No. 643,675. Patented Feb. 20, 1900.

T. MURDY.

MERRY-GO-ROUND.

(Application filed June 3, 1899.)

(No Model.) 3 Sheets—Sheet 1.

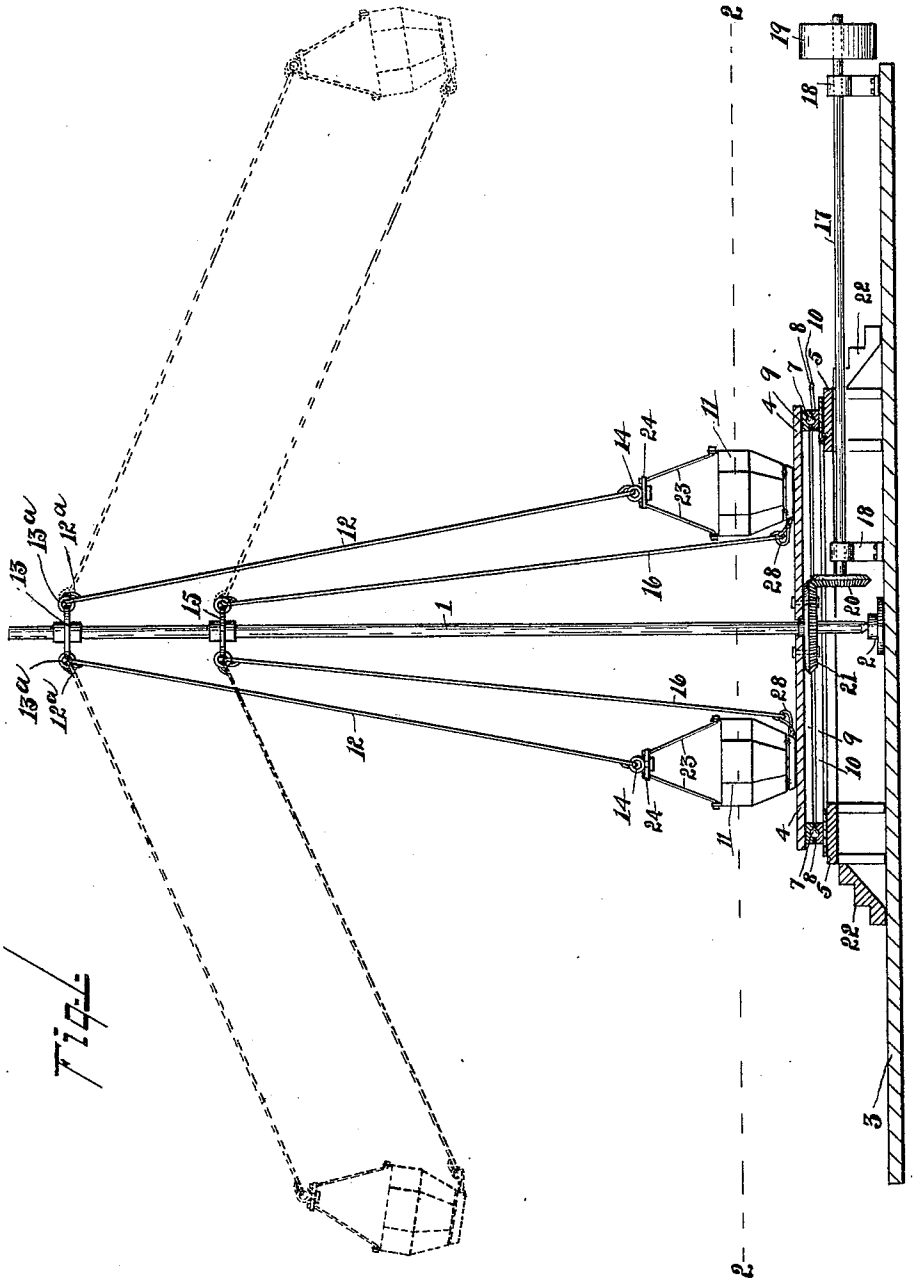

Fig. 1.

WITNESSES:

Walter C. Pusey.

A. P. Groupp

INVENTOR

Thomas Murdy,

BY

Joshua Pusey,

ATTORNEY.

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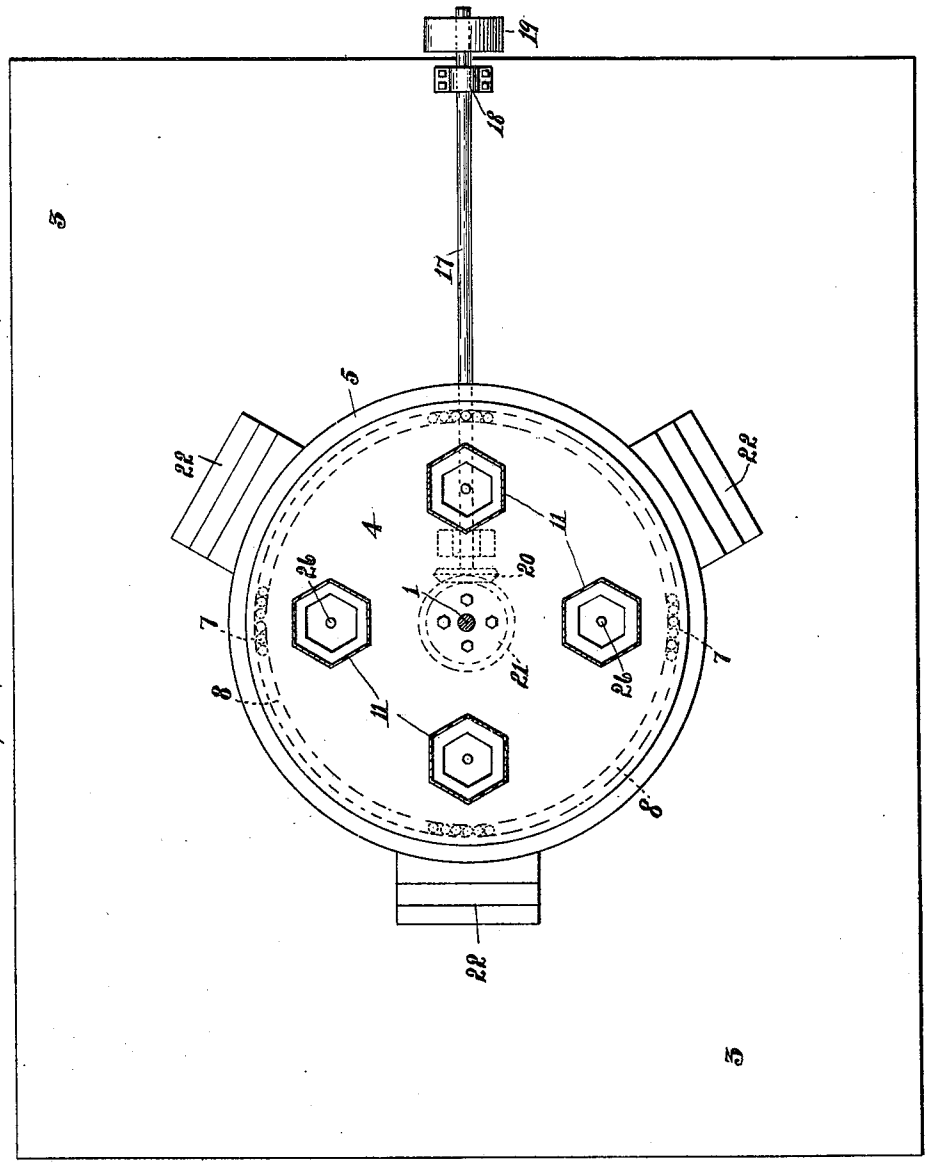
Fig. 2.



WITNESSES:

Walter C. Pusey.

A. V. Gourley

INVENTOR

Thomas Murdy,

BY

Joshua Pusey,

ATTORNEY.

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Fig. 3.

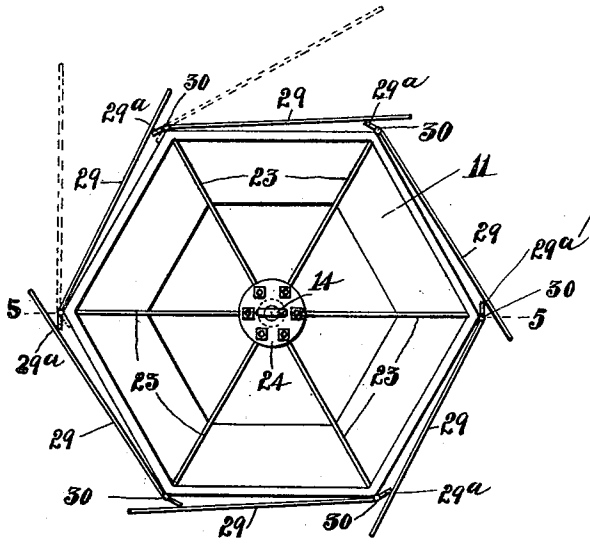


Fig. 4.

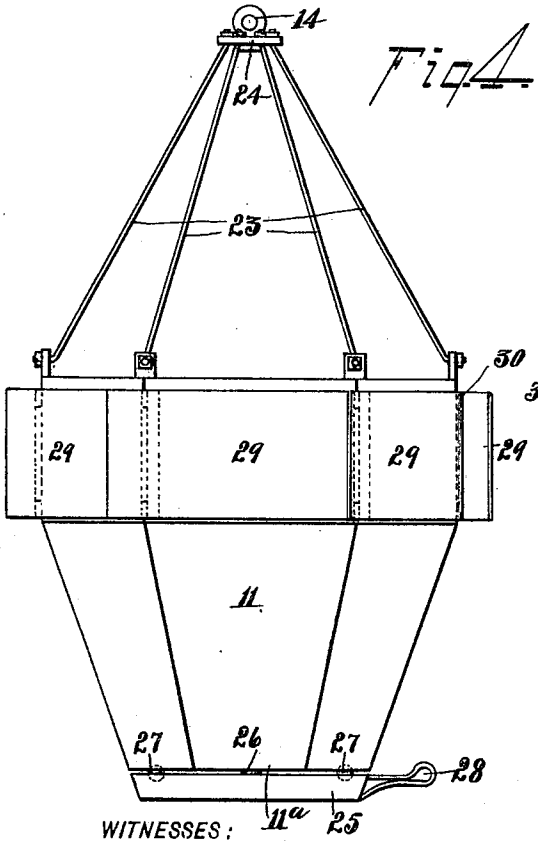
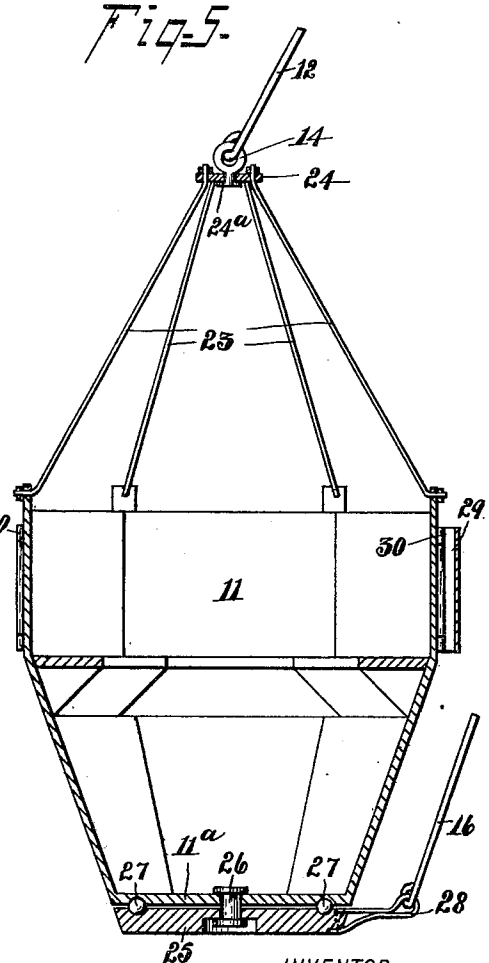


Fig. 5.



WITNESSES:

Walter C. Pusey.

A. V. Gronps

INVENTOR

Thomas Murdy.

BY

Joshua Pusey,

ATTORNEY.

UNITED STATES PATENT OFFICE.

THOMAS MURDY, OF NORRISTOWN, PENNSYLVANIA.

MERRY-GO-ROUND.

SPECIFICATION forming part of Letters Patent No. 643,675, dated February 20, 1900.

Application filed June 3, 1899. Serial No. 719,203. (No model.)

To all whom it may concern:

Be it known that I, THOMAS MURDY, a subject of the Queen of Great Britain and Ireland, residing at the city of Norristown, county of Montgomery, State of Pennsylvania, have invented certain new and useful Improvements in Merry-Go-Rounds, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1, Sheet 1, is a vertical medial section. Fig. 2, Sheet 2, is a full horizontal section as on line 2 2, Fig. 1. Fig. 3, Sheet 3, is a plan view of one of the cars detached and enlarged. Fig. 4 is a side elevation of Fig. 3. Fig. 5 is a vertical section as on the line 5 5, Fig. 3.

This invention relates to that kind of merry-go-rounds or carousels wherein a series of cars are suitably suspended from a shaft or pole that is maintained in a vertical position and is adapted to be rotated from a source of power, whereby the cars will be carried around by the movement of the shaft, at the same time flying outwardly by centrifugal force in correspondence with the speed of rotation of the said shaft.

The object of my invention is to improve the construction and operation in certain particulars, hereinafter specified, of amusement devices of the character mentioned.

The leading feature of the invention consists of the combination, with the vertical rotatable shaft and the cars suspended therefrom, of a horizontal platform adapted to rotate in unison with the shaft and so placed with relation to the said cars and their connections with the shaft that when the latter and the platform are at rest, or nearly so, the cars will be supported by and upon the platform and when the shaft and platform are rotated the cars will partake of their movement, receiving their initial motion from the platform until when the speed of rotation of the platform has reached a certain point the cars will swing off from the latter by centrifugal force and will be then carried around by the shaft through the connections between the latter and the cars, whereby certain advantages are attained, as hereinafter mentioned.

Another feature of the invention consists in providing a certain swivel-like connection with the cars of the usual rods connecting them with the said shaft, in connection with wings on the sides of the cars that are adapted to impinge against the air as the cars are swung around by the shaft, and thus to impart to the cars at the same time a gyratory movement on their vertical axes, as hereinafter described.

Other features of the invention relate to minor details of construction, which will also be duly pointed out.

Referring to the accompanying drawings, forming a part of this specification, and which represent one embodiment of my invention, 1 is a stiff and strong shaft or pole whose lower end rests in a suitable bearing of a step 2, that is secured to the support or foundation 3 of the apparatus.

4 is a circular horizontal platform through which the said shaft extends and is secured thereto. This platform is supported near its periphery by a trestle or frame work 5, that rests upon the foundation 3 in a manner that it (the platform) is free to rotate with the shaft 1, as hereinafter described. In order, however, to secure a firm support for the platform and without undue friction, I mount the same upon rollers that are adapted to travel in a circular trackway upon the aforesaid framework, or preferably upon balls 7, as shown in Fig. 1, which are inserted in a raceway 8, formed by a semicircular groove in a circular projection 9 on the under side of the platform 4 and a similar groove in the upper surface of a circular projection 10 upon the top of the framework 5.

11 are the cars, which may be of any convenient number and shape, for the reception of passengers and with seats for the latter. The upper part of each car is connected with the upper part of the shaft 1 by means of a rod 12, one end of which is hinged to a collar 13 on the shaft and the other end is likewise hinged to the upper end of the car. In the present instance the collar 13 is provided with an eye 13^a and the rod with a hook 12^a, inserted therein, while the top of the car is provided with an eyebolt 14 and the rod with a hook therein. The bottom of the car is con-

nected with a collar 15 on the shaft 1 below the collar 13 by means of a rod 16 in a manner similar to that of the rod 12. The relative position and length of the said two rods are such, as shown in Fig. 1, as to always maintain the car vertical, or nearly so, in whatever position it may occupy with relation to the shaft and the platform. The length of the said rods is such as to permit the bottom of the car to stand upon the platform when the latter is at rest, as shown by the full lines in Fig. 1.

The required rotary movement is imparted to the shaft and platform simultaneously by means, in the present instance, of a horizontal shaft 17, that is journaled in bearings of standards 18, rising from the foundation 3, upon the end of which shaft is a pulley 19, over which runs a belt (not shown) that is driven from the source of power. On the inner end of this shaft is a bevel-gear 20, that engages a bevel-gear 21 on the vertical shaft 1.

The mode of operation of the device requires but little explanation and is as follows: The shaft 1 and platform being quiescent, the several cars rest in a vertical position upon the latter, as in Fig. 1. The passengers having first entered the cars from the platform, to which they ascend by steps 22, shaft 17 is set in motion, whereupon the platform and shaft 1 will be rotated. When sufficient speed has been attained, the cars, with their occupants, will be obviously carried off the platform by their momentum, and as the speed further increases they (the cars) will, as indicated by the dotted lines in Fig. 1, fly out by centrifugal force to a limited height depending upon the speed.

By the use of the platform arranged relatively as shown and described there is avoided all strain in starting and stopping and the twisting of the connecting-rods that would otherwise be liable to occur.

I shall now describe the means and devices whereby I secure the automatic gyratory movement of the car on its vertical axis while it is being carried around by centrifugal force, as hereinbefore alluded to. To this end I connect to the top of the body of the car rods 23, whose convergent upper ends are secured to a disk 24 through an opening 24^a, in which passes the swiveled eyebolt 14, to which latter the rod 12 is hinged. The car is also provided with false or supplemental bottom 25, that is connected to the real bottom 11^a by means of a flanged pivot-bolt 26, Fig. 5, and in order to avoid undue friction I interpose in a raceway between the said two bottoms a series of balls 27, constituting a ball-bearing. The supplemental bottom has projecting from its side an eye 28, to which the end of the rod 16 is hinged.

It will be obvious from the described construction that the car is capable of rotation upon its vertical axis—that is, upon the bolts 14 and 26. To effect this rotation automatically as the car is carried out and around by the rotation of the shaft 1, I provide on the sides of the car, which for greater convenience is made of a polygonal form—hexagonal, in this instance—a series of wings 29, arranged as shown, whereby as the car swings around its circular path the wings catch or impinge against the air, and thus cause the desired gyration of the car on its axis. The particular manner of arranging and attaching the wings which I prefer is shown in Figs. 3, 4, and 5 of the drawings, particularly in Fig. 3. The said wings are arranged consecutively around the several faces or sides of the middle of the body of the car with their free ends projecting beyond the latter, so as to readily catch the air. The other ends of the wings are pivoted on rods 30, attached to the car, there being a short projection 29^a of the wings to the rear of the pivots, which projection is adapted to impinge against the side of the car, and thus limit the extent of opening or outthrow of the wings, as indicated by dotted lines in Fig. 3.

I remark that I do not limit myself to the precise construction described and illustrated, as the same may be considerably varied without departing from the essential principle and mode of operation of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a merry-go-round of the class recited, the combination of the vertical shaft, the car, the rod hinged to said shaft and to the upper part of said car, the rod hinged to said shaft and to the bottom of said car, and arranged substantially as shown, whereby the car is maintained in substantially vertical position; the platform below the car upon which the latter is adapted to rest when said platform is at rest, and means for imparting a rotary motion to said shaft and platform in unison, substantially as set forth.

2. In a merry-go-round of the class recited, the combination of the vertical shaft, the cars, the rods hinged to said shaft and the upper part of said cars respectively, the rods hinged to said shaft and the bottoms of said cars respectively, and arranged substantially as shown whereby the cars are maintained in substantially vertical position, the horizontal platform connected to said shaft and adapted to support the cars when at rest, the circular trackway adapted to support and maintain the platform in the horizontal position, and means for imparting a rotary motion to said platform and shaft, substantially as and for the purpose set forth.

3. In a centrifugal merry-go-round, the combination of the rotatable vertical shaft, the car, the rod, 12, hinged to said shaft and pivoted and swiveled to the upper portion of the car, the rod, 16, hinged to said shaft and pivoted and swiveled to the bottom of said car and arranged substantially as shown, together with the wings attached to said car, whereby the latter is adapted to rotate on its axis dur-

ing its gyration around said shaft, and is maintained substantially in vertical position, substantially as set forth.

4. In a centrifugal merry-go-round, the combination of the vertical shaft, the platform, means for imparting a rotary movement to said shaft and platform in unison, the car, the rod hinged to said shaft and connected to the upper part of the car by a swivel-like connection, the supplemental bottom pivoted to the real bottom of the car, the rod hinged to said supplemental bottom and to the said shaft, and the wings on the sides of the car, all constructed, arranged and adapted to operate substantially as and for the purpose set forth.

In testimony whereof I have hereunto affixed my signature this 29th day of May, A. D. 1899.

THOMAS MURDY.

Witnesses:
CHARLES W. COMFORT,
WALTER. C. PUSEY.