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HORIZONTAL AND VERTICAL AXES ROUNDABOUT

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2 Sheets-Sheet 1

Fig. 1

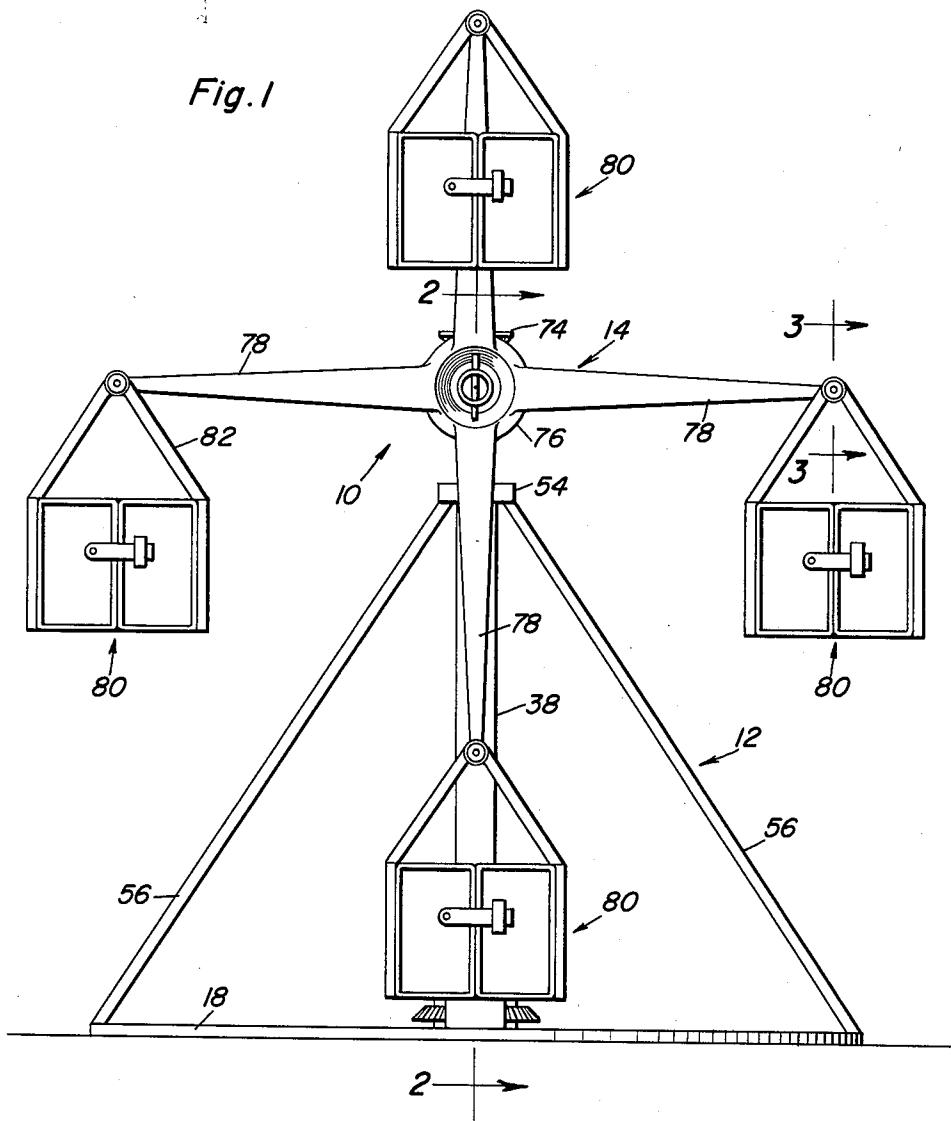
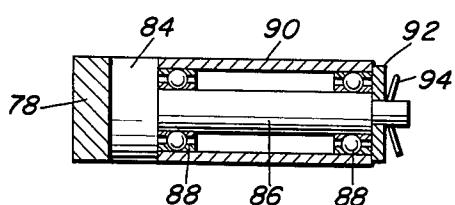


Fig. 3



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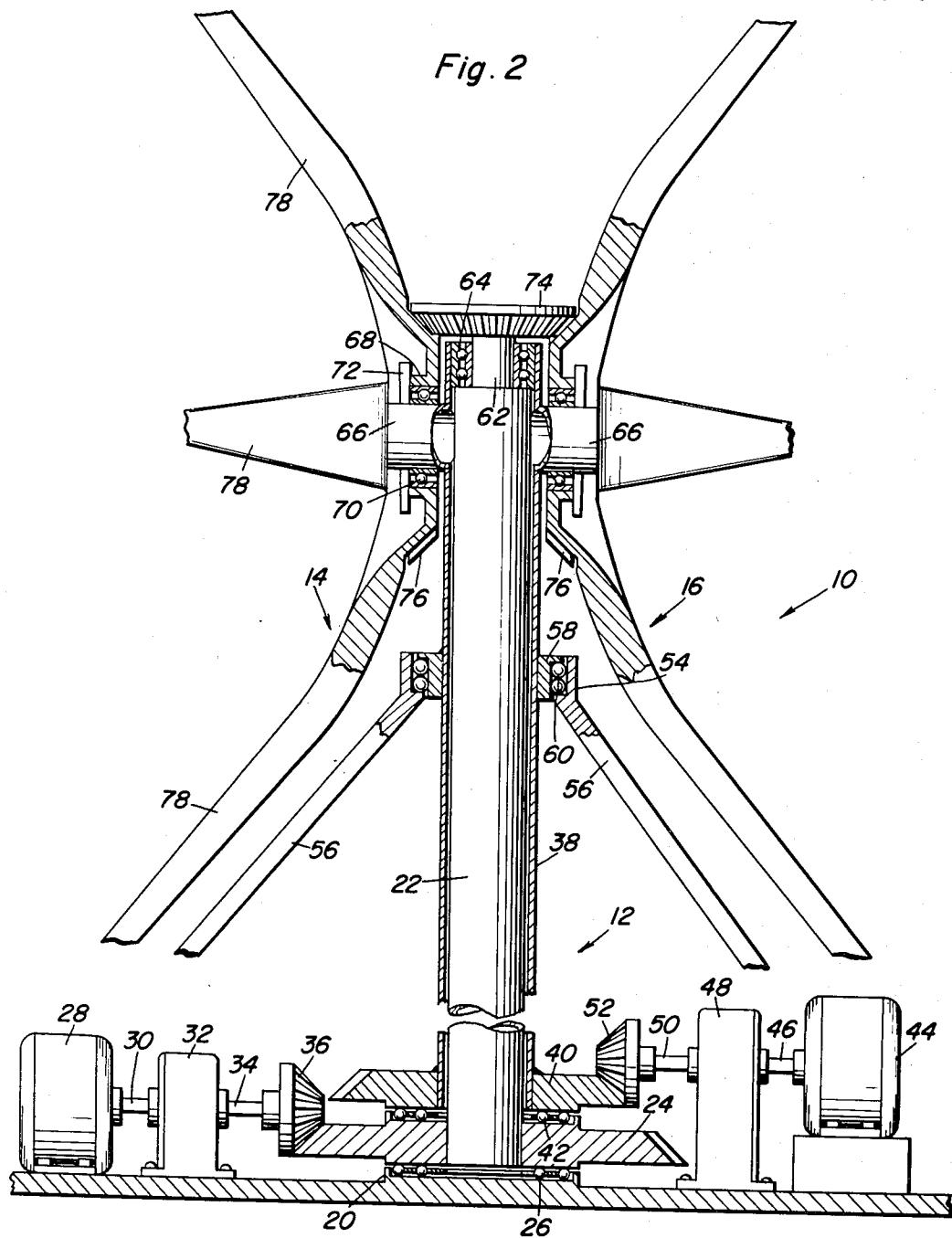
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Fig. 2



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HORIZONTAL AND VERTICAL AXES ROUNDABOUT

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3 Claims. (Cl. 272—36)

This invention relates in general to new and useful improvements in amusement devices, and more specifically to an amusement riding device.

It is the primary object of this invention to provide an improved amusement riding device which includes a plurality of carriages, the carriages mounted for rotation simultaneously about both horizontal and vertical planes in order that a maximum of enjoyment may be derived from a ride in the amusement device.

Another object of this invention is to provide an improved amusement riding device which is so constructed whereby to simultaneously impart vertical and horizontal rotary movement to carriages and at the same time, is in the form of a very compact and extremely simple device.

A further object of this invention is to provide an improved support assembly for carriers of carriages, the carriers being mounted for simultaneous vertical and horizontal rotation, the support including telescoped inner and outer standards which are mounted for rotation and which are driven by separate drive means.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the amusement riding device which is the subject of this invention and shows the general relationship of the components thereof;

Figure 2 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 2—2 of Figure 1 and shows the specific manner in which the carriers are mounted with respect to the standards, intermediate portions of the standards and braces therefor being broken away; and

Figure 3 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of Figure 1 and shows the manner in which a carriage is mounted on an outer end of an arm of one of the carriers for pivotal movement.

Referring now to the drawings in detail, it will be seen that the amusement riding device, which is the subject of this invention, is referred to in general by the reference numeral 10. The amusement riding device 10 includes a support, which is referred to in general by the reference numeral 12, and a pair of carriers 14 and 16 which are carried by the support 12 for simultaneous horizontal and vertical rotation.

As is best illustrated in Figures 1 and 2, the support 12 includes a relatively large base 18 which has the central portion thereof built up to form a horizontal bearing surface 20. Seated on the bearing surface 20 is the lower end of an inner standard 22. The lower part of the standard 22 is provided with a drive gear 24 which is supported by the bearing surface 20 for rotary movement, there being provided a thrust bearing 26 disposed between the bearing surface 20 and a lower portion of the drive gear 24.

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In order to effect rotation of the inner standard 22, there is provided a motor 28. The motor 28 includes an armature shaft 30 which is coupled to a reduction gear box 32. The reduction gear box 32 is provided with a drive shaft 34 on which there is mounted a bevel gear 36. The bevel gear 36 is in meshing engagement with the gear 24, the gear 24 being a ring gear.

The support 12 also includes an outer standard 38 which is telescoped over the inner standard 22. The outer standard 38 is provided at its lower end with a drive gear 40. The drive gear 40 overlies the drive gear 24 and is supported with respect thereto by a thrust bearing 42, the thrust bearing 42 being disposed between the upper surface of the drive gear 24 and the lower surface of the drive gear 40.

The drive gear 40 is rotated by means of a motor 44 which includes an armature shaft 46. The armature shaft 46 is connected to a gear box 48 having a drive shaft 50. Mounted on the drive shaft 50 is a bevel gear 52 meshingly engaged with the gear 40, the gear 40 being in the form of a ring gear.

It is readily apparent that the inner standard 22 is rotated independently of the outer standard 38. Also, it is apparent that the standards 22 and 38 may be rotated in opposite directions.

The outer standard 38 is retained in an upright position by a retaining ring 54 carried at the upper ends of braces 56, the lower ends of the braces 56 being secured to the base 18, as is best illustrated in Figure 1. The upper portion of the outer standard 38 is provided with a collar 58 disposed in alignment with the retaining ring 54 and being journaled for rotation within the inner ring 58 through the provision of suitable bearings 60.

The inner shaft 22 is provided with a reduced upper portion 62, as is best illustrated in Figure 2. Surrounding the reduced upper portion 62 is a suitable bearing 64 which is journaled within the upper end of the outer standard 38. Thus, it will be readily apparent that the outer standard 38 provides a suitable guide for the inner standard 22.

The outer standard 38 is provided immediately adjacent its upper end with a pair of diametrically opposite trunnions 66. The trunnions 66 have mounted thereon for rotation the carriers 14 and 16.

Inasmuch as the carriers 14 and 16 are identical, only the carrier 14 need be described in detail. Each of the carriers 14 and 16 includes a central hub portion 68 having a suitable bearing 70 disposed therein. The bearing 70 is engaged over the associated one of the trunnions 66 in order to facilitate rotation of the carrier in a vertical plane. The hub 68 is retained on its associated trunnion 66 by means of a retaining pin 72 or other suitable retaining device.

Disposed at the upper end of the inner standard 22 and carried by the upper end of the reduced portion 62 is a horizontally disposed bevel gear 74. Each of the hub portions 68 is provided with a ring gear 76 which is meshed with the bevel gear 74. Thus, relative rotation between the gears 74 and the carriers 14 and 16 will result in rotation of the carriers 14 and 16, the rotation being in opposite directions.

Each of the carriers 14 and 16 is cruciform in outline, as is best illustrated in Figure 1. Each carrier includes a plurality of radiating arms 78 which have pivotally mounted at their outer ends a carriage which is referred to in general by the reference numeral 80. The carriage 80 includes an upper bail portion 82 which is connected to its associated arm 78 in depending relation so that the carriage 80 is in an upright position at all times.

Referring now to Figure 3 in particular, it will be seen that each of the arms 78 is provided at its outer end with a hub 84 having a shaft 86 projecting therefrom. The

shaft 86 carries suitable bearings 88 which have telescoped thereover a sleeve portion 90 of the bale 82. The sleeve portion 90 is retained on the bearings 88 by a washer 92 held in place by a pin 94.

From the foregoing description of the present invention, it will be readily apparent that as the standards 22 and 38 are rotated, preferably in opposite directions, the carriers 14 and 16 will be rotated in a horizontal plan through the rotation of the outer standard 38 and at the same time will be rotated in vertical planes due to the relative rotation of the inner shaft 22 with respect to the outer shaft 38. Inasmuch as the carriages 80 are mounted on the carriers 14 and 16 in depending relation, while they will be simultaneously rotated in vertical and horizontal planes, they will remain in their upright positions at all times, the upright positions being best illustrated in Figure 1.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation as described and shown, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. An amusement riding device comprising a support, a pair of generally vertically disposed carriers mounted on said support, each of said carriers including at least one radiating arm, a carriage pivotally carried at an outer end of each arm, said support including means for simultaneously rotating said carriers about vertical and horizontal axes, said support including a base, an inner standard extending upwardly from said base, means for rotating said inner standard, an outer standard telescoped over said inner standard, braces extending upwardly from said base engaging an upper portion of said outer standard and retaining said standards in upright positions, means for rotating said outer standard independently of said inner standard, trunnions on said outer standard, said carriers being mounted on said trunnions for rotation therewith, said carriers being mounted for rotation about said trunnions and drivenly connected to said inner standard.

2. An amusement riding device comprising a support, a pair of generally vertically disposed carriers mounted on said support, each of said carriers including at least one

radiating arm, a carriage pivotally carried at an outer end of each arm, said support including means for simultaneously rotating said carriers about vertical and horizontal axes, said support including a base, an inner standard extending upwardly from said base, means for rotating said inner standard, an outer standard telescoped over said inner standard, braces extending upwardly from said base engaging an upper portion of said outer standard and retaining said standards in upright positions, means for rotating said outer standard independently of said inner standard, trunnions on said outer standard, said carriers being mounted on said trunnions for rotation therewith, said carriers being mounted for rotation about said trunnions and drivenly connected to said inner standard, said inner support being provided at its upper end with a gear, said carriers having centrally disposed gear rings engaged with said gear.

3. An amusement riding device comprising a support, a pair of generally vertically disposed carriers mounted on said support, each of said carriers including at least one radiating arm, a carriage pivotally carried at an outer end of each arm, said support including means for simultaneously rotating said carriers about vertical and horizontal axes, said support including a base, an inner standard extending upwardly from said base, means for rotating said inner standard, an outer standard telescoped over said inner standard, braces extending upwardly from said base engaging an upper portion of said outer standard and retaining said standards in upright positions, means for rotating said outer standard independently of said inner standard, trunnions on said outer standard, said carriers being mounted on said trunnions for rotation therewith, said carriers being mounted for rotation about said trunnions and drivenly connected to said inner standard, said inner standard being provided at its lower end with a drive gear rotatably supported by said base, said outer standard being provided at its lower end by a drive gear rotatably supported by said first mentioned drive gear.

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