C. FIGGE & A. ZEBRO.

CAROUSEL.

APPLICATION FILED JUNE 21, 1910.

973,184. Patented Oct. 18, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

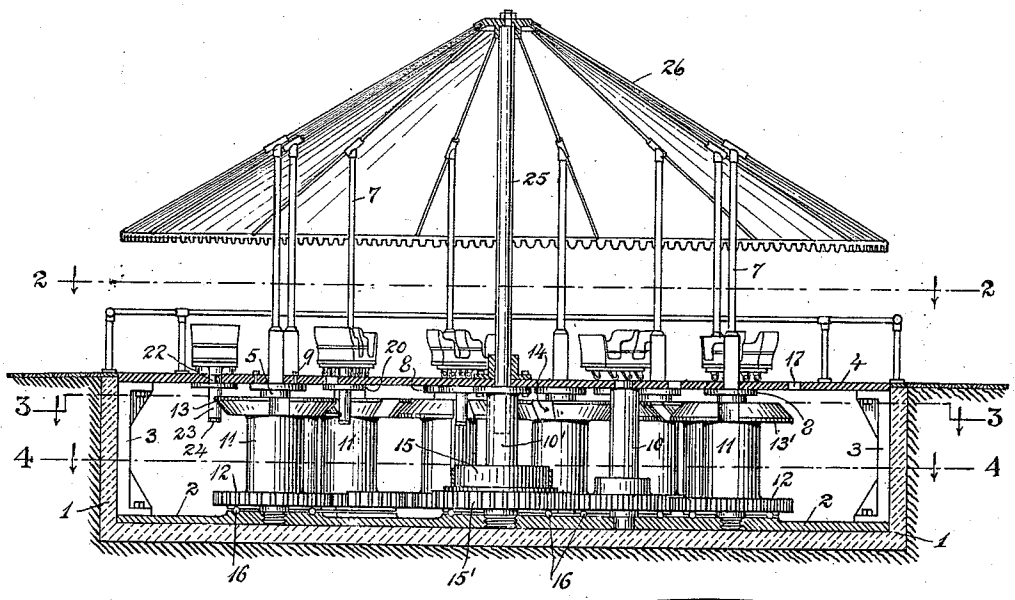


Fig. 5.

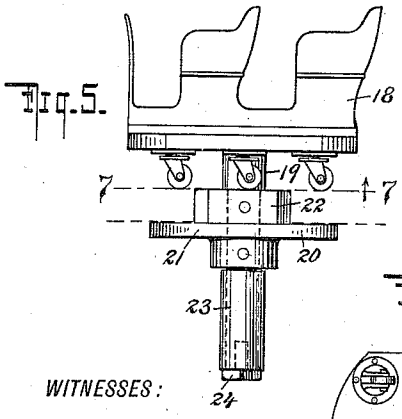


Fig. 6.

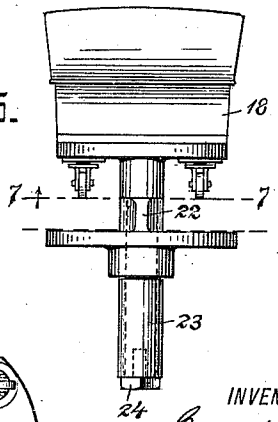
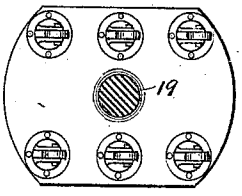


Fig. 7.



WITNESSES:

G. V. Rasmussen

R. Aberlin

INVENTORS

Conrad Figge

Aloïs Zebro

BY

Bakewell & Church

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

C. FIGGE & A. ZEBRO.

CAROUSEL.

APPLICATION FILED JUNE 21, 1910.

973,184.

Patented Oct. 18, 1910.

3 SHEETS—SHEET 2.

Fig. 2.

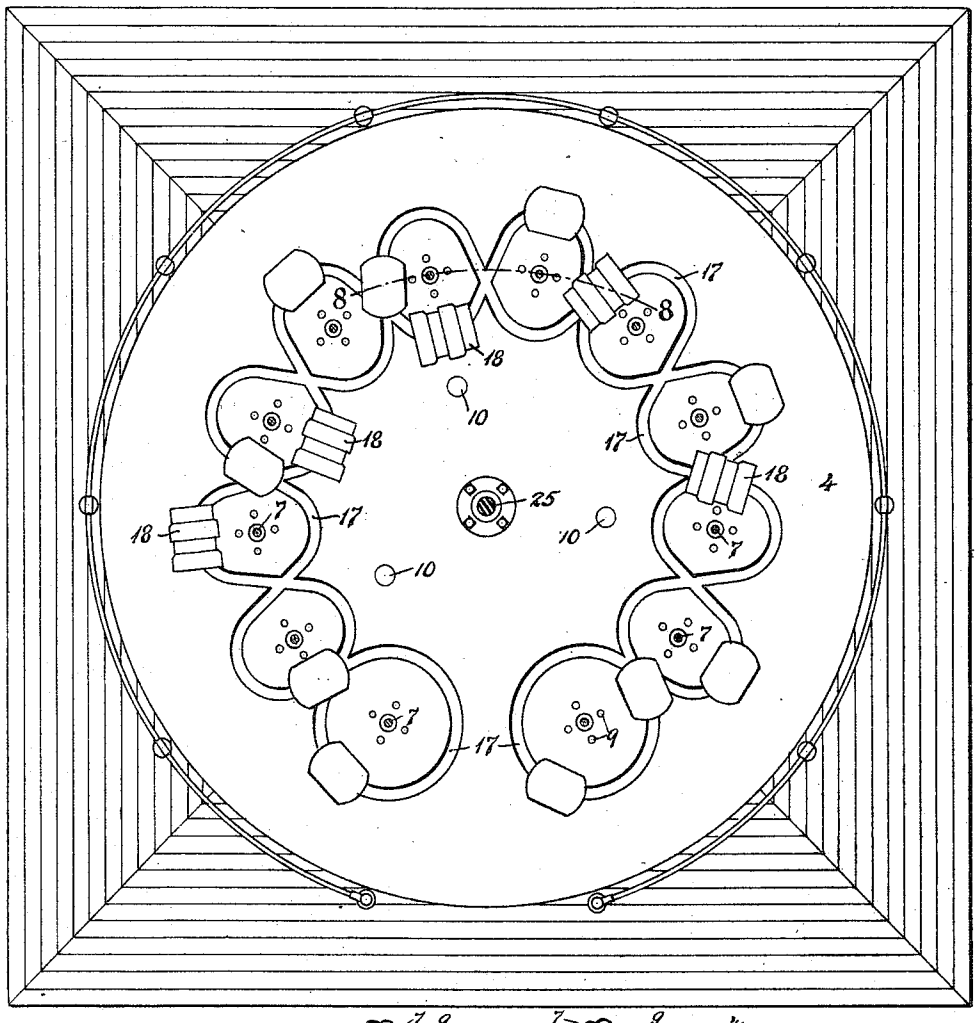
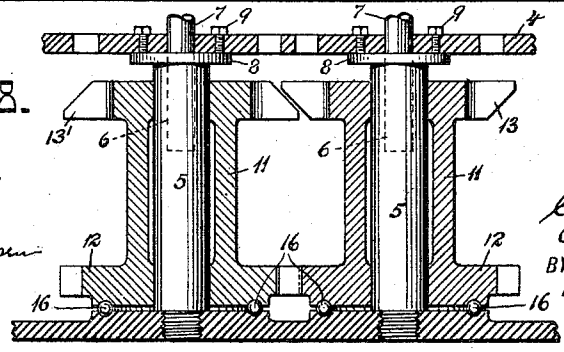


Fig. 3.



WITNESSES:

G. V. Rasmussen

R. Aberlin

INVENTORS

Conrad Figge

Alois Zebro

BY Bissell & Brandt

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

C. FIGGE & A. ZEBRO.

CAROUSEL.

APPLICATION FILED JUNE 21, 1910.

973,184.

Patented Oct. 18, 1910.

3 SHEETS—SHEET 3.

Fig. 3.

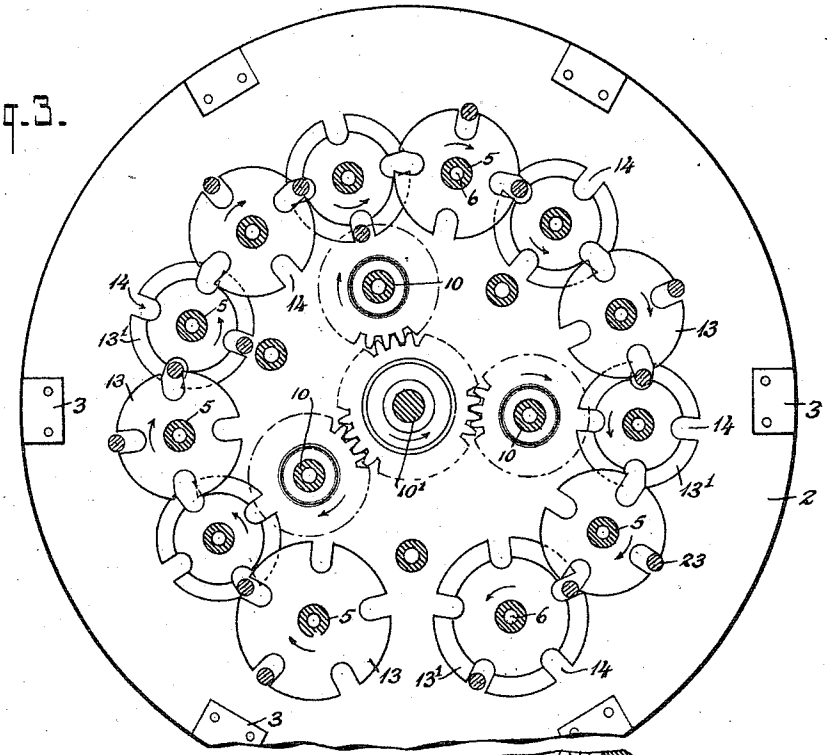
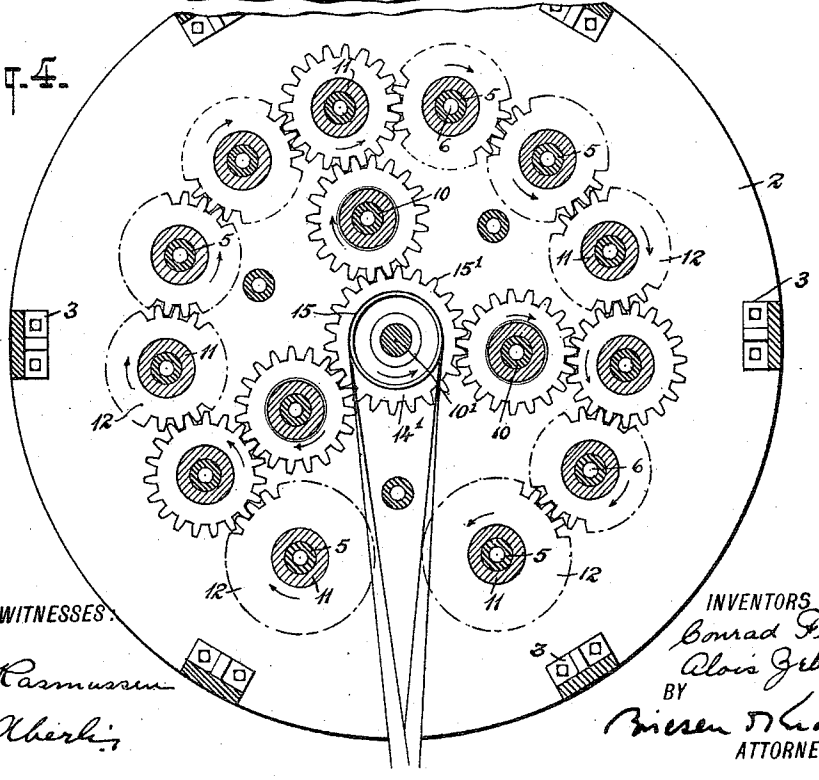


Fig. 4.



WITNESSES:

G. V. Rasmussen

R. Aberlin

INVENTORS

Conrad Figge

Alois Zebro

BY

Bieser & Boettcher

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CONRAD FIGGE, OF JERSEY CITY HEIGHTS, NEW JERSEY, AND ALOIS ZEBRO, OF WEST NEW YORK, N. Y.

CAROUSEL.

973,184. Specification of Letters Patent. Patented Oct. 18, 1910.

Application filed June 21, 1910. Serial No. 568,069.

To all whom it may concern:

Be it known that we, CONRAD FIGGE and ALOIS ZEBRO, subjects, respectively, of the Emperor of Germany and of the Emperor of Austro-Hungary, and residents, respectively, of Jersey City Heights, Hudson county, New Jersey, and West New York, Queens county, New York, have invented a new and useful Improvement in Carousels, of which the following is a specification.

Our invention relates to carousels, or merry-go-rounds, and has for its object to provide a novel embodiment of a carousel adapted to move cars, imitation animals, or the like, continuously and in a novel way.

A further object of our invention is to provide that such movements shall vary rapidly in direction and curvature.

A still further object of our invention is to provide a carousel such that a number of cars may be simultaneously moving in general directions which are opposite to one another along paths which are so arranged that they cross and re-cross without permitting cars to come into collision.

Our invention also enables us to regularly and frequently reverse the general direction of motion of each car, instead of moving said car continuously in the same direction.

Other objects will appear as the specification proceeds.

Referring to the drawings, Figure 1 is a meridian sectional elevation representing a preferred form of our invention; Fig. 2 is a plan view looking downward, taken along the line 2—2 of Fig. 1; Fig. 3 is a similar view taken along the line 3—3 of Fig. 1; Fig. 4 is a similar view taken along the line 4—4 of Fig. 1; Fig. 5 is a side elevation, somewhat enlarged, showing one of the cars attached to its actuating spindle; Fig. 6 is a rear elevation similar to Fig. 5; Fig. 7 is a section, taken from below, along the line 7—7 of Figs. 5 and 6; and Fig. 8 is an elevation, partly sectional drawn to a scale intermediate between the scale used for Figs. 1 to 4 and Figs. 5 to 7 showing a pair of adjacent actuators.

In the drawings a suitable circular pit, having a flat bottom, is provided and lined with concrete, 1; the bottom is carefully smoothed and upon it is placed a cast sub-floor 2, upon which is to be erected the completed carousel. Equally spaced about the periphery of the pit are placed and bolted to this floor a number of supports 3, the height of which is such that a cast metal main-floor or platform 4 placed thereon is just flush with the top of the pit.

Within the pit and arranged concentrically about its center are a number of spindle supports 5, each of which is screw threaded into the cast metal sub-floor 2 and provided at the top with a cylindrically bored hole 6 (shown dotted), into which is adapted to be inserted the lower end of roof supports 7. Each of these roof supports is provided with a flange 8 at a short distance from its lower end and upon this flange and fastened thereto by suitable screws 9 is supported the main floor 4. Both the main floor and the sub floor are preferably and almost of necessity made in sections, but the lines of such sectional division are not shown in the drawings. Between the center of the pit and the spindle supports 5 are placed a suitable number of similar spindle supports 10. There is also a similar spindle support 10′ placed at the very center of the pit.

Upon each of the peripheral spindle supports 5 is placed what we have termed an actuator 11. Each of these actuators resembles in a general way an ordinary spool having lower flanges 12 provided with intermeshing spur gears of equal diameter except the terminal actuators which have a greater diameter and upper flanges 13 and 13′ respectively and alternately beveled on their lower and upper faces. Each of these upper flanges 13 and 13′ is also provided with two pair of opposite radial slots 14, the slots of each pair being diametrically opposite and at right angles to the line of the other pair of slots; each terminal actuator, however, has five slots instead of four. The diameter of these flanges 13 and 13′ is such that the beveled portions of said flanges overlap somewhat. In placing these actuators 11, 11, etc., upon the spindle supports 5, they are so set that the openings of slots in adjacent flanges 13, 13′, will always coincide as said openings pass the point of tangency between the two actuators. The actuator 14′ provided for the central spindle support does not have any upper flange 13, 13′ as do the actuators of the peripheral spindle supports; it does have, however, a pulley 15 just above its bottom gear toothed flange 15′. The ac-

tuators of the intermediate spindle supports 10 are so set that their gears mesh respectively with the gear of the central actuator 14′ and with the gear of certain peripheral actuators 11. Each actuator has the lower face of its gear carefully faced, as is also the raised adjacent face of the sub-floor and these faces are both grooved to receive a ball bearing 16.

The main floor 4 has cut through its body a track or slot of uniform width 17. The path of this track is a continuous one, which crosses and re-crosses itself and is obtained substantially by following the outer curve of one peripheral actuator 11, then the inner curve of the next adjacent actuator, then the outer curve of the succeeding actuator and so on; at the end of the entire group of actuators, the path describes a curve clear around the terminal actuator and then returns in its own general direction. Along this track the cars 18 of the carousel are carried. Each of these cars has attached to its bottom a downwardly projecting operating spindle 19 upon which is adapted to be securely fixed a guide block 20 provided with a circular flange 21 having upon its upper face an elongated key 22, the width of which is a little less than that of the track and the ends of which are tapered. Below the guide block the spindle 18 is provided with a cylindrical roller bearing 23 adapted to be held in position by a suitable screw 24.

In assembling the carousel, the several actuators being arranged with their gears meshed so that slots 14 are registered as above described, the several operating spindles 19 are positioned in suitable slots 14 before the main floor 4 is put in place. The central roof post 25 and lateral roof posts 7 are also positioned at the same time. The main floor 4 is then bolted in place, the guide blocks 20 being inserted in the track slot 17.

Of course, an operating spindle must be placed in only one of a pair of slots 14 which are to register with one another; otherwise, cars would interfere with one another. The maximum number of cars which can be used on a given carousel depends upon the number of complete loops made by the crossing and re-crossing tracks 17. In general this maximum number will be one more than three times the number of such closed loops.

The drawings show the gear of the central actuator 14′ to be of greater diameter than the gears belonging to actuators 11; this relation is purely one of design, of course, and will naturally be varied to suit the character of the power supply and the rate of speed devised for the cars of the carousel.

A suitable roof 26 is supported upon the central posts 25 and lateral posts 7.

Many variations may be made in the embodiment of our invention without departing from its spirit; thus, for example, by spacing the actuators farther apart or closer together, the number of loops may be decreased or increased respectively, thus greatly varying the rapidity of the curves and affecting the sensations consequent thereto without materially changing the diameter or the length of the general curve of direction. Similar changes may be effected by varying the diameter of the general curve of direction. Our invention furthermore is not necessarily confined to a circular carousel, as, if we desire, we may arrange our actuator spools along any other curve, or indeed along a straight line.

Having thus described our invention, we claim:

1. In a carousel in combination, a series of rotary actuators adapted to be simultaneously operated, a closed track crossing and recrossing itself regularly and passing alternately on opposite sides of adjacent actuators throughout the entire series, said track completely inclosing the two terminal actuators of the series, and a car engaged with said track adapted to repeatedly engage successively each actuator of the series in forward and reverse order so long as the actuators are operated, substantially as and for the purpose described.

2. In a carousel in combination, a series of rotary actuators adapted to be simultaneously operated, a pair of tracks passing on opposite sides of the same actuator and each alternately on opposite sides of adjacent actuators throughout the entire series, said tracks being joined in a smooth curve outside the two terminal actuators of the series so as to constitute a continuous, closed system of curves, a plurality of cars each engaged with a track and adapted to be engaged successively by said actuators so as to traverse one track while moving one way of the actuator series and the other track when moving the other way, and means for automatically preventing collisions between said cars, substantially as and for the purpose described.

In testimony whereof, we have hereunto set our hands in the presence of two subscribing witnesses.

CONRAD FIGGE.
ALOIS ZEBRO.

Witnesses:
G. V. RASMUSSEN,
ELMER G. WILLYOUNG.