly on Figs. 5 and 6. When the truck, g , enters upon the straight portion of the track, f , the rods, g^2 , on the wheel a , move into a^3 , and on the wheel, b , into b^3 , but when the rod, g^2 , reaches a point directly above the crossing point, f' , it is upon the pitch line of both wheels, a and b , and is engaged in a recess (b^3) of wheel, b , and between teeth (a^3) of wheel a , and it also at this crossing point takes the place of and performs the functions of a pin, b^4 , on the wheel b , is directly propelled by a tooth of wheel a , and itself aids in driving the wheel

b . Suppose a rod, g^2 , to be engaged in a recess of wheel a the wheel being in motion, after a rod, g^2 , passes above the crossing point, f' , of the track, f , it, g^2 , will leave the recess a^3 , and remain in recess b^3 , and be carried forward by wheel b , or vice-versa. From the time the truck enters upon the straight portion of the track f , under either wheel, a or b , until it reaches the curved portion of the track, f , under the other wheel, a or b , the rod, g^2 , is within the pitch line of the wheels a and b , except directly above the crossing point, f' . It will be observed that where the track, f , becomes straight near the crossing point, f' , it follows a line which if it were prolonged in either direction on the same horizontal plane as the wheels a and b , would intersect the periphery of both wheels, and not be tangential, to either.

The recesses a^3 and b^3 are distributed in pairs around the peripheries of the wheels a and b . The distance between each of any pair of recesses, a^3 or b^3 , is determined by the distance between the upright rods, g^2 , of the truck, g . The distance between the pairs of recesses a^3 and b^3 , is determined by the circumference of the wheels, a and b and by the number of trucks used. The recesses a^3 and b^3 , are so positioned in the wheels a and b that with wheels mounted in position with a recess a^3 and a recess b^3 coinciding at a point immediately above crossing, f' , and the wheels a and b being made to revolve, a recess a^3 will reach a point directly above the crossing, f' , synchronously with a recess b^3 , i. e. recesses a^3 and b^3 must coincide at a point directly above, f' . I prefer to use two vehicle carrying rods, g^2 , upon the trucks, g . It is obvious that one may be used.

In my drawing I show the details of the construction of a two ring merry-go-round. It is obvious that as many rings as desired may be used. Additional rings may be arranged as shown in Fig. 8, in a straight line or other formation.

By the word "recess" or "slot" as used in describing a^3 of my drawings I mean the space between the teeth of the wheel a , inclusive or exclusive of that portion which is cut below the normal base of the teeth, a^4 .

Although I have shown and described, and prefer to use a toothed gear wheel, a , and a pin wheel, b , it will be apparent that two toothed wheels with teeth removed at intervals from one wheel, and forks mounted on the rim of the wheel from which teeth are removed, which engage with the vehicle carrying rods, as shown in Fig. 7, may be used.

My invention is not limited to the exact details of construction herein shown and described, as it will be apparent that various changes therein and modifications thereof may be made without departing from the spirit of my invention or sacrificing the advantages thereof, and I reserve the right to

make all such alterations in the construction herein shown and described as fairly come within the scope of the invention.

By "propelling wheels" as used in my 5 claims, I mean wheels that have, when in motion, either a constant or an intermittent propulsive effect upon one or more of the vehicle carrying rods, or that propel or assist in propelling one or more of the vehicle 10 carrying rods.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. In an apparatus of the class described, 15 vehicle carrying rods, and toothed propelling wheels constantly engaged and having peripheral recesses receiving the rods.

2. In an apparatus of the class described, vehicle carrying rods, toothed propelling 20 wheels constantly engaged and having peripheral recesses receiving the rods and means for driving one of said wheels.

3. In an apparatus of the class described, a toothed wheel having recesses at intervals 25 between the teeth thereof, a toothed wheel with teeth removed at intervals having recesses in place of removed teeth and vehicle carrying rods engaging in said recesses, said toothed wheels being constantly engaged 30 with each other.

4. In an apparatus of the class described, vehicle carrying rods, toothed wheels constantly engaged and having peripheral recesses receiving the rods and trucks upon 35 which said vehicle carrying rods are mounted.

5. In an apparatus of the class described,

the combination of an endless track, wheeled trucks mounted on said track, vehicle carrying rods mounted on said trucks, and toothed wheels constantly engaged and having peripheral recesses receiving the rods. 40

6. In an apparatus of the class described, toothed wheels constantly engaged having peripheral recesses, vehicle carrying rods which engage in said recesses, and means for 45 transferring said vehicle carrying rods from one toothed wheel to another at or near the point of engagement of said toothed wheels.

7. In an apparatus of the class described, toothed wheels constantly engaged having 50 peripheral recesses, said recesses coinciding when at the point of engagement of said wheels, vehicle carrying rods mounted on trucks and engaging in said recesses and means for transferring said vehicle carrying 55 rods from one wheel to another, such means consisting of a track beneath said wheels upon which said trucks run, and members so positioned as to form guide ways at and near the point of transfer, the vehicle carrying 60 rods passing between said guide ways.

8. In an apparatus of the class described, the combination of a truck, a vehicle carrying rod mounted on said truck, a vehicle mounted on said carrying rod, and engaged 65 toothed wheels for propelling said truck and vehicle carrying rod, said toothed wheels being between said truck and said vehicle.

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Witnesses:

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