R. & J. LUSSE.

CAROUSEL.

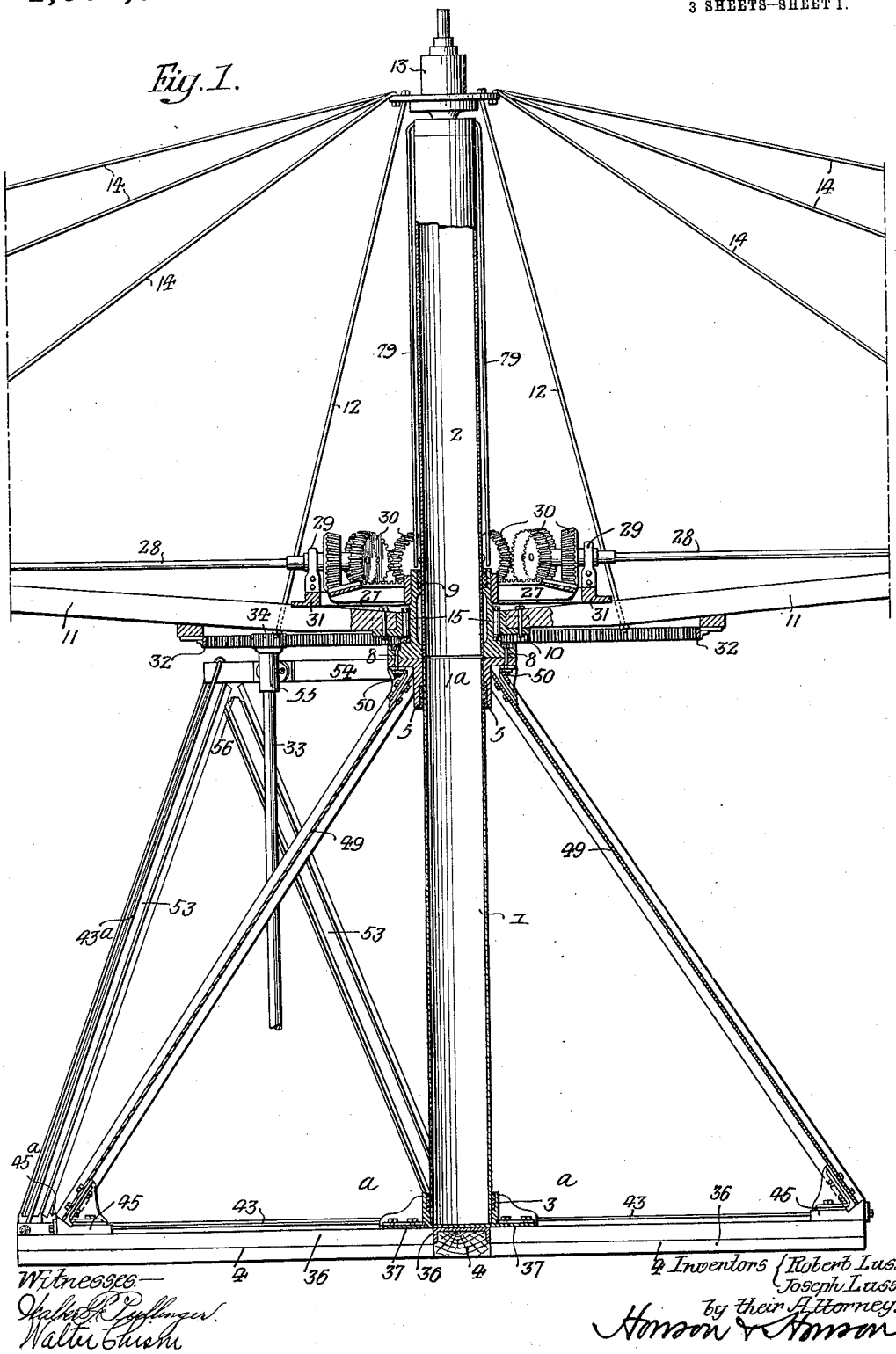
APPLICATION FILED JULY 20, 1911.

1,033,716.

Patented July 23, 1912.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.—

Walter Ehrsam

Inventors { Robert Lusse, Joseph Lusse

by their Attorneys.

Howson & Howson

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

R. & J. LUSSE.

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3 SHEETS—SHEET 2.

Fig. 2.

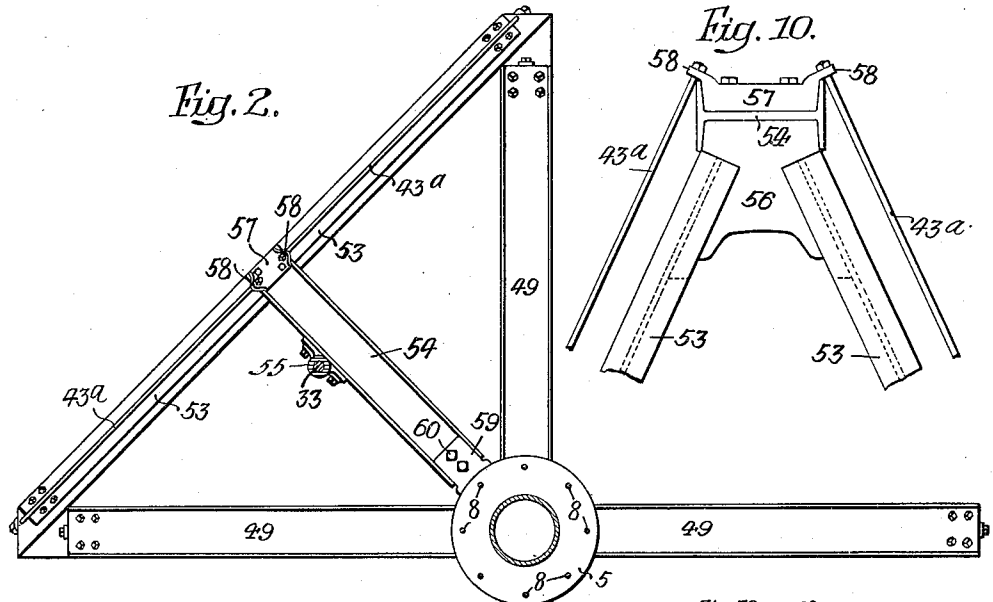


Fig. 10.

Fig. 5.

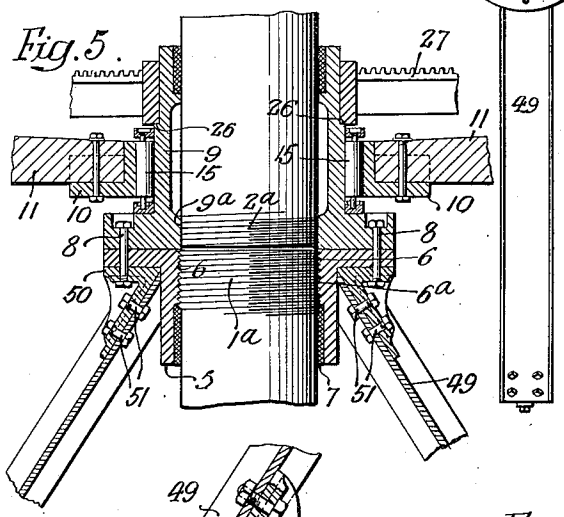


Fig. 8.

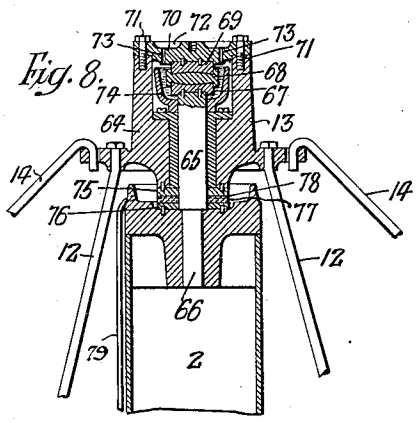
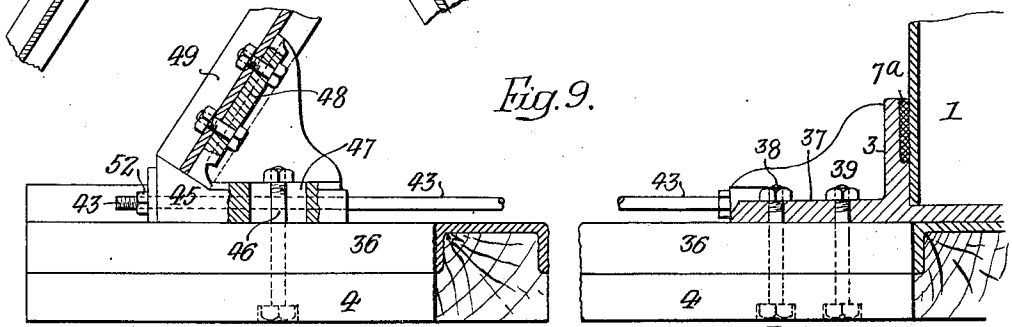


Fig. 9.



Witnesses.—
Walter R. Dallmeyer
Walter Chiom

Inventors—Robert Lusse
Joseph Lusse
by their Attorneys.—
Hanson & Hanson

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

R. & J. LUSSE.

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3 SHEETS—SHEET 3.

Fig. 3.

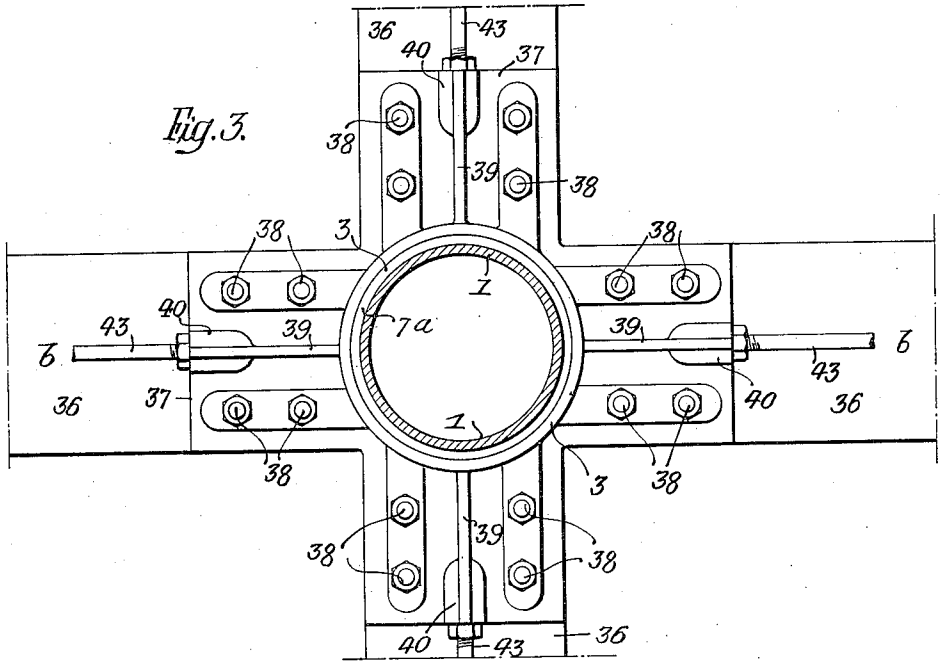


Fig. 4.

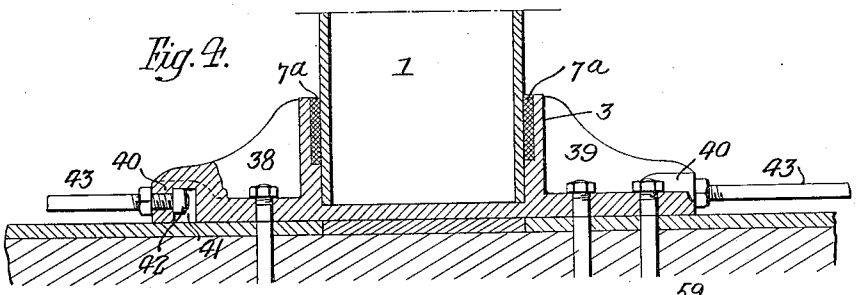


Fig. 11.

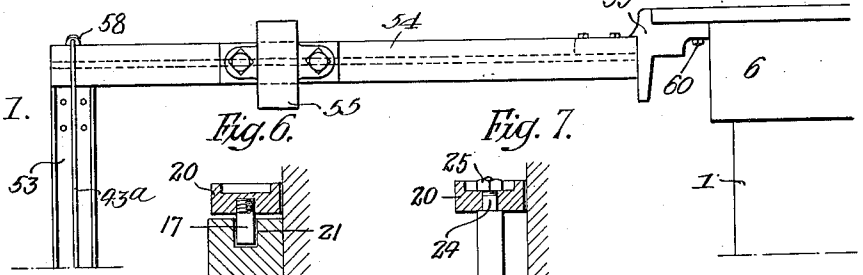


Fig. 6.

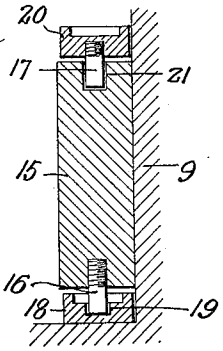
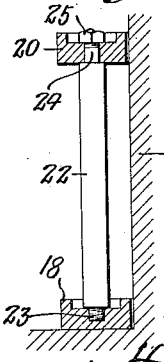


Fig. 7.



Witnesses.—
Walter F. Dullinger
Walter Chum

Inventors.—
Robert Lusse
Joseph Lusse
by their Attorneys.
Howson & Howson

UNITED STATES PATENT OFFICE.

ROBERT LUSSE AND JOSEPH LUSSE, OF PHILADELPHIA, PENNSYLVANIA.

CAROUSEL.

1,033,716. Specification of Letters Patent. Patented July 23, 1912.

Application filed July 20, 1911. Serial No. 639,604.

To all whom it may concern:

Be it known that we, ROBERT LUSSE and JOSEPH LUSSE, citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Carousels, of which the following is a specification.

Our invention relates to carousels; and the object of our invention is to provide a structure having increased strength and rigidity and capable of withstanding unusual strain and wear to which structures of this character are subjected.

A further feature is to provide means whereby the rotating portion may be leveled and the mast centered vertically, where uneven foundation conditions are encountered, and a still further feature is to provide improved means connecting the several parts of the structure together and to provide improved bearings for the movable parts of the structure.

These and other features of our invention are more fully described hereinafter, reference being had to the accompanying drawings, in which:

Figure 1, is an elevation, partly in section, of supporting and adjusting means for a carousel structure embodying our invention; Fig. 2, is a plan view of the lower part of the structure shown in Fig. 1; Fig. 3, is a sectional plan view, enlarged, on the line *a—a*, Fig. 1; Fig. 4, is a sectional elevation on the line *b—b*, Fig. 3; Fig. 5, is an enlarged sectional view of the connection for the mast sections; Figs. 6 and 7, are enlarged views of details of the construction shown in Fig. 5; Fig. 8, is an enlarged sectional view of the cap bearing at the upper end of the mast; Fig. 9, is an elevation, partly in section, of one of the sleepers, showing its connection with the mast and one of the bracing elements, and Figs. 10 and 11, are views illustrating details of the construction embodying our invention.

In the drawings, 1 represents the lower section, and 2 the upper section of a central tubular mast supporting the rotating mechanism carrying the animals, figures, carriages and other parts of the structure. The lower section of the mast may be stepped in a suitable base member 3 serving as a guide, and disposed in the center of a cruciform base made up of sleepers 4.

At the upper end of the lower section 1 of the mast, a collar 5 may be attached by suitable means; the said collar being preferably threaded at 6 to receive the threaded upper end 1^a of the lower mast section. The lower portion of the collar is slightly larger in diameter than the mast and the space thereby formed may be and preferably is calked with metal, lead for instance, indicated at 7. The base member 3 is similarly constructed and the space between the same and the mast is calked as indicated at 7^a. This collar 5 may be secured, by bolts 8 or other suitable means, to a collar 9 carried by the lower end of the upper mast section 2, which collar is threaded at 9^a to receive the threaded lower end 2^a of said upper mast section. The collar 9 supports a ring 10 carrying radially disposed arms 11, from which the animals, figures, carriages &c., forming the carousel structure, may be suspended. The arms may be supported by bars or rods 12 having their upper ends secured to a cap bearing 13 carried by the upper mast section 2 and suitably journaled thereon, and stayed by guy rods 14 carried by the outer ends of said arms 11 and also secured to said cap bearing 13.

Interposed between the collar 9 and the ring 10 supporting the inner ends of the radial arms 11, are rollers 15, vertically disposed and journaled by means of spindles or pins 16 and 17. The pins or spindles 16 are disposed in the lower ends of said rollers and may be threaded into or otherwise secured to the same; such pins or spindles being preferably journaled in a ring 18 carried by the flange on said collar 9 and recessed or socketed at 19 to receive the same. The pins or spindles 17 are preferably carried by a ring 20 surrounding the collar 9 above the ring 18; being threaded into or otherwise secured to said ring, and these pins enter recesses or sockets 21 in the ends of said rollers 15. The rings 18 and 20 have their upper faces grooved to form oil channels, and the pins 16 and 17 are preferably loosely journaled in the lower ring and the rollers respectively so that said rollers will be relatively free.

The rings 18 and 20 are connected together and spaced apart by shouldered pins 22; the lower ends 23 of the same being threaded into the lower ring 18, while the upper ends 24 pass through the upper ring 20 and are secured by nuts 25. The arms 11 are sup-

ported wholly by the rods or bars 12 and 14, and as any centrifugal force developed during the rotation of the structure tends to throw them outwardly from the mast, the vertical rollers 15 form an admirable anti-friction bearing. In addition, the collar 9 is shouldered at 26 to support a bevel gear wheel 27, which is secured in place by suitable means, whereby movement may be imparted to a series of horizontal shafts 28, journaled in bearings 29 carried by said arms 11, through the medium of bevel pinions 30, to effect vertical movement of the horses or other animals carried by the structure, through suitable cams or cranks, (not shown). The inner bearings for these shafts may be carried by an annular member or ring 31 mounted on top of said arms 11. The arms 11 also support an internally racked ring 32 whereby motion may be imparted to the rotatable structure comprising said arms and the elements supported thereby, through the medium of a suitable motor driving a vertical shaft 33, having a pinion 34 at its upper end in engagement with said rack. The ring 10 carrying the arms 11 is journaled on the sleeve or collar 9 carried by the upper section of the mast so as to rotate with respect to said mast, while the gear wheel 27 is fixed to said sleeve by a suitable clamp sufficiently tight to drive any ordinary load, but intended to slip in case of an accident or unusual circumstances, to avoid breakage of gears or other parts, and this gear wheel performs the function of a rack which, when engaged by the bevel pinions 30, serves to drive the same and the shafts to which they are connected. The cap bearing journaled at the top of the upper mast section is more fully described hereinafter.

The lower guide or support for the central mast of the structure is carried by a cruciform base, comprising sleepers 4 having upon their upper surface metal elements, preferably channel beams 36, and at the center of this cruciform structure the guide or base member 3 receiving the lower section 1 of the mast is secured. This guide or base member has a cupped portion in which said mast section is calked as at 7^a, and this base portion is provided with projecting feet 37 overlying the sleepers 4, and secured thereto by bolts 38; said feet having strengthening ribs 39 which are preferably thickened, as indicated at 40, to accommodate recesses 41 for the reception of nuts 42 carried by tension rods or bolts 43. By preference the bolts 38 anchoring said base member 3, extend entirely through the sleepers 4, as indicated in Fig. 9. At the outer ends of the sleepers, shoe pieces 45 are provided, anchored to said sleepers by means of bolts 46 adapted to slots 47 in said shoes, and these shoes have angular supporting portions 48 receiving the ends of channel members 49 disposed at an angle with respect to the vertical and extending from said shoe pieces 45 to the collar member 6 at the upper end of the lower section 1 of the tubular mast. The upper ends of the channel members 49 engage shoes 50 which are secured to the flange of said collar 6 by the bolts 8, while said channel members are secured to the several shoe-pieces by bolts 51.

For the purpose of centering the structure and bringing the mast to a vertical position, we provide tension rods or bolts 43 connected or anchored to the base member 3 receiving the lower section of the mast and extending through the shoe pieces 45 disposed at the outer ends of the sleepers; such tension rods or bolts having nuts 52 at their outer ends so that said shoe pieces with the channel members may be moved in and out with respect to the end of the sleepers to effect the desired adjustment of the mast. During this adjustment, the bolts 46 connecting the shoe pieces 45 to the sleepers are released, and the range of adjustment, of course, is limited by the length of the slots in said shoes.

To support the vertical shaft 33 whereby the rotatable portion of the structure may be driven, we provide an A-frame, consisting of a pair of I-beams 53 disposed at an angle with respect to each other and extending from the ends of two of the sleepers to a point substantially on the same level as the upper portion of the collar 6 carried by the lower section of the mast, and between this pair of beams and said collar an I-beam section 54 may be placed to carry a suitable journal support 55 for said shaft. The I-beams 53 are connected at their lower ends to shoe-pieces 45^a carried by the sleepers; the ends of such sleepers being suitably connected together, and at their upper ends said I-beams are in engagement with a filler member 56 on the under side of the I-beam section 54. On the upper side of this I-beam section a filler member 57 is placed; the two filler members being bolted together, and the upper one is provided with apertured ears 58 for connection with tension rods or bolts 43^a extending from the channel members. The inner end of the I-beam section 54 is secured to a bracket 59 secured to the flange of the collar 6 by bolts 60.

The cap plate is fully shown in Fig. 8, and comprises a casting element 64 having suitable apertures for the reception of guy and tension rods supporting the structure. It carries a central stem 65, with reduced end 66 adapted to a plug at the upper end of the upper section of the mast; the upper end of this spindle carrying a hardened steel element 67 upon which is placed a bronze bearing disk 68 and on top of the bronze disk is another steel element 69 carried by a cover plate 70 secured to said casting by bolts 71.

This cover plate is provided with an oil groove 72, with ducts 73 leading to a cup 74 within the casting receiving the several disks. The space between the casting and the plug carried by the upper mast section is preferably filled by a series of bearing disks, comprising steel plates 75 and 76, secured against movement by suitable dowels, with a bronze disk 77 interposed between the same and grooved at 78 to receive lubricant. This plug may be hollowed on the top to receive oil originally, atlhough in practice sufficient lubricant will find its way down past the main spindle to keep these bearing disks in proper shape. If desired, means may be employed to convey surplus lubricant collecting in this space to a point adjacent the rings carrying the rollers 15, in the shape of tubes 79.

We claim:

1. In a carousel, the combination of a central mast, a base receiving the same, supporting members for said base, inclined members extending from the ends of said base supporting members to the mast, and means for radially adjusting said inclined members to position the mast.

2. In a carousel, the combination of a central hollow mast, a base receiving the same, supporting members for said base disposed radially with respect to the mast and at right angles with respect to each other, inclined members extending from the ends of said base supporting members to the mast, and radially adjustable shoes mounted on said base and connected to the lower ends of said inclined members.

3. In a carousel, the combination of a sectional mast centrally disposed, a base for said mast, supporting members for said base, a collar carried by said mast, inclined members extending from the ends of said base supporting members to the collar carried by the mast, and rotatable bolts anchored in the base for radially adjusting the outer ends of said inclined members to position the mast.

4. In a carousel, the combination of a hollow sectional mast centrally disposed, a base for said mast, supporting members for said base disposed radially with respect to the mast and at right angles with respect to each other, a collar carried by said mast, inclined members extending from the ends of said base supporting members to the collar carried by the mast, rotatable bolts anchored in the base for radially adjusting said inclined members to position the mast, and shoes supporting said inclined members and adjusted by means of said bolts.

5. In a carousel, the combination of a central mast made in two sections, collars carried by said sections at their abutting points, means for securing said collars together, a base for the lower section of said mast, supporting members for said base, inclined supports extending from the ends of said base supporting members to the mast, slidable shoes carried by said base members and connected to the lower ends of said inclined supports, and bolts anchored to said base and passing through said slidable shoes for adjusting said inclined members to position the mast.

6. In a carousel, the combination of a mast made in a plurality of sections which butt, collars carried by said sections, means for securing said collars together, inclined members for holding the mast in vertical position, adjustable shoes carried by the lower ends of said members whereby they may be radially adjusted, a rotatable structure supported by said mast, a rotatable member carried by the upper end of the upper section of the mast, and connecting means between the rotatable structure and said rotatable member.

7. The combination, in a carousel, of a mast made in a plurality of sections, a base member for the lower section, a collar carried by the upper end of the same, sleepers connected to said base member, inclined supporting elements extending from the outer ends of said sleepers to the collar of said lower section, shoe-pieces carried by said sleepers and the collar receiving the ends of said supporting elements, and means for adjusting said shoe pieces and supporting elements with respect to the sleepers upon which they are mounted.

8. The combination, in a carousel, of a mast made in a plurality of sections, a base member for the lower section, a collar carried by the upper end of the same, sleepers connected to said base member, inclined supporting elements extending from the outer ends of said sleepers to the collar of said lower section, shoe-pieces carried by said sleepers and the collar receiving the ends of said supporting elements, means for adjusting said shoe-pieces and supporting elements with respect to the base member, an upper mast section, a collar carried by the lower end of the same, means for securing said collars together, a bearing carried by the collar of the upper mast section, a rotating structure adapted to said bearing, a rotatable member carried by the upper end of the upper mast section, and an anti-friction bearing for said member.

9. The combination, in a carousel, of a mast made in a plurality of sections, a base member for the lower section, a collar carried by the upper end of the same, sleepers connected to said base member, inclined supporting elements extending from the outer ends of said sleepers to the collar of said lower section, adjustable shoe-pieces carried by said sleepers, shoe-pieces carried by said collar, the ends of said supporting elements engaging both sets of said shoe-pieces, means

for adjusting the shoe-pieces carried by said sleepers with respect to the base member, an upper mast section, a collar carried by the lower end of the same, means for securing said collars together, a bearing carried by the collar of the upper mast section, a rotating structure adapted to said bearing, a fixed rack carried by said collar, shafts carried by the rotating structure, and pinions carried by said shafts in engagement with said fixed rack.

10. The combination, in a carousel structure, of a base member, a mast mounted therein, a sleeper connected to said base member, an inclined support extending from the end of the sleeper to the mast, means for securing said inclined support to the mast, a movable shoe-piece mounted on the sleeper and receiving the lower end of the inclined support, and means for adjusting the shoe-piece with respect to the base member to effect changes in the position of said inclined support to insure vertical centering of the mast.

11. The combination, in a carousel structure, of a base member, a mast mounted therein, a sleeper connected to said base member, an inclined support extending from the end of the sleeper to the mast, means for securing said inclined support to the mast, a movable shoe-piece mounted on the sleeper and receiving the lower end of the inclined support, a bolt or rod anchored in the base member and passing through said shoe-piece, and a nut for said bolt or rod whereby it may be adjusted with respect to the base member to effect changes in the position of said inclined support to insure vertical centering of the mast.

12. The combination, in a carousel structure, of a base member, a mast mounted therein, sleepers disposed at right angles to each other connected to said base member, a plurality of inclined supports extending from the ends of said sleepers to the mast, a collar having shoes for securing said inclined supports to the mast, movable shoe-pieces mounted on the sleepers and receiving the lower ends of the inclined supports, bolts or rods anchored in the base member and passing through said movable shoe-pieces, and nuts for said bolts or rods whereby they may be adjusted with respect to the base member to effect changes in the position of the inclined supports to insure vertical centering of the mast.

13. In a carousel, the combination of a mast having a supporting flange, a rotating structure mounted on said flange, rollers interposed between said rotating structure and the mast, means for supporting said rollers comprising a pair of rings spaced vertically and connected together, and pins carried by said rollers and one of the rings whereby the rollers may be journaled in said cage.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

ROBERT LUSSE.
JOSEPH LUSSE.

Witnesses:
MURRAY C. BOYER,
WM. A. BARR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."