

(No Model.)

G. A. DENTZEL.  
CAROUSEL.

No. 573,577.

Patented Dec. 22, 1896.

FIG. 1.

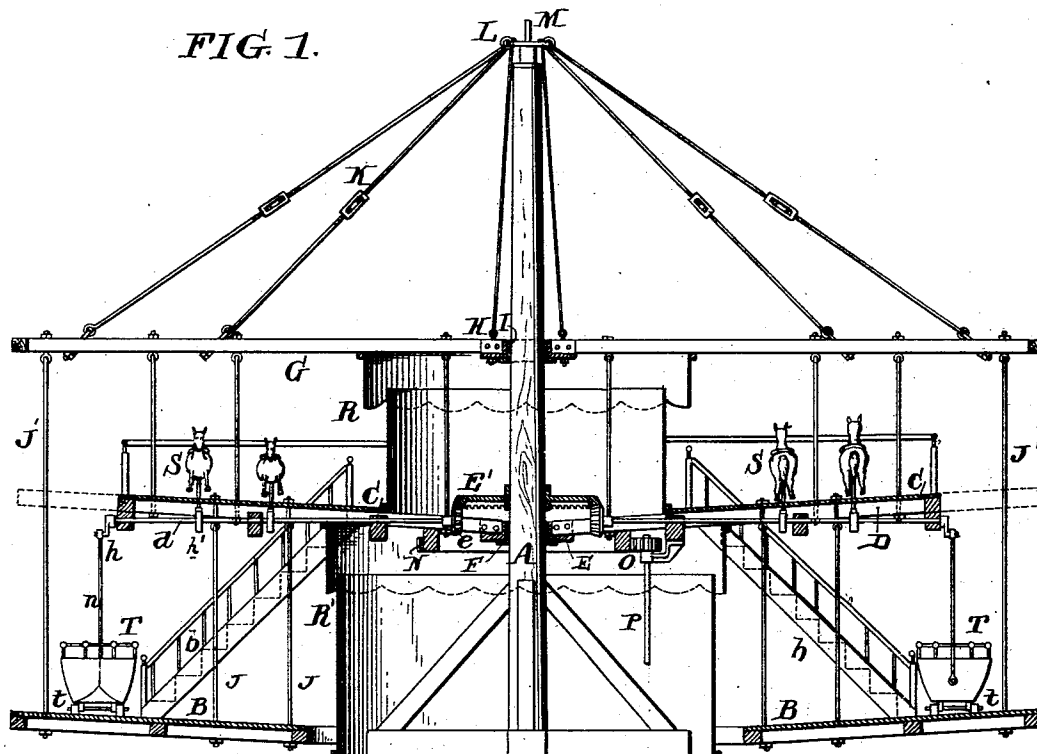
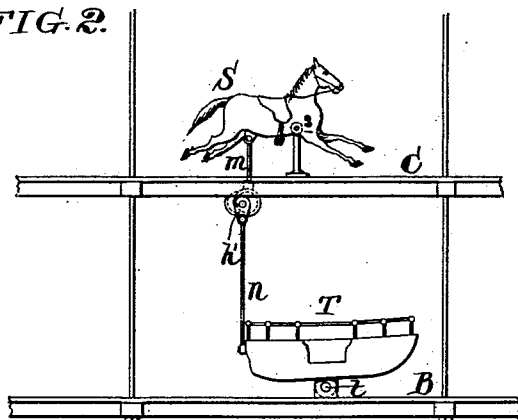


FIG. 2.



Witnesses.

*Henry Denny*  
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FIG. 3.



Inventor.

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# UNITED STATES PATENT OFFICE.

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## CAROUSEL.

SPECIFICATION forming part of Letters Patent No. 573,577, dated December 22, 1896.

Application filed March 25, 1896. Serial No. 584,723. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAV A. DENTZEL, of the city and county of Philadelphia and State of Pennsylvania, have invented an Improvement in Carousels, of which the following is a specification.

My invention has reference to carousels; and it consists of certain improvements which are fully set forth in the following specification and are shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a construction of carousel in which there shall be two platforms constituting two revolving decks, each of which is provided with animals or suitable supports for the riders.

In carrying out my invention I combine with a central post three sets of radial arms connected together by vertical bolts or rods and suspended from a central pivot on the top of the post by suitable tie or suspension rods. The two lower sets of radial arms sustain platforms upon which the horses, boats, or other suitable supports for the riders are arranged, and preferably the two upper sets of radial arms are each provided at the center with an annular guide adapted to move upon a central fixed guide on the post, whereby the said upper set of radial arms and the intermediate set of radial arms are suitably guided against undue lateral vibration. The lower set of radial arms or platform-frames are suspended from the upper sets of radial arms by suitable rods and are so arranged as to leave a large central opening or space in which the operating machinery may be arranged. One set of radial arms working in connection with the central guide may be provided with a large gear, with which the driving-pinion on a vertical shaft meshes for imparting rotation to the carousel-platforms. I also prefer to make part or all of the supports for the riders movable and operate the same by means of cranks or eccentrics, or both, carried upon the framing of the upper platform and driven by means of pinions and radial shafts from a stationary gear connecting with the central post. I prefer to operate the supports for the riders upon the upper and lower platforms from the same shaft by means of rods extending upward and down-

ward. The two platforms are connected by one or more stairways extending from one to the other and rotating with the said platforms and forming a portion of the carousel, so that the riders may ascend from the lower platform to the upper, or vice versa.

In my preferred construction I make the diameter of the upper platform somewhat smaller than that of the lower platform, so as to give the upper riders a better view of the audience, and vice versa. This construction has also an advantage in cases where the building is small, since it gives more available space outside of the riders. The upper platform is preferably provided with a railing to prevent riders accidentally stepping off and becoming injured. In cases where the lower platform extends beyond the upper platform the upper radial arms also extend beyond the upper platform and long bolts or rods extend down directly from the said radial arms to the lower platform.

My invention will be better understood with reference to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a carousel embodying my invention. Fig. 2 is an elevation of a portion of same, and Fig. 3 is an end elevation of the cranks and eccentrics for driving the supports.

A is a central post supported in an upright position in any suitable manner.

G is an upper set of radial arms, hung by tie or supporting rods K from a plate L, pivoted on the pivot M to the post A. The inner ends of the arms G are connected to a casting H, which acts on a hub and is journaled upon a bearing I, encircling and securely fastened to the post A, the said bearing I insuring the central position of the arms and preventing lateral swinging of the said arms as an entirety. Arranged below the said arms G is a second or intermediate set of radial arms D, which are secured also to a central ring-hub E, which is likewise journaled upon a central bearing F, encircling and secured to the post A. The second set of radial arms D supports an annular platform C, upon which the riders may stand. Arranged below the second or intermediate platform C is a third or lower platform B, which may be

made annular and of any suitable construction and is hung upon the vertical suspension-rods J beneath the upper platform C.

The lower platform B is preferably of larger diameter than the platform C, so as to extend beyond it, as shown, and in addition to its support by rods J from the upper platform C it has suspension-rods J' extending from it directly to the upper radial arms G. The platform B essentially consists of radial arms and connecting-frames to constitute, when erected, an annular platform. It will thus be seen that there are two platforms suspended by the suspension-rods from the upper radial arms G, and, furthermore, that the platforms are sustained against lateral swinging by rotary bearings formed in connection with the upper radial arms and the upper platform. The two platforms are connected by one or more stairways b, so that the second or upper platform may be reached from the lower platform. The stairways b rotate with the platforms and are moved by the means which impart rotation to the said platforms. The frame of the platform C may be provided with annular gear or circular rack N, with which meshes a pinion O, driven by a vertical shaft P, leading to any suitable driving machinery. If desired, a second similar gearing may operate upon the upper radial arms, and where the machinery is not large the power may be transmitted by either one of said driving devices alone. When the shaft P extends to the upper radial arms, the central journal-bearing for the upper platform must be large enough to permit the passage of the said shaft within the journal-surface. Circular shields R R' may be employed to hide the machinery arranged at the central parts of the platforms and radial arms. The lower shield R', directly about the base of the carousel-post, is stationary.

Each of the platforms C and D may be provided with supports for the riders, and these supports may be movable. In the particular illustration shown horses S are arranged upon the upper platform and pivoted at s, and boats T are arranged upon the lower platform, pivoted at t. Secured to the underside of the arms D of the upper platform are suitable bearings, in which are journaled shafts d, having upon their outer ends cranks h, which are connected by suitable connecting-rods n with the boats T. The shafts d are also provided with eccentrics h', which have straps and rods m for operating the horses S, and to properly distribute the power these eccentrics and cranks are disposed at one hundred and twenty degrees apart. If only two cranks or eccentrics are employed, then they would be disposed at one hundred and eighty degrees apart. These shafts d may be termed "crank-shafts," since the eccentrics are in effect cranks. The inner ends of the shafts d are provided with pinions e, and these mesh with a stationary circular rack or gear E'. It will now be perceived that as the platforms rotate

the pinion e drives the shaft d, with its eccentrics and cranks h, and imparts motion to the supports for the riders. By arranging the driving mechanism for these supports upon the under side of the upper platform the lower platform B is permitted to be arranged close to the floor and without the necessity of forming a pit. Furthermore, by arranging said motion-transmitting devices above and in full view they may be more easily taken care of and kept in order. In place of the particular movable supports S T shown any others may be employed, as these are only shown to illustrate the nature of my invention.

It is evident that while I prefer the upper platform C to be of less diameter than the upper radial arms G or the lower platform B I do not confine myself to this construction, since it may be extended to the same diameter as these parts, as indicated in dotted lines.

While I prefer the construction shown, I do not confine myself to the minor details thereof, as they may be modified in various ways without departing from the principles of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a carousel, the combination of a central post, a central bearing near the upper part of the post, a ring-hub journaled upon said bearing, radial arms secured to said ring-hub, a central pivot upon the top of the post, tie-rods extending from said pivot to said radial arms, two annular platforms arranged below the said radial arms, a central guide for the upper platform, vertical suspension rods or bolts for supporting the annular platforms at different levels from said radial arms, supports for the riders upon each of the platforms, a crank-shaft carried by and upon the under side of the upper platform and driven by a horizontal shaft and pinion, a stationary circular rack or gear supported on a level with the upper platform and with which the pinion meshes, and connecting-rods extending upward and downward between the crank-shaft and the moving supports upon each of the said platforms for simultaneously moving said supports.

2. In a carousel, the combination of a central pivot-post, two annular platforms of different diameters one arranged above the other, a series of radial arms arranged above the platforms and suspended by tie-rods from a central pivot-post, vertical tie-bolts extending from the radial arms to the lower platform, vertical tie-bolts between the radial arms and upper platform and from the upper platform to the lower platform whereby the lower platform is suspended below and moved with the upper platform, a central guide upon the pivot-post on a level with the upper platform, a guiding device carried by the upper platform and moved in connection with the central guide to hold the said upper platform concentric with the pivot-post and thereby

sustain the lower platform against lateral displacement, and power devices for rotating both platforms and radial arms in the same direction.

5 3. In a carousel, the combination of a central pivot-post, a series of radial arms supported from a pivot upon the said post so as to move concentric therewith, two annular open platforms arranged below said radial  
10 arms and at different elevations the lower of which is unsupported at the center, tie-bolts for connecting the radial arms and the two platforms whereby they shall move as a unitary structure, a second set of radial arms  
15 extending inwardly from the upper of said platforms and terminating in an annular journal encircling the post, and a journal-bearing secured to the post for receiving the annular journal of the radial arms of the upper plat-  
20 form whereby the said journal and bearing of the radial arms of the upper platform act to sustain the lower platform as well as the upper platform against lateral displacement.

4. In a carousel, the combination of a cen-  
25 tral post a series of radial arms supported upon a pivot on the post so as to move concentric therewith, two annular open platforms arranged below said radial arms and supported therefrom, a second set of radial arms  
30 extending inwardly from the upper of said platforms and terminating in an annular journal encircling the post, a journal-bearing secured to the post for receiving the annular journal of the radial arms whereby the upper

platform is concentrically and directly guided 35 about the post, a stationary rack carried by the post adjacent to the bearing of the upper platform, a radial shaft journaled upon the under side of the upper platform, a pinion  
40 upon the inner end of the radial shaft meshing with the rack, moving supports upon both the upper and lower platforms, and connecting power devices extending from the radial shaft upward to a point above the upper plat-  
45 form for operating its moving supports and also extending downward to the moving supports upon the lower platform.

5. In a carousel, the combination of an upper series of radial arms centrally pivoted, an upper platform of smaller diameter than the  
50 radial arms, a lower platform of a diameter substantially equal to the diameter of the radial arms, suspension bolts or rods for sustaining the two platforms at different levels  
55 from the radial arms, a moving stairway connecting the two platforms, a moving screen R moving about the post with the upper platform, a stationary screen R' arranged about  
60 the post at a lower level than the upper platform and power devices for rotating the plat-  
forms and radial arms.

In testimony of which invention I hereunto set my hand.

GUSTAV A. DENTZEL.

Witnesses:

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