

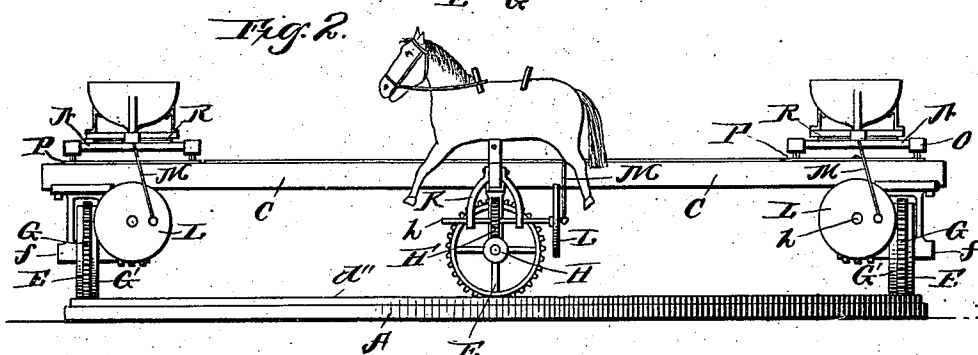
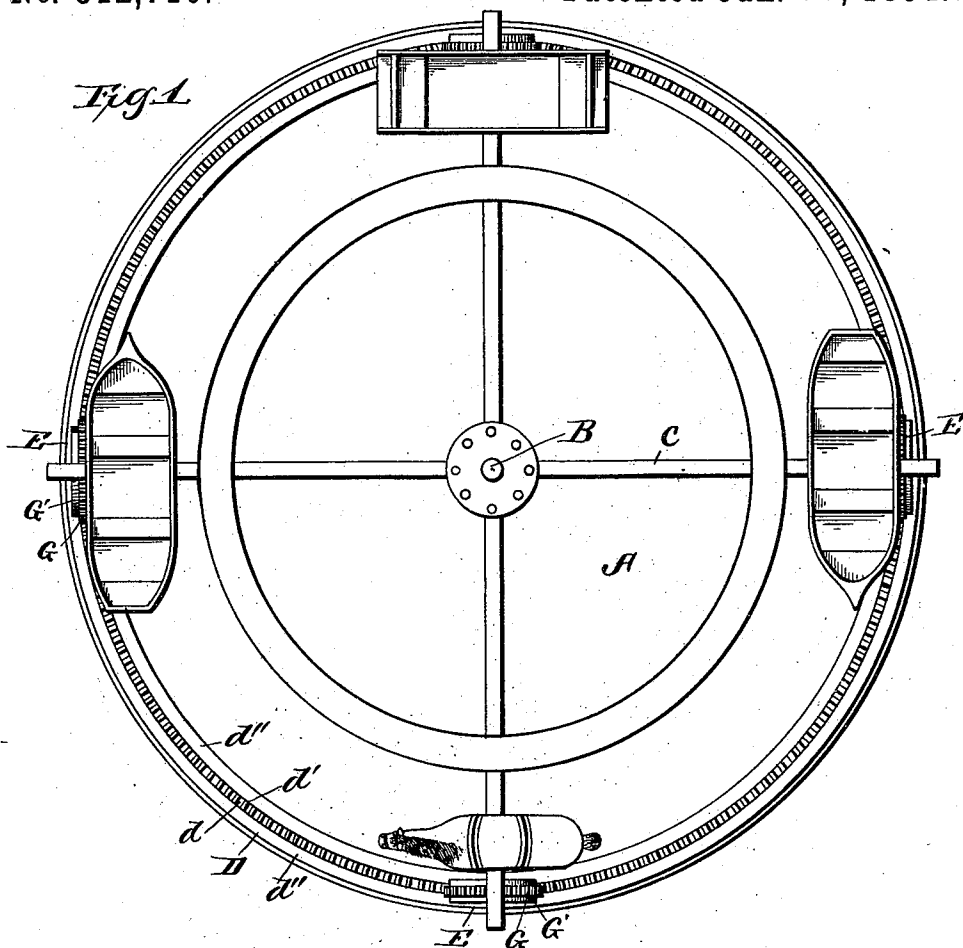
(No Model.)

2 Sheets—Sheet 1.

G. KAY, F. WILKINSON & I. RUSHWORTH.  
ROUNABOUT.

No. 512,710.

Patented Jan. 16, 1894.



Witnesses

*E. C. Hurdman*  
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Inventors

*George Kay*  
*Fred Wilkinson and*  
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By their Attorneys

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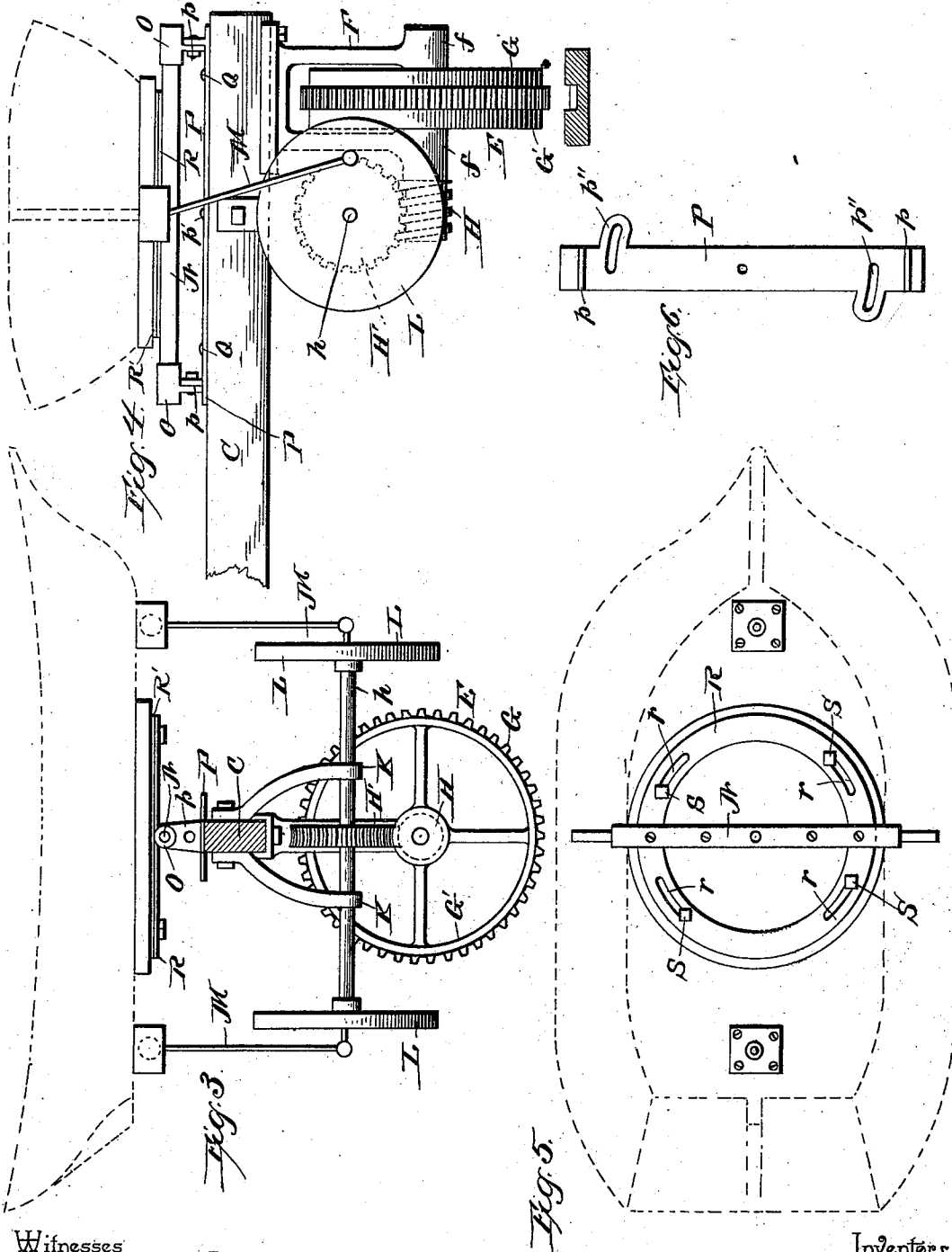
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ROUNDAABOUT.

No. 512,710.

Patented Jan. 16, 1894.



Witnesses

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# UNITED STATES PATENT OFFICE.

GEORGE KAY, FRED WILKINSON, AND ISAAC RUSHWORTH, OF JAMESTOWN,  
NEW YORK.

## ROUNABOUT.

SPECIFICATION forming part of Letters Patent No. 512,710, dated January 16, 1894.

Application filed August 25, 1892. Serial No. 444,093. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE KAY, FRED WILKINSON, and ISAAC RUSHWORTH, citizens of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented a new and useful Roundabout, of which the following is a specification.

Our invention relates to improvements in roundabouts or "merry-go-rounds," and has for its object to simplify the mechanism by which the figures, such as horses, boats, &c., are given a rocking or characteristic movement, and, furthermore, to provide means whereby a combined rolling and pitching movement may be given to the boats, in imitation of the motion caused in them by the action of the waves.

Our invention is fully described in connection with the drawings, and the points of novelty are set forth in the appended claims.

In the drawings:—Figure 1 is a plan view of a roundabout embodying our improvements, and showing four seats; namely, two boats, a horse, and a chariot, and Fig. 2 is a front view of the same, showing the horse in the foreground and the boats in end elevation. Fig. 3 is a side view of one of the boats, showing the mechanism connected therewith. Fig. 4 is an end view, partly broken away, of the same. Fig. 5 is an inverted plan view of the boat, showing the adjusting disk and spindle. Fig. 6 is a detail view of the pivoted adjusting bar.

A represents the base of the device, at the center of which is arranged a vertical post, B, around which the rotary frame, comprising, essentially, the radial beams, C C, revolves.

The flooring of the rotary frame, and the details of construction which enter thereinto, form no part of our invention, and are, therefore, omitted in the drawings, and only the skeleton of the device is illustrated.

In order to avoid the shafting from the center post to the periphery of the rotary frame, ordinarily necessitated by placing a circular rack around and adjacent to said post, we employ a toothed-track, D, arranged on the base near its periphery, said track consisting of a rack,  $d$ , set in a groove  $d'$ , smooth bear-

ing or friction surfaces,  $d''$ ,  $d''$ , being located upon opposite sides of the groove.

The track-wheel, E, which is shown beneath each of the boats, is mounted in bearings,  $ff$ , in the hanger F, which depends from the extremity of one of the radial beams, C, said wheel being provided with a toothed rib, G, to travel in the groove of the track and engage the rack located therein, and also provided, upon opposite sides of the toothed rib with bearing flanges,  $G'G'$ , to bear upon the smooth surfaces of the track. The shaft of the track-wheel carries a worm, H, which meshes with a worm-gear, H', carried by a horizontal shaft,  $h$ , at right angles to the shaft of the track-wheel, said shaft,  $h$ , being supported by hangers, K K, depending from the radial beam. The shaft,  $h$ , carries at its extremities, revoluble disks, L L, which are connected, at eccentric points, by means of connecting rods, M M, to the boat. The joints between the lower ends of the connecting rods and the disks and the upper ends of said rods and the boat are of the kind known as universal or ball joints.

The boat is provided upon its under surface with a spindle, N, mounted in bearings, O O, which are secured to ears,  $p p$ , projecting vertically from the upper side of an adjusting bar, or plate, P, mounted upon the upper side of the radial beam, above mentioned. This adjusting bar, or plate, is pivoted at its center to the beam, as seen at  $p'$ , and is provided near its ends with slots,  $p''$ ,  $p''$ , concentric with said pivot, and adapted to receive engaging bolts, Q Q, whereby the bar or plate may be clamped in a position parallel with the beam or at an angle thereto, for a purpose to be hereinafter explained.

The spindle, N, above mentioned, is carried by an adjusting disk, R, which is secured to the bottom of the boat, a wear-plate, R', being interposed between the disk and the boat. This disk is provided with concentric slots,  $r r$ , to be engaged by adjusting screws or bolts, S S, which are secured rigidly in the wear-plate.

It will be understood that when the spindle N is arranged transversely to the boat the action of the revoluble disks will cause the boat

to pitch, vertically, at its extremities. When, however, the adjusting bar, or plate, is turned at an angle to the radial-beam, the boat being retained in its proper position at right angles to said beam by turning the adjusting disk so as to accommodate the position of the spindle, the motion received by the boat will be a combination of a pitch and a roll, the sides rising and falling alternately at the same time that the ends are rising and falling.

Any desired degree of rolling motion may be attained by the relative adjustment of the bar or plate, P, and disk.

From the above description it will be seen that the gearing by which the movement is imparted to the various seats, or figures, is arranged near the periphery of the rotating frame, thus avoiding the additional weight which is necessary when the power is derived from gearing located at, or near, the central post. Furthermore, when arranged as herein-described, the gearing is more easily reached for repairs, &c., and the motion of the figures is more positive from the shortness of connections and simplicity of gearing.

Further advantages derived from the arrangement of the gearing, consisting of a rack-rail and a track-wheel, at or near the periphery of the rotatable frame, are that torsional elasticity, such as is found in the radial bars or rods by which the motion is communicated from the central gearing to the extremities of the frame-work, is avoided, and that the communication of motion is direct and positive, thus preventing the bending and straining of the parts of the structure.

In Fig. 4 the track having the bearing-surfaces upon opposite sides of the rack is shown in connection with the wheel having bearing-surfaces, whereby the teeth are prevented from meshing too deep.

Either one or more bearing-surfaces may be employed.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a roundabout, the combination with a rotatable framework, means to rotate the same, and bearing-wheels engaging a suitable track, of horizontal spindles mounted in bearings upon the framework, boats pivotally mounted upon said spindles to swing in a plane parallel therewith and adapted to rock therewith in a vertical plane, means for locking the boats at any desired angular adjustment with relation to their spindles, and operating connections between the boats and the wheels whereby a rocking motion is imparted to the former, substantially as specified.

2. In a roundabout, the combination with a rotatable framework, means to rotate the same, and bearing-wheels engaging a suitable track, of horizontal spindles mounted in bearings upon the framework and capable of angular adjustment with relation to the radii of the framework, boats pivotally mounted upon said spindles and capable of angular adjustment with relation to the spindles, and means for connecting the boats to the wheels whereby a rocking motion is imparted to the former, substantially as specified.

3. In a roundabout, the combination with a rotatable framework, bearing-wheels, and means to rotate the framework, of adjustable bars or plates secured to the framework and provided with bearings, boats provided with adjustable disks attached to their bottoms, spindles attached to said disks and mounted in the said bearings, and means for connecting the boats to the bearing-wheels, substantially as specified.

4. In a roundabout, the combination, with the rotating frame-work, of adjusting bars, or plates, secured thereto and carrying bearings, the boats, the adjustable disks secured to the bottoms of the boats and provided with spindles mounted in said bearings, the track-wheels running upon toothed-tracks and carrying a worm, the shafts carrying worm-gears to engage said worms and provided with revolvable disks, and connecting-rods between said disks and the extremities of the boats, and connected thereto by universal joints, substantially as specified.

5. In a roundabout, the combination with a rotatable frame-work, means to rotate the same, and bearing wheels engaging a suitable track, of horizontal spindles mounted in bearings upon the frame-work approximately parallel to the radii of the latter and capable of angular adjustment with relation thereto, boats pivotally mounted upon said spindles and capable of angular adjustment with relation thereto in planes parallel with the spindles, means for locking the boats at any desired angular adjustment, and connections between said bearing wheels and the boats, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

GEORGE KAY.  
FRED WILKINSON.  
ISAAC RUSHWORTH.

Witnesses:

R. M. WISE,  
T. K. FELCH.