

July 8, 1958

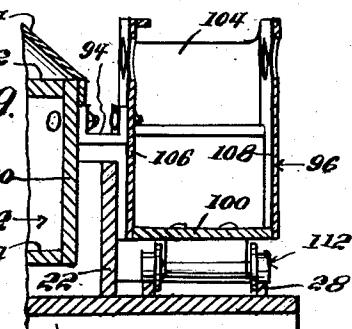
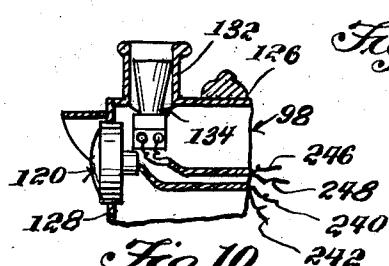
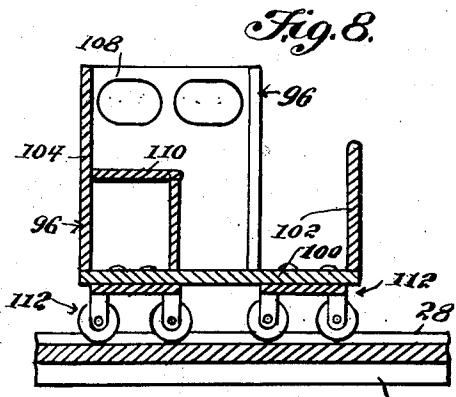
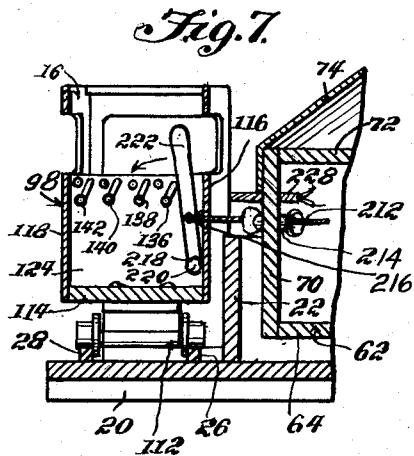
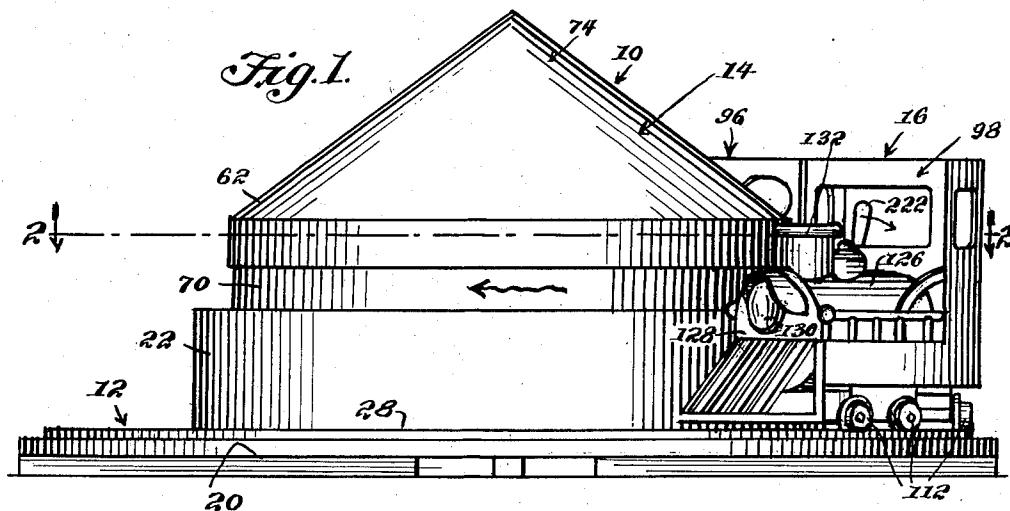
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2,842,364

AMUSEMENT APPARATUS OF THE CAROUSEL TYPE

Filed Feb. 8, 1957

3 Sheets-Sheet 1



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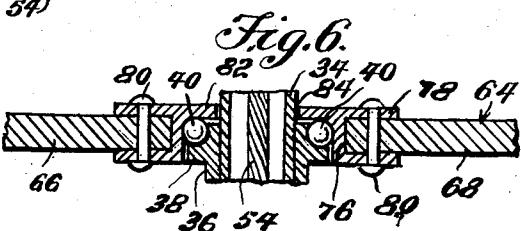
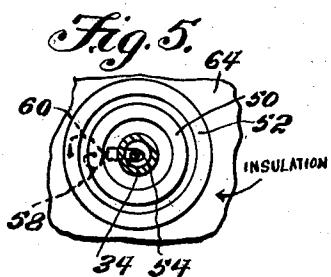
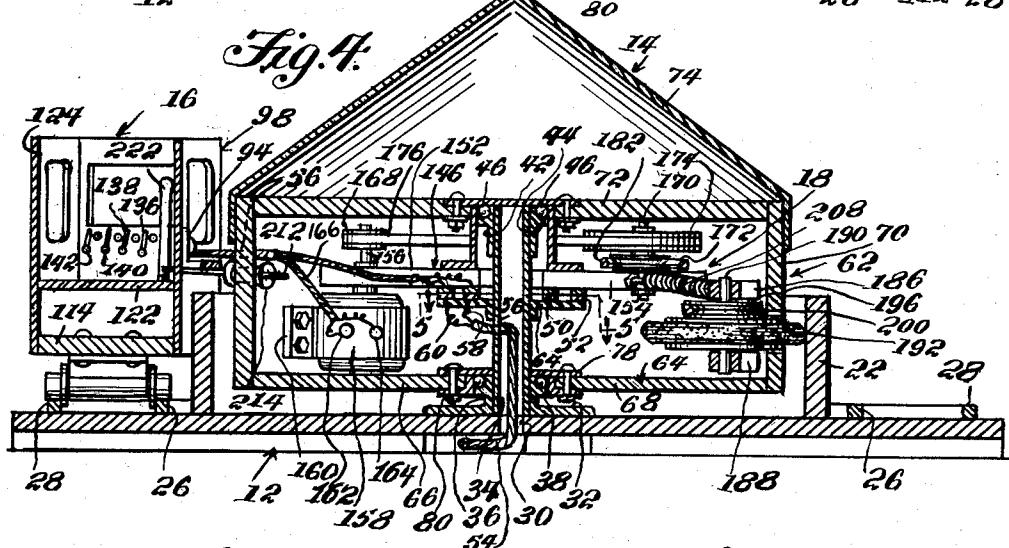
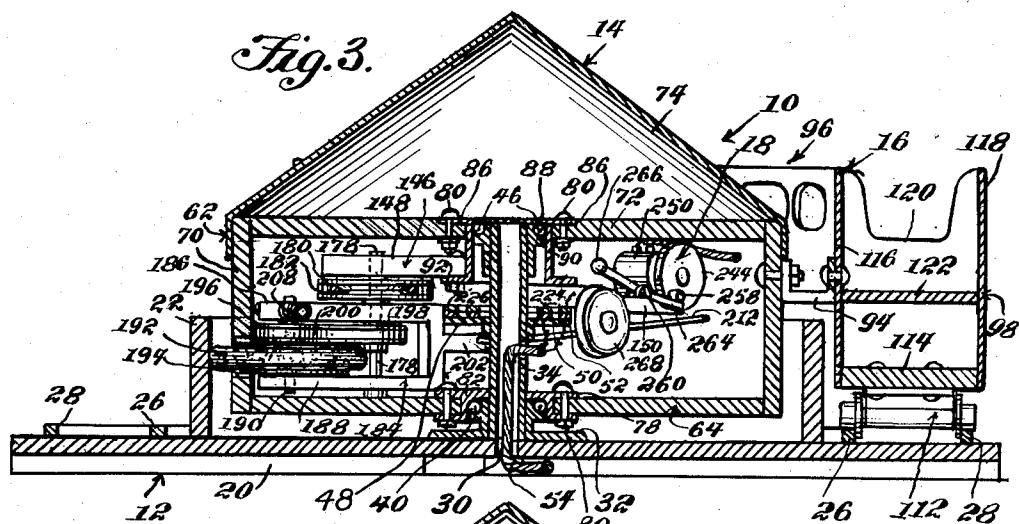
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AMUSEMENT APPARATUS OF THE CAROUSEL TYPE

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3 Sheets-Sheet 3



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AMUSEMENT APPARATUS OF THE CAROUSEL TYPE

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4 Claims. (Cl. 272—43)

This invention relates generally to amusement apparatus and is more particularly concerned with novel amusement apparatus of the carousel type.

A primary object of invention in conformance with that set forth is to provide amusement apparatus of the carousel type which is power driven, incorporating a support base positionable on a horizontal support surface, rotatably supporting a horizontally rotatable carriage, said carriage being secured to a vehicle assembly capable of accommodating passengers or the like thereon for rotation in a fixed horizontal path, the carriage incorporating thereon power drive means controlled from the vehicle assembly and drivingly engaging a portion fixed to the support base.

A further object of invention in conformance with that set forth is to provide novel amusement apparatus of the character involved wherein said support base comprises an annular wall integral therewith and disposed in spaced circumposed relationship about the axis of rotation of a carriage assembly on said base, said apparatus incorporating on the carriage thereof power drive means incorporating a friction drive peripherally engageable with the inner periphery of the annular wall rotating a vehicle assembly thereabout in a fixed path of movement, the power drive means being controlled from the vehicle assembly by a person operating the same.

And yet another object of invention in conformance with that set forth is to provide in amusement apparatus of the character involved means whereby the power drive for the carriage assembly is biased to an "off" position wherein an operator disposed in the vehicle assembly must positively apply force to force transmitting means causing movement of the vehicle assembly.

Still further objects of invention in conformance with that set forth reside in the specific details of the various cooperating structure and the function thereof in the novel amusement apparatus.

And yet a still further object of invention in conformance with that set forth is to provide novel amusement apparatus of the carousel type which is readily manufactured, easily operated and maintained, and highly satisfactory, safe and practical for the purpose intended.

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

Figure 1 is an elevation of an exemplary embodiment of the amusement apparatus of the invention;

Figure 2 is an enlarged section taken substantially on the plane of line 2—2 of Figure 1;

Figure 3 is a section taken substantially on the plane of line 3—3 of Figure 2;

Figure 4 is a section taken substantially on the plane of line 4—4 of Figure 2;

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Figure 5 is a fragmentary section taken substantially on the plane of line 5—5 of Figure 4;

Figure 6 is a fragmentary enlarged elevation, with portions broken away and shown in section for clarity, showing the manner in which bearings are incorporated in the apparatus for supporting the horizontally rotatable carriage thereof;

Figure 7 is a fragmentary section taken substantially on the plane of line 7—7 of Figure 2;

Figure 8 is a fragmentary section taken substantially on the plane of line 8—8 of Figure 2;

Figure 9 is a fragmentary section taken substantially on the plane of line 9—9 of Figure 2;

Figure 10 is a fragmentary section taken substantially on the plane of line 10—10 of Figure 2;

Figure 11 is a fragmentary elevation taken substantially on the plane of line 11—11 of Figure 2; and

Figure 12 is a wiring diagram showing a fragmentary portion of slip ring means and showing diagrammatically the manner in which various signal means and the power means of the apparatus are energized from a source of electrical energy.

Referring to the drawing in detail, an exemplary embodiment of the novel amusement apparatus of the carousel type is indicated generally at 10 generally including a support base 12, a rotary carriage indicated generally at 14, said carriage incorporating in secured relationship thereto for rotation in a relatively fixed circular path on the support base a vehicle assembly indicated generally at 16 and contained in the carriage is power means indicated generally at 18, see Figures 2 through 4, for rotating the carriage and vehicle assembly in the aforementioned fixed path of movement.

The support base is constructed of any suitable material and may have a circular construction when observed in plan and is normally juxtaposed on a suitable support surface of any suitable character. The support base 12 includes a planar body member 20 having integral therewith an annular vertically extending collar or wall 22.

The exemplary embodiment of invention discloses the vehicle assembly to assume the configuration of a miniature railroad train, however, other trains of suitable vehicles may be utilized therewith. The base member 20 has inscribed on the upper surface thereof, by means of paint, for example, a plurality of circumferentially spaced portions simulating railroad ties 24, see Figure 2, and circumposed in spaced relationship relative to the outer surface of the wall 22 in mutually parallel and suitably secured relationship are continuous circular rail members 26 and 28 of any suitable character.

The base member 20 incorporates a central transverse aperture 30 therethrough and extending in suitably secured relationship bordering said aperture 30 is an annular base 32 integral with a vertically extending tubular support shaft 34 opening at its lower end with the aperture 30. The base 32 incorporates a tubular sleeve portion 36 circumjacent about a lower portion of the shaft 34 and incorporating an intermediate annular support portion 38 for receiving on the upper surface thereof a plurality of ball bearing elements 40, see Figure 6, for example. The shaft 34 incorporates on the upper end thereof a suitably secured sleeve 42 incorporating an intermediate annular flange portion 44 receiving on the upper surface thereof ball bearing elements 46 similar to those just mentioned. Suitably secured and extending annularly about an intermediate portion of the shaft 34 is a support plate 48 of any suitable non-electrical conducting material and suitably secured on the upper surface thereof in circumposed relationship relative to the outer periphery of the shaft 34 are continuous spaced rings of an electrical conducting material indicated at

50 and 52. Indicated at 54 is an electrical conducting wire extending through the aperture 30 in the base member 20 upwardly in the shaft 34 and extending laterally through a suitable opening 56 in one side thereof, said conductor 54 incorporating leads 58 and 60 electrically connected to the respective electrical conducting rings 50 and 52, said rings 50 and 52 comprising slip ring means permitting the carriage 14 to rotate in the support shaft 34 as will subsequently become apparent yet providing means for transmitting a source of electrical energy to the exemplary embodiment of the power means 18 for driving or rotating the carriage.

The carriage 14 in the preferred embodiment, comprises a cylindrical shaped body member 62 including a circular bottom 64 comprised of semi-circular segments 66 and 68, see Figure 2. Integral with the bottom 64 is an annular side wall 70 which has extending transversely of the upper edge thereof a suitable top wall 72. If preferred, top wall 72 may have extending thereover a suitably constructed conical dome 74. The bottom 64 incorporates a centrally located aperture 76, see Figure 6, receiving therein a clamping collar 78 incorporating transverse retaining bolt assemblies 80 therethrough, said collar 78 including an annular support flange portion 82 juxtapositionable on the bearing elements 40 and incorporating a central aperture portion 84 therethrough in spaced relationship from the outer periphery of the support shaft 34. The top wall 72 incorporates in a centrally located circular recess portion 86 a suitably secured support plate 88 juxtapositionable on the bearing elements 46, said plate 88 continuing as a depending cylindrical housing 90 terminating in an annular support flange portion 92 at its lower edge. The plate member 88 together with the cylindrical housing 90 is secured to the top wall 72 by means of suitable bolt assemblies 80 comparable to those previously mentioned.

Thus without discussing details of the power drive means 18 it will be noted that suitable bearing structure is provided for supporting the carriage 14 for rotation about the support shaft 34. Furthermore, there has also been shown means for supplying a source of electrical energy to the moving carriage in its rotation about the shaft 34.

Suitably secured in circumferentially spaced relationship and extending laterally from the side wall 70 of member 62 are a plurality of suitable support brackets 94 secured to an adjacent side wall portion of one or a pair of cars constituting either passenger vehicles indicated generally at 96 and a simulated engine 98 of the vehicle assembly 16.

The cars 96 include an arcuate bottom portion 100 having extending vertically from opposite ends thereof forward and rear end walls 102 and 104, respectively, integral with an inner wall 106 adjacent the brackets 94 previously mentioned, and an outer wall 108 terminating short of the forward wall 102 and providing an access portion through which passengers may move. Extending in spaced transverse relationship overlying the bottom wall 100 between the inner surfaces of the side walls 106 and 108 and the end wall 104 is a suitable seat 110. Suitably secured in depending relationship from the bottom wall 100 are pairs of spaced wheel assemblies indicated generally at 112 suitably conformed to cooperate with the rails 26 and 28. The vehicles 96 will suitably accommodate an adult therein, if desired, and also will receive relatively young children thereon, the construction as is readily apparent, preventing such children from falling out of the vehicle. Suitable safety belts may be provided where required.

The locomotive portion of the train indicated generally at 98 has depending from a suitably conformed bottom 114 suitably secured spaced wheel assemblies indicated generally at 112. The bottom 114 has extending vertically therefrom in suitably secured relationship inner and outer sides 116 and 118, the side 116 being secured to

brackets 94 as previously mentioned. Incorporated adjacent the rear end 120 of the locomotive and extending transversely between opposed inner surface portions of the sides 116 and 118 is a suitable seat 122 for receiving thereon a person operating the vehicle assembly 16. Incorporated in the locomotive 98 forwardly of the seat 122 is a vertically extending control panel 124 readily accessible to the operator of the vehicle assembly. Extending forwardly from the control panel 124 of the simulated locomotive is a suitably conformed simulated boiler portion 126 for realistically depicting the locomotive and incorporating at the forward end 128 thereof a forwardly directed incandescent light assembly indicated generally at 130, said boiler portion including an upwardly extending cylindrical simulated smoke stack 132 incorporating therein a suitable horn assembly indicated generally at 134, see Figure 10. The light and horn assemblies 130 and 134, respectively, are of any suitable character and will be operated in a manner to subsequently be described in detail.

Suitably mounted on the control panel 124 in spaced relationship are two-position conventional switches indicated generally at 136, 138, 140 and 142, the switch 136 constituting a master control switch, see the wiring diagram of Figure 12, for example, the switch 138 controlling activation of the headlight assembly 130, the switch 140 controlling actuation of a bell assembly indicated generally at 144, to subsequently be described in detail, and the switch 142 controlling activation of the horn assembly 134, assemblies 130, 134 and 144 collectively being identified as signal means actuated from the vehicle assembly 16 by an operator of the same.

Referring to the carriage 14 and the portion thereof utilized for mounting the power means 18 in member 62, the previously mentioned flange 92 integral with the cylinder 90 on the plate 88 which is secured to the top wall 72 of member 62 by means of the bolt assemblies 80, the flange 92 has suitably secured by means of suitable transverse bolt assemblies 144 a support spider indicated generally at 146 comprising radially extending equidistantly spaced support arms 148, 150, 152 and 154. The arm 148 has one end portion thereof secured on the upper surface of the flange 92, the other end of which being suitably secured to the inner periphery of the wall 70 of member 62. The remaining arms 150 through 154 are secured on the under surface of the flange 92, the opposite ends of which also being suitably secured to the inner periphery of the wall 70 of member 62. The arms 148 and 152 are diametrically opposed, and arms 150 and 154 are diametrically opposed.

The arm 152 has extending vertically therethrough in an intermediate portion thereof a power output or drive shaft 156 driven by a suitably rated electric motor 158, the lower portion of which resting on an underlying upper surface portion of the bottom 64 of member 62, and being secured to the inner periphery of said member 62 by means of a suitable mounting base 160. The motor 158 incorporates connecting terminals 162 and 164 suitably connected to an electrical conduit or conductor 166 operatively connected to the switch 136 as indicated diagrammatically in Figure 12. The upper end of the shaft 156 has suitably keyed thereon a drive pulley 168. The arm 154 has extending vertically through an intermediate portion thereof a suitably journaled support shaft 170 extending vertically therefrom and having keyed thereon vertically spaced overlying lower and upper pulleys 172 and 174. The upper pulley 174 is in planar alignment with pulley 168, and a suitable endless drive belt 176 is entrained about the pulleys 168 and 174. The arm 148 has depending therefrom a suitably journaled support shaft 178 having keyed theron beneath the arm 148 a pulley 180 in planar alignment with the previously mentioned pulley 174 on shaft 170 and a suitable endless drive belt 182 is entrained about the coplanar pulleys 172 and 180. A support yoke is

indicated generally at 184, see Figure 3, which includes a pair of overlying legs 186 and 188 having extending therethrough suitable aligned aperture portions through which the support shaft 178 extends, said yoke being journaled on the support shaft 178 in any suitable manner for horizontal pivotal movement about the longitudinal axis of said support shaft 178. The arms 186 and 188 have extending vertically therethrough a suitably secured and journaled support shaft 190 having keyed thereon a horizontally disposed friction wheel 192 which extends through a suitable transverse slot or groove portion 194 in the wall 70 of member 62, said friction wheel being peripherally engageable with the inner periphery of the vertical abutment wall 22 integral with the support base 12. Keyed on the support shaft 190 above the friction wheel 192 below the leg 186 of yoke 184 is a suitable pulley 196 which is in coplanar relationship relative to a driving pulley 198 keyed on the shaft 178 beneath the previously mentioned leg 186. A suitable drive belt 200 is entrained around the coplanar pulleys 196 and 198. The yoke 184 incorporates an elongated lever portion 202 extending away from the legs 186 and 188 and extending through a suitably apertured terminal end portion of said lever 202 is a connecting bolt 204. The yoke 184 has extending laterally from the leg 186 thereof adjacent support arm 154 a connecting eye portion 206 providing means whereby one end of a tension spring 208 may be attached, the other end of said tension spring being connected to a suitable eye element 210 extending from an intermediate portion of the arm 154 toward the yoke 184. Tension spring 208 is effective to bias the friction wheel 192 away from engagement with the inner periphery of wall 22. Thus, although the electric motor 158 is energized and operates the carriage 14, accordingly the vehicle assembly 16 will not be caused to move till the tension spring 208 is overcome.

For the purpose of overcoming the tension of spring 208 power drive control means are provided comprising a flexible force transmitting cable 212 having one end secured to the bolt assembly 204, said flexible force transmitting cable 212 extending through a suitable transversely disposed guide sleeve 214 suitably secured in the side wall 70 of member 62 and opening adjacent the control panel 124 of the locomotive 98. The side wall 116 of the locomotive 98 incorporates a transverse aperture 216 therethrough in alignment with the sleeve 212, see Figure 7, and disposed below the aperture 216 in suitably secured relationship on the inner surface of the side wall 116 are a pair of spaced laterally extending pivot ear elements 218 having extending transversely therebetween a suitably supported pivot pin or shaft 220 having pivotally mounted thereon for vertical pivotal movement a control lever 222 constituting a "dead-man's throttle" which has suitably secured to an intermediate portion thereof the force transmitting cable 212. Thus to engage the friction wheel 192 with the inner periphery of the vertical annular wall 22 positive tension must be applied to the force transmitting cable 212 in the direction indicated by the dotted direction arrow of Figure 2 by vertically pivoting the control lever 222 in the direction indicated by the arcuate direction arrow of Figure 7.

Suitably secured in electrically insulated relationship from an under surface of support arms 150 through 154 are a pair of spaced electrical conducting rings 224 and 226 which are respectively juxtaposed on the rings 50 and 52 providing means for conducting an electrical current to the motor 158 and the various signal means previously mentioned. The rings 224 and 226 are electrically connected by means of a suitable electrical conducting wire 228 comprising leads 230 and 232, see Figure 12, constituting negative and positive leads of a parallel circuit for the motor 158 and the various signal means previously mentioned. The conductor 232 extends to the switch 136 and is connected to the motor

158 by means of an electrical conductor 234. The lead 230 is connected by means of a suitable conductor 236 to the motor 158, said leads 234 and 236 being respectively connected to the terminals 162 and 164 with the switch means 136 interposed in this portion of the circuit. The lead 232 is connected by means of a branch lead 238 to one terminal of the headlight assembly 130, the other terminal of the headlight assembly being connected by means of a suitable conductor 240 to one side of the switch 138, the other side of the switch 138 being electrically connected to the lead 230. The conductor 238 is connected by means of a conductor 242 to one terminal of the bell assembly 144, the other terminal of which being connected by means of the conductor 244 to one side of the switch 140, it being noted that through the medium of the conductor 242 and 238 said one terminal of the bell assembly 144 is electrically connected to one side of the circuit identified by the lead 232. The lead 230 is electrically connected to the other side of the switch 140 as clearly seen in Figure 12. The conductor 242 is connected by means of a suitable conductor 246 to one side or terminal of the circuit in the horn assembly 134 and accordingly is electrically connected to the lead 232 as previously mentioned, the other terminal of the horn assembly 134 is connected by means of a suitable conductor 248 to one side of the switch 142, the other side of the switch 142 being electrically connected to the lead 230.

30 Considering Figures 2 and 11, the intermittently ringing bell assembly is indicated generally at 144 comprising a suitable electric motor indicated generally at 250 operatively connected to the previously mentioned conductors 242 and 244. The motor 250 incorporates a longitudinally extending drive shaft 252 and is suitably secured in transversely extending relationship relative to a notched or cut out portion 254 in the upper surface of the support arm 150. The shaft 252 has suitably keyed thereon a disc element 256 having extending laterally adjacent the outer periphery thereof a suitably secured abutment pin 258 extending away from the motor 250. Extending laterally from the support arm 150 in parallel relationship to the support shaft 252 of motor 250 is a pivot shaft 260 intermediately pivoting in any suitable manner a vertically pivotal lever 262 including one end portion 264 engageable with the abutment pin 258 when rotated on the shaft 252, the other end of said lever incorporating thereon an enlarged striker portion 266 which overlies a laterally extending suitably supported audible signal such as a bell 268. Thus during each rotation of the disc 256 the abutment pin 258 will raise the lever to the position shown in Figure 11, whereafter when the pin 258 moves away from the end 264 of lever 262, the striker element 266 will fall into engagement with the underlying surface of the bell 268 and accordingly the bell 268 will be rung during each revolution of the shaft 252.

From the foregoing it is readily apparent that there has been disclosed amusement apparatus of the carousel type which may be readily operated by relatively young children in a safe manner, the controls for the various signal means and movement of the vehicle assembly being readily accessible to an operator of the same, and the apparatus incorporating few exposed moving parts to be contacted by individuals wherein they may be injured.

70 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 shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope 75 of the appended claims.

What is claimed as new is as follows:

1. Amusement apparatus of the carousel type comprising a planar support base juxtapositionable on a horizontal support surface, a support shaft extending vertically from the upper surface of the base, an annular wall extending vertically from the base in circumposed equidistant relationship from the longitudinal axis of said shaft, a rotary carriage journaled on said support shaft for horizontal rotation thereon, a vehicle assembly secured to the carriage and rotatable on the base exteriorly of the annular wall in a fixed circular path thereabout, power drive means on said carriage, said power drive means including friction drive means operatively engaging the inner periphery of the annular wall for rotating the carriage and vehicle assembly, and power drive control means on the vehicle assembly operatively connected to said power drive means for controlling rotation of the carriage from the vehicle assembly, said power drive means comprising an electric motor, a source of electric current, slip ring means interposed between the shaft and carriage operatively connected to the source of electric current and to said motor, said electric motor including a power output shaft, power transmitting means operatively connected to the power output shaft and said friction drive means, said friction drive means comprising a horizontally pivotal support lever intermediately pivoted on the carriage, a horizontally rotatable drive wheel mounted on one end of the support lever peripherally engageable on the inner periphery of the annular wall, said power drive control means comprising force transmitting means operatively connected to the other end of the lever for controlling pivotal movement of said lever.

2. Amusement apparatus of the carousel type comprising a planar support base juxtapositionable on a horizontal support surface, a support shaft extending vertically from the upper surface of the base, an annular wall extending vertically from the base in circumposed equidistant relationship from the longitudinal axis of said shaft, a rotary carriage journaled on said support shaft for horizontal rotation thereon, a vehicle assembly secured to the carriage and rotatable on the base exteriorly of the annular wall in a fixed circular path thereabout, power drive means on said carriage, said power drive means including friction drive means operatively engaging the inner periphery of the annular wall for rotating the carriage and vehicle assembly, and power drive control means on the vehicle assembly operatively connected to said power drive means for controlling rotation of the carriage from the vehicle assembly, said power drive means comprising an electric motor, a source of electric current, slip ring means interposed between the shaft and carriage operatively connected to the source of electric current and to said motor, said electric motor including a power output shaft, power transmitting means operatively connected to the power output shaft and said friction drive means, said friction drive means comprising a horizontally pivotal support lever intermediately pivoted on the carriage, a horizontally rotatable drive wheel mounted on one end of the support lever peripherally engageable on the inner periphery of the annular wall, said power drive control means comprising force transmitting means operatively connected to the other end of the lever for controlling pivotal movement of said lever, said power transmitting means comprising a belt-and-pulley drive assembly.

3. Amusement apparatus of the carousel type comprising a planar support base juxtapositionable on a horizontal support surface, a support shaft extending vertically from the upper surface of the base, an annular wall extending vertically from the base in circumposed equidistant relationship from the longitudinal axis of said shaft, a rotary carriage journaled on said support shaft

for horizontal rotation thereon, a vehicle assembly secured to the carriage and rotatable on the base exteriorly of the annular wall in a fixed circular path thereabout, power drive means on said carriage, said power drive means including friction drive means operatively engaging the inner periphery of the annular wall for rotating the carriage and vehicle assembly, and power drive control means on the vehicle assembly operatively connected to said power drive means for controlling rotation of the carriage from the vehicle assembly, said power drive means comprising an electric motor, a source of electric current, slip ring means interposed between the shaft and carriage operatively connected to the source of electric current and to said motor, said electric motor including a power output shaft, power transmitting means operatively connected to the power output shaft and said friction drive means, said friction drive means comprising a horizontally pivotal support lever intermediately pivoted on the carriage, a horizontally rotatable drive wheel mounted on one end of the support lever peripherally engageable on the inner periphery of the annular wall, said power drive control means comprising force transmitting means operatively connected to the other end of the lever for controlling pivotal movement of said lever, the power drive means including spring means biasing the drive wheel out of engagement with the inner periphery of the annular wall requiring operator applied tension on the force transmitting means in order to rotate the carriage and vehicle assembly.

4. Amusement apparatus of the carousel type comprising a planar support base juxtapositionable on a horizontal support surface, a support shaft extending vertically from the upper surface of the base, an annular wall extending vertically from the base in circumposed equidistant relationship from the longitudinal axis of said shaft, a rotary carriage journaled on said support shaft for horizontal rotation thereon, a vehicle assembly secured to the carriage and rotatable on the base exteriorly of the annular wall in a fixed circular path thereabout, power drive means on said carriage, said power drive means including friction drive means operatively engaging the inner periphery of the annular wall for rotating the carriage and vehicle assembly, and power drive control means on the vehicle assembly operatively connected to said power drive means for controlling rotation of the carriage from the vehicle assembly, said power drive means comprising an electric motor, a source of electric current, slip ring means interposed between the shaft and carriage operatively connected to the source of electric current and to said motor, said electric motor including a power output shaft, power transmitting means operatively connected to the power output shaft and said friction drive means, said friction drive means comprising a horizontally pivotal support lever intermediately pivoted on the carriage, a horizontally rotatable drive wheel mounted on one end of the support lever peripherally engageable on the inner periphery of the annular wall, said power drive control means comprising force transmitting means operatively connected to the other end of the lever for controlling pivotal movement of said lever, the power drive means including spring means biasing the drive wheel out of engagement with the inner periphery of the annular wall requiring operator applied tension on the force transmitting means in order to rotate the carriage and vehicle assembly, said power transmitting means comprising a belt-and-pulley drive assembly.