

[54] **TRAILER MOUNTED COLLAPSIBLE
ROUNDAABOUT**

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187/8.72; 272/37; 272/51**

[51] Int. Cl.² **A63G 1/10; A63G 1/28**

[58] Field of Search **272/29, 37, 39, 41, 42,
272/43, 51, 36, 7, 28 R, 28 S, 31 R, 33 R, 34,
35, 36, 38, 40, 49, 50; 187/8.49, 8.71, 8.72;
64/6, 7, 27 NM, 14; 267/21 R, 21 A**

3,243,184 3/1966 Robinson et al. 272/36
3,330,381 7/1967 Halstead 187/8.72

FOREIGN PATENTS OR APPLICATIONS

1,288,494 1/1969 Germany 272/36

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[57] **ABSTRACT**

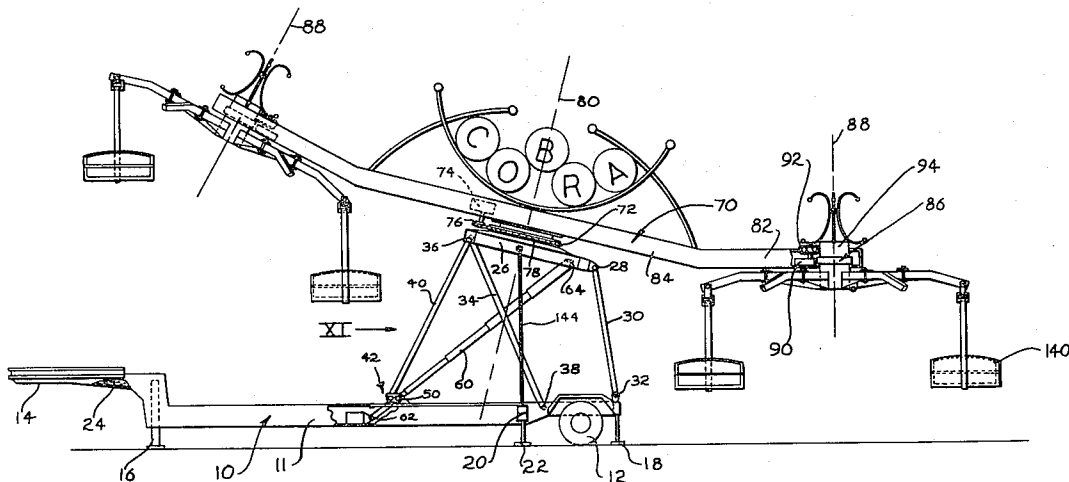
An amusement ride in which a rotary beam member is supported at the center on a platform and has suspended, at the outer ends thereof, groups of passenger compartments which groups are, in turn, rotatable on the beam. The platform is mounted on a trailer bed and is lowered thereon for transport and is raised upwardly on the bed for use. The platform is fixedly secured to the trailer bed when in elevated position and the entire structure is laterally and vertically braced to form a solid support on which the beam and groups of passenger compartments are driven in rotation.

10 Claims, 11 Drawing Figures

[56] **References Cited**

UNITED STATES PATENTS

804,771	11/1905	Sawyer.....	187/8.49
2,280,643	4/1942	Courtney	272/51
2,712,742	7/1955	Neidhart.....	64/14
2,847,216	8/1958	Courtney	272/29 X
3,176,983	4/1965	Barber	272/29



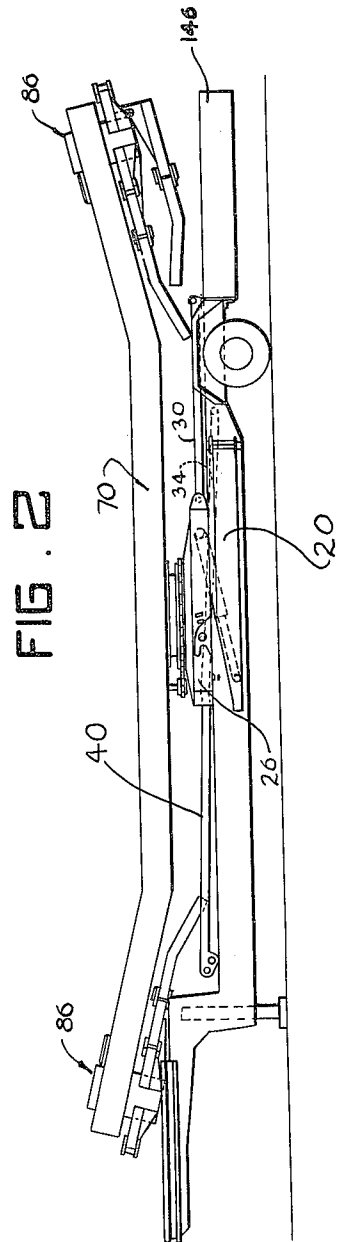
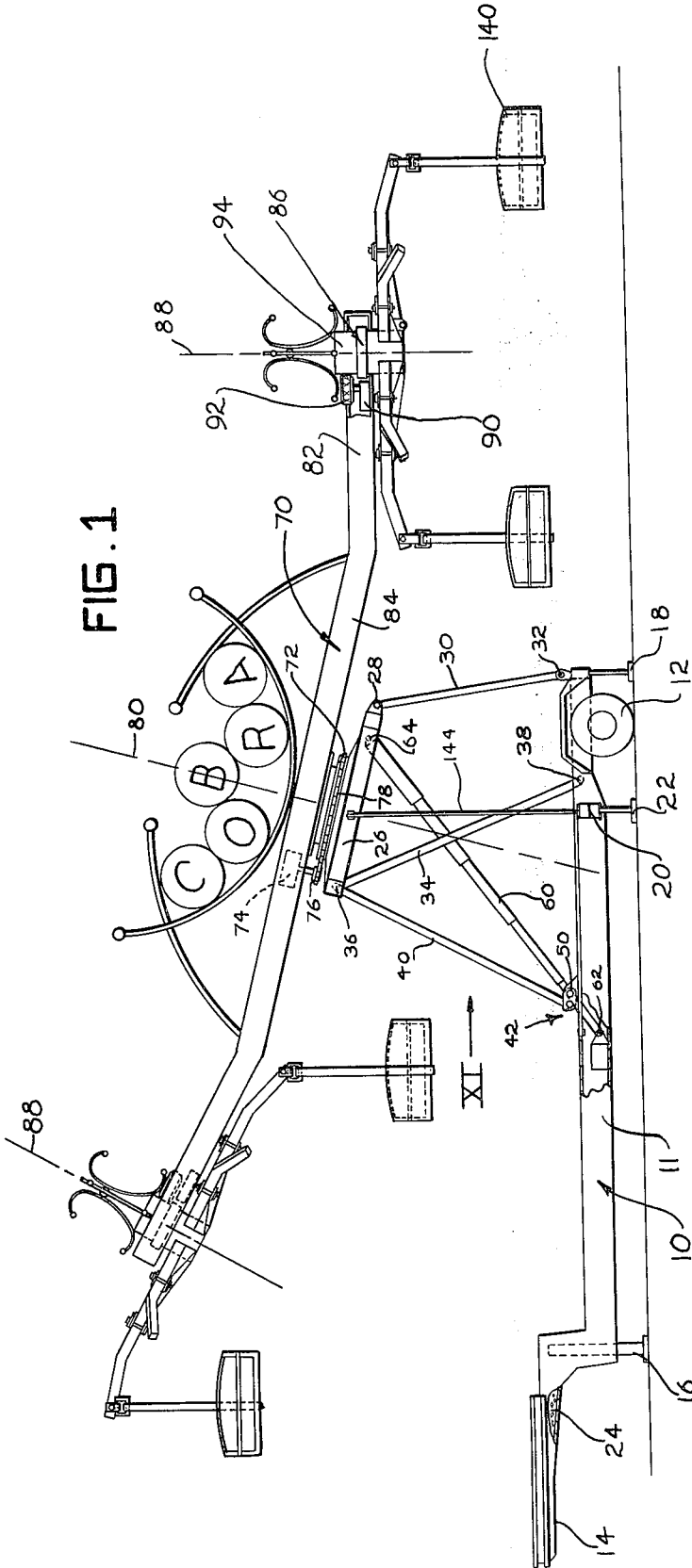


FIG. 3

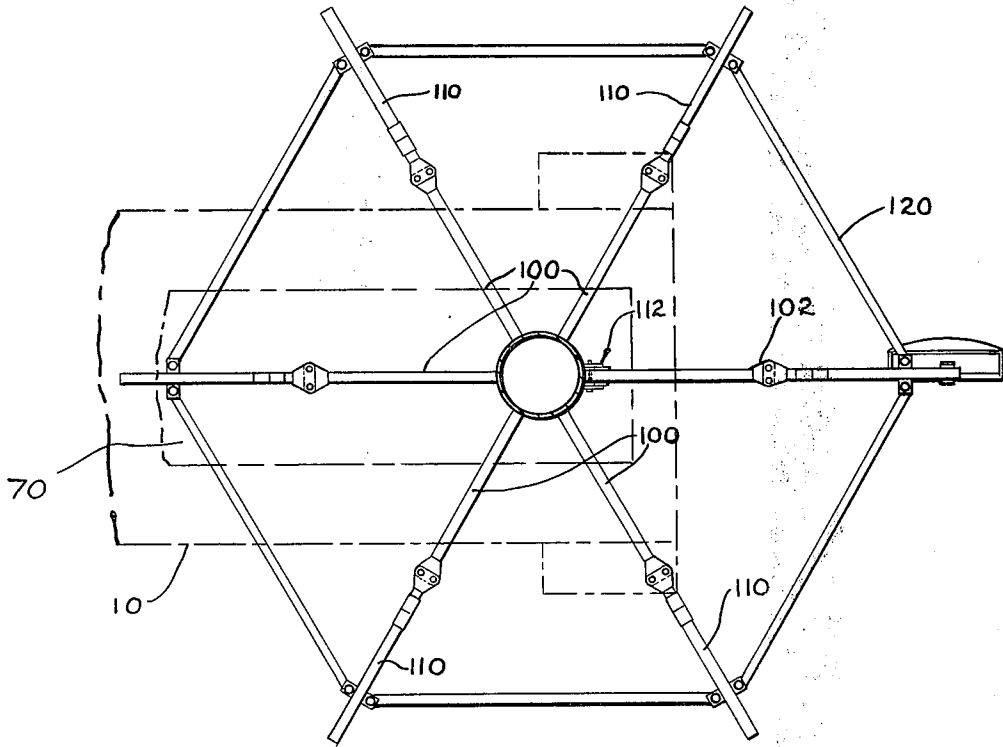


FIG. 4

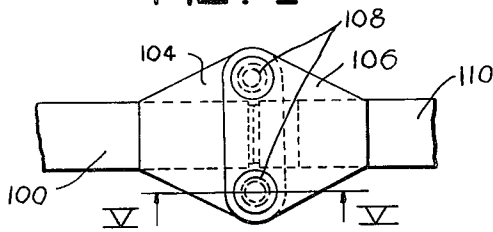


FIG. 6

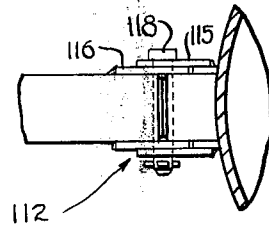


FIG. 5

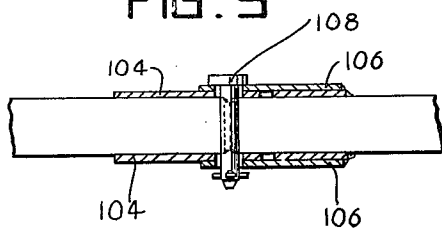


FIG. 7

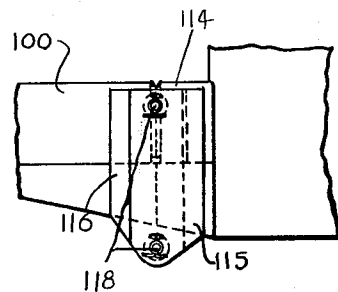


FIG. 8

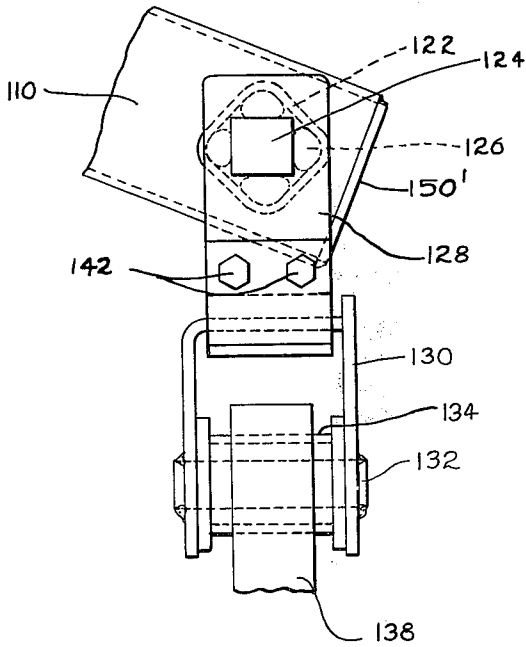


FIG. 9

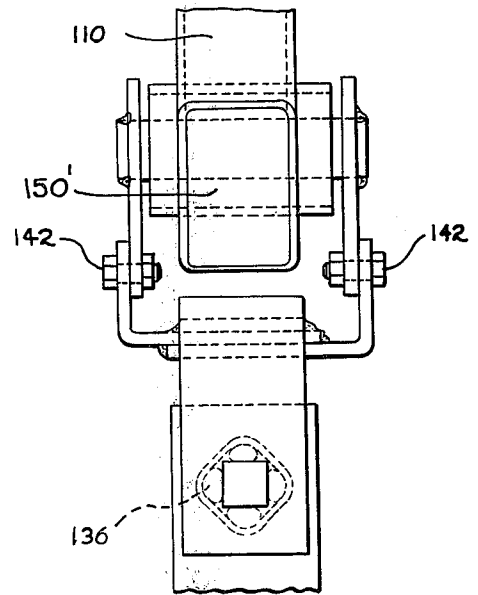


FIG. 11

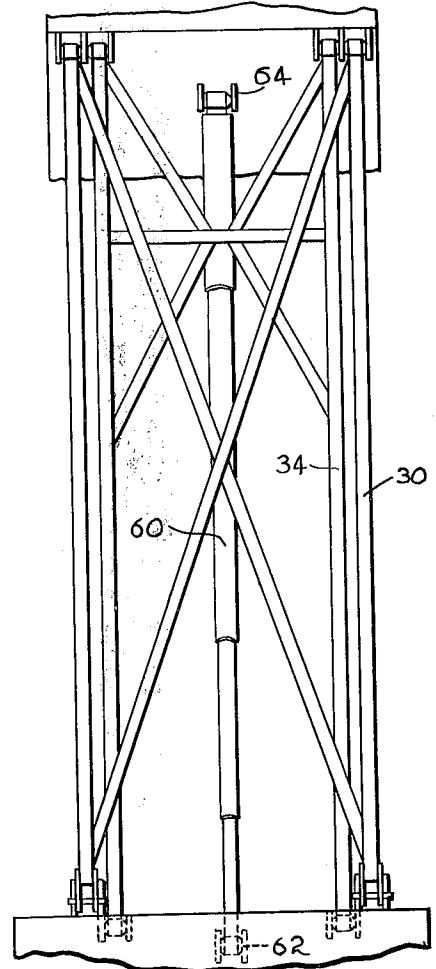
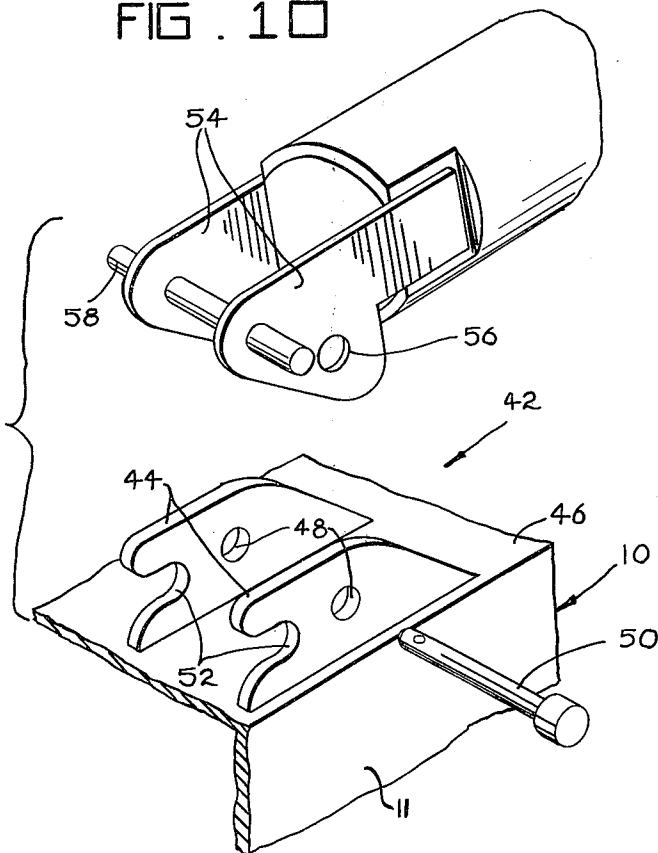


FIG. 10



TRAILER MOUNTED COLLAPSIBLE ROUNDABOUT

The present invention relates to an amusement ride, or roundabout, and is particularly concerned with an amusement ride which is trailer mounted and which can quickly be erected for use or collapsed for transport.

Amusement rides are known and are widely employed and quite often are of a type that can be transported from place to place. When the amusement ride is constructed so as to be transportable, it is extremely important to be able to erect the ride into operative position and to collapse the ride for transport in the shortest possible time and with the employment of as little labor as possible.

The amusement ride must, however, be extremely strong so as to be free of hazards of accidental collapse and tilting, and the like.

With the foregoing in mind, the primary objective of the present invention is the provision of an amusement ride which is mounted on a trailer bed and which can be erected and collapsed quickly and with a minimum of labor.

Another objective of the present invention is the provision of an amusement ride of a novel type which is readily moveable from place to place.

BRIEF SUMMARY OF THE INVENTION:

According to the present invention, a trailer bed is provided of the type in which the portion between the rear wheels and the point of connection to a towing vehicle is at the lowest practical height from the road. Such trailer are known, being referred to as flat bed trailers, and are employed for transporting objects having substantial height.

Carried on the trailer bed is a platform which is swingably connected to the trailer bed by frame members spaced longitudinally of the trailer bed so that the platform can be raised in substantial parallelism with itself from a lower position to an elevated working position.

When in working position, the platform is locked to the trailer bed by a third frame member so that the platform is rigidly supported in its elevated position. Rotatably connected to the platform in about the middle of its length is an elongated beam with drive means for the beam being provided on the platform.

At the outer ends of the beam there are suspended groups, or clusters, of passenger compartments which are tiltable on the beam and which are also rotatable about a respective axis of the group substantially perpendicular to the beam. Drive means are provided on the beam at the ends for rotating the groups of passenger compartments about the respective axes of the groups.

When the platform is in elevated operative position, outriggers pivoted to the sides of the trailer are placed in outward bracing position and support members at the front and rear ends of the trailers are adjusted into engagement with the surface beneath the trailer and, thus, an extremely rigid support is provided for the platform and arm. The platform supporting the beam is advantageously braced on the extended outriggers.

The exact nature of the present invention will become more apparent upon reference to the following detailed specification taken in connection with the accompanying drawings, in which:

FIG. 1 is a side elevational view of the amusement ride according to the present invention in erected position.

FIG. 2 is a side elevational view of the amusement ride in collapsed transport position.

FIG. 3 is a plan view looking down on top of one end of the main beam showing the arrangement thereon of the passenger compartments. FIG. 4 is a plan view drawn at enlarged scale showing a joint in a support arm which carries a passenger compartment.

FIG. 5 is a sectional view indicated by line V—V on FIG. 4.

FIG. 6 is a plan view drawn at enlarged scale showing a pivot for one of the passenger compartment support arms.

FIG. 7 is a side view of the pivot of FIG. 6.

FIG. 8 is a fragmentary view drawn at an enlarged scale showing the pivotal connection between a passenger compartment and the support arm therefor.

FIG. 9 is a view looking in from the right side of FIG. 8.

FIG. 10 is a perspective view showing the manner in which a bracing frame member for the platform is connected to a bracket provided therefor on the trailer frame work.

FIG. 11 is a view looking in at the left side of the platform and the supporting frame work therefor as indicated by arrow 11 on FIG. 1.

DETAILED DESCRIPTION OF THE INVENTION:

Referring to the drawings somewhat more in detail, FIGS. 1 and 2, showing a flat bed trailer arrangement 10 having a frame 11 with ground wheels 12 at the rear end and a coupling device 14 at the forward end for connection of the trailer to a towing vehicle.

Vertically retractable pads are provided on the trailer for fixedly supporting the trailer when the ride is to be put in use. These pads comprise pads 16 near the front of the trailer and 18 at the rear of the trailer. The pads are, of course, along both sides of the trailer. Further, the trailer bed is provided with outrigger arms 20 which can be swung outwardly at the sides of the trailer and which, in turn, comprise ground engageable pads 22.

In FIG. 1, the outrigger arms 20 are shown in outer supporting position, and in FIG. 2 the outrigger arms 20 are shown collapsed inwardly against the sides of the trailer frame. For purposes of further stability, the forward end of the trailer may have a cavity which is weighted as by concrete 24 poured into the cavity.

A ride support platform 26 is provided which at the rearward end has pivotally connected thereto as at 28, the upper end of a support frame member 30, the lower end of which is pivoted at 32 to the trailer frame. A further frame member 34 is pivoted on pivot axis 36 to the forward end of platform 26 with the lower end of the frame member 34 being pivoted at 38 to the trailer frame.

The frame members 30 and 34, as will be seen in FIG. 1, are not parallel and will support the platform 26 in elevated position so that the platform inclines downwardly toward the rear of the trailer. When platform 26 is collapsed downwardly on the trailer bed, however, members 30 and 34 hold the platform substantially parallel to the longitudinal axis of the trailer and frame.

Also pivoted to the support platform 26 on the forward pivot axis 36 is a further frame member 40, the lower end of which is adapted for connection to the

trailer frame as by the bracket means, generally indicated at 42.

The bracket means, generally indicated at 42, is illustrated in detail in FIG. 10. In FIG. 10, the bracket means will be seen to comprise a pair of spaced plates 44 fixedly connected to the longitudinal members 46 of frame 11 of trailer 10 and formed with apertures 48 for receiving a pin 50 and also formed with notches 52 in the forwardly facing edges.

Frame member 40, of which one side is shown in FIG. 10, has extending therefrom a pair of plates 54, each of which is supplied with an aperture 56 and through which plates there extends a pin 58.

When the platform 26 is in its FIG. 2 collapsed position, frame member 40 extends forwardly therefrom along the trailer bed. When the platform is raised upwardly to working position, however, the leftward end of frame member 40 slides along the trailer bed and pin 58 will enter notches 52 of plates 44 and thereby halt platform 26 in the proper elevated position and whereupon lock pin 50 can be inserted through apertures 48 and 56 and thereby lock the platform in its elevated position.

FIG. 11 shows the platform in elevated position from the left side and shows that a telescoping hydraulic cylinder arrangement 60 is provided for raising and lowering platform 26 and having the lower end pivoted at 62 to the trailer bed and having its free end pivoted at 64 to the underneath side of platform 26 near the rearward end thereof.

FIG. 11 will also show the frame members 30 and 34. It will be seen that each of these frame members comprise parallel side rails rigidly interconnected by diagonal bracing and the like. The frame members are advantageously formed of tubing for the greatest strength and lightest weight.

Pivotally supported on the upper side of platform 26, as by suitable bearing means, is an elongated beam member 70. Fixedly mounted on the upper side of platform 26 is a sprocket 72 and mounted on beam 70 is a drive motor 74 which has a geared down output shaft on which a sprocket 76 is mounted, which is coplanar with sprocket 72. A chain 78 is entrained about the sprockets and, thus, when motor 74 is energized, the beam 70 will be caused to rotate about the axis 80 on which it is pivotally supported.

Motor 74 is preferably an electric motor and power is supplied thereto by any suitable slip ring arrangement from a power source external of the amusement ride arrangement. The beam 70 is preferably a box-like member for high strength and light weight and at each end has a portion 82 which is bent upwardly from the axis of the center portion 84 of the beam, at an angle of about 20 degrees. The amount which the end portions 82 of the beam are bent upwardly from center portion 84 thereof is such that the one of portions 82 which is lowermost when beam 70 is in a fore and aft position on the trailer is substantially horizontal and thereby presents the passenger compartments supported thereon in loading position.

Near the outer end of each of the bent up portions 82 of the beam, there is rotatably supported a structure, generally indicated at 86, and each of which is rotatable on a respective axis 88 on the beam 70. For rotating the structure 86, the beam 70 has at each end a motor 90 with a geared down output shaft on which a friction member 92 which may be a pneumatic vehicle

tire, is mounted and which frictionally engages a cylindrical portion 94 of the adjacent rotary structure 86.

Each rotary structure 86 and which can be best seen in FIGS. 3 through 7, comprises a plurality of, say six, radiating arms. Five of the arms comprise radially inner portions 100 fixedly connected to the rotary structure and projecting radially therefrom to a joint structure 102. Each joint structure 102 is constructed, as will be seen in FIGS. 4 and 5, of plate members 104 and 106 connected to the top and bottom of the respective arm portions and in overlapping relation. The plates 104 and 106 have registering apertures adapted for receiving pins 108. When the arm portions consisting of the radially inner portion 100 and the radially outer portion 110 are placed together and the pins 108 put in place, each arm structure will be rigidly supported on the respective rotary structure 86.

One of the radially inner portions 100 at each end of the main arm 70 is pivotally connected to the rotary structure 86 by a separable connector or pivot means, generally indicated at 112, and shown at enlarged scale in FIGS. 6 and 7. Each of the arrangements 112 comprises a bracket 114 fixedly welded to the rotary member and having plates 115 fixed to the sides thereof.

The respective radially inner portion of the pertaining passenger compartment support arm has plates 116 on the opposed sides which overlap plate 115. Holes provided in the plates receive pins 118.

As will be seen in FIG. 2 at the rearward end of the main beam 70, the respective passenger compartment support arm is merely pivoted backwardly beneath main beam 70 for transporting of the device, whereas at the forward end the pertaining passenger compartment support arm is removed from the assembly. In each case, the passenger compartment support arm directly opposite the arrangement 112 can be rigid since this particular passenger compartment support arm is directed toward the center of the vehicle and creates no problems when the ride is collapsed and is being transported.

As will be seen in FIG. 3, the rearward arm is provided with a connector or pivot 112 so that it can either be pivoted backwardly underneath the main beam or dismantled completely therefrom while the passenger compartment support arm diametrically opposed thereto can be rigid and remain in assembled position. The four passenger compartment support arms extending laterally are adapted for being separated at joint 102 thereby to fall substantially within the lateral limits of the bed of trailer 10.

When the passenger compartment support arms are erected lateral bracing elements 120 are connected therebetween to make up a substantial rigid structure.

FIGS. 8 and 9 show how the passenger compartments are supported on the outer ends of the respective radially outer portions 110 of the passenger compartment support arms. Each radially outer portion 110 has a square member in the form of a tube 122 therein and extending coaxially therethrough in a rotated position is another square member 124 of smaller size. Nested into the inside of each corner of larger tube 122 and bearing against the opposed side of inner tube 124 is a rubber like resilient member 126. Connected to inner square member 124 is a dependant bracket 128 and fixedly secured thereto and dependant therefrom is a further bracket 130. Extending between the opposed legs of bracket 130 is a smaller square member 132, the

axis of which is at right angles to the axis of square members 122 and 124 above referred to.

Surrounding square member 132 is a square tube 134 of larger size and, as will be seen in FIG. 9, resilient blocks 136 are provided which are nested into the corners of tube 134 and which bear against the opposed flat sides of square member 132. Fixed to the larger tube 134 and dependant therefrom is a rod 138 which may be in the form of a tube and at the lower end of each rod 138 there is fixedly connected a respective passenger compartment 140.

The arrangement of the telescoping square tubular members of different size with the rubber-like blocks interposed therebetween provides for efficient swinging support of the passenger compartments on the respective support arms, while at the same time the support is resilient and the movement of the passenger compartments is thereby controlled so that the amount of swinging of the passenger compartments on the respective support arms is relatively free while being resiliently opposed by an ever increasing restoring force.

The sensation of substantially free motion is thereby obtained when the ride is operated; while at the same time no dangerous conditions are established because of the restoring forces established by the resilient blocks 126 and 136 when the passenger compartments swing away from the rest position thereof, which they are shown at the right side of FIG. 1.

One or the other of brackets 128 and 130 may be separable and secured together by bolts 142, as shown in FIGS. 8 and 9. The separability of a bracket permits the passenger compartments to be removed from the support arms therefor when the ride is to be collapsed.

As mentioned, brace rods 144 can be connected in substantially vertical positions between the sides of the platform 26 and the outrigger arms 20 when the platform is elevated. The brace rods 144 arc, of course, removed for collapsing the ride into transport position.

To collapse the ride, the passenger compartments are removed and may be stored in a compartment 146 at the rear end of the trailer bed. The passenger compartment support arms are then adjusted into transport position and the brace rods 144 are removed. Motor 60 is then energized to support the weight of the ride and lock pins 50 are removed. The fluid can now be released from fluid motor 60 at a controlled rate and the platform 26 will pivot downwardly to transport position with the lower end of support frame member sliding forwardly along the trailer bed.

With respect to adjustment of the support arms for the passenger compartments into transport position, reference may be had to FIG. 3 which shows the rotary passenger compartment supporting structure at the rear end of the trailer. When the structure is broken down for transport, brace elements 120 are removed, and the radially outer sections 110 pertaining to the laterally extending support arms are removed, while the rearwardly extending support arm is hinged downwardly by hinge means 112 so as to lie underneath main beam 70. The support arm extending to the left can remain in position beneath beam 70 as it is shown in FIG. 2.

At the front end of the trailer, the same adjustments are made except that the passenger support arm which extends forwardly is completely removed rather than being folded under beam 70.

Beam 70 is, of course, in a fore and aft position and when the ride is fully collapsed is secured fixedly to the trailer bed. The support pads 16 and 18 can now be retracted and the outrigger arms 20 moved to retracted position and the ride is ready for transporting.

FIG. 1 shows a decorative superstructure arrangement 150 and it will be understood that this superstructure is preferably dismantled for transport to reduce the height of the collapsed ride. The various electrical connections, and the like, within the ride structure can be made in a conventional manner.

For the purpose of keeping the structure light, as well as strong, tubular steel members are employed where ever possible, for example, in connection with the frame members which support platform 26 and in connection with the passenger compartment support arms. For protecting the tubular members against rust and corrosion, and to prevent damage thereto by deformation of the end parts during assembling and disassembling of the ride, each such tubular member is provided at the ends with welded in closure caps. A typical closure cap of this nature is illustrated at 150' in FIGS. 8 and 9, for example.

The device illustrated makes reference to removal of the carriages, or cabs, for storage in a compartment mounted on the rear end of the trailer vehicle. However, it is also contemplated to dispose the cabs along the sides of the main beam for transport. The seats can be arranged in side by side relation along the main beam and the seat arms could extend over the main beam. The overall height of the collapsed ride would not be materially increased in this manner and no problems will be encountered in connection with transporting the ride.

The drawings illustrate the main beam as being rotated by a chain drive, while the devices at the ends of the main beam supporting the passenger cabs, or seats, are shown as being rotated as by friction drive. It will be understood that all of the drives could be friction drives, if desired, or all thereof could be chain drives, or any combination of friction and chain drives could be employed.

Modifications may be made within the scope of the appended claims.

What is claimed is:

1. In an amusement ride; a base frame in the form of the bed of a trailer vehicle, a platform, means including rigid guide frame members each pivoted at one end to the base frame and at the other end to the platform and guiding the platform in swinging bodily movement from a collapsed position near and parallel to the base frame and in about the longitudinal center of the base frame to an elevated and fore and aft tilted position a substantial distance above the base frame, a rigid bracing frame member adapted for connection between the platform and the base frame when the platform is elevated to fixedly support the platform in elevated and tilted position, a beam about the same length as the base frame rotatably supported on the platform at about the middle of the length of the beam, said beam comprising a central portion which is parallel to said base frame in collapsed position of said platform and tilted relative to the base frame in elevated position of said platform, said beam having end portions which incline upwardly from the plane of said central portion of the beam, each said end portion of the beam being substantially horizontal when the respective end of the

beam is in its lowermost rotated position, a rotatable member rotatably supported on each end of said beam, a plurality of support arms extending generally radially from each said rotatable member, passenger compartment means comprising a compartment swingably supported from the outer end of each support arm, and means for driving said beam in rotation on said platform and said passenger compartment means in rotation on said beam.

2. An amusement ride according to claim 1 which includes support means connected at the lower end to a respective compartment and extending upwardly therefrom to near the outer end of a respective support arm, and connector means swingably connecting the upper end of each support means to the outer end of the respective support arm, each said connector means including a pair of connectors with the connector of each respective pair comprising two telescopically arranged coaxial tubes with at least the inside of the outer tube and the outside of the inner tube polygonal and with the flats on the inner tube opposed to the corners in the outer tube, blocks of resilient rubber-like material in the corners of each outer tube and bearing on the flats of the respective inner tube, the axes of said pair of connectors being mutually perpendicular and one thereof being perpendicular to the axis of the respective outer end of said support arm, one of the tubes of one of the connectors being fixed to the outer end of said support arm and one of the tubes of the other connector being fixed to the upper end of the support means, and a bracket arrangement connecting the other tube of each connector to each other.

3. An amusement ride according to claim 1 in which said bracing frame member has one end pivotally connected to said platform on the same axis as the upper end of one of said rigid guide frame members and has the other end adapted for connection to said base frame at a region spaced longitudinally along said base frame from the region of pivotal connection of said same one guide frame member to the base frame.

4. An amusement ride according to claim 1 which includes an axially expansible fluid motor pivotally connected between said platform and said base frame for raising and lowering said platform on the base frame.

5. An amusement ride according to claim 1 in which said trailer vehicle has ground engageable support pads near the front and rear ends thereof and also includes

outrigger arms pivotally connected to the sides and swingable to extend outwardly from the trailer, said outrigger arms at the outer ends having ground engageable pads.

5 6. An amusement ride according to claim 5 in which said outrigger arms are in about the same vertical plane when extended as the platform when the latter is elevated, and detachable brace elements adapted for connection between the platform when elevated and the 10 outrigger arms when extended.

10 7. An amusement ride according to claim 1 in which said bracing frame member has one end pivotally connected to said platform on the same axis as the upper end of one of said rigid guide frame members and has 15 the other end adapted for connection to said base frame at a region spaced longitudinally along said base frame from the region of pivotal connection of said same one guide frame member to the base frame, said 20 other end of said brace frame member being slidable along said base frame during raising and lowering movements of said platform, notched bracket means on said base frame engageable by said other end of said 25 bracing frame when the platform reaches elevated position and operable to halt the platform, and lock pin means engageable with said bracket means and said 30 other end of said bracing frame member to lock said platform in elevated position.

8. An amusement ride according to claim 1 in which each rigid guide said frame member comprises laterally spaced parallel tubular side rails and brace elements 35 extending diagonally therebetween and fixed thereto.

9. An amusement ride according to claim 1 in which said means for driving said beam in rotation on said 40 platform includes a larger sprocket stationarily mounted on top of said platform, a motor on the beam having an output shaft and a smaller sprocket thereon coplanar with said larger sprocket, and a drive chain entrained about said sprockets.

10. An amusement ride according to claim 1 in which 45 said means for driving said passenger compartment means in rotation on said beam comprises a friction drum rotatably supported at each end of the beam and supporting said passenger compartment means, a motor on each end of the beam having an output shaft, and a friction member on each output shaft frictionally 50 engaging the adjacent friction drum.

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