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Fouche

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[54] **DEVICE FOR AUTOMATICALLY COUPLING AND UNCOUPLING THE GONDOLAS OF A FUN FAIR RIDE**

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[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.** **104/20,** 213/211

[51] **Int. Cl.** **B61k 1/00**

[58] **Field of Search** ..... 104/18, 20, 172; 213/211, 213/75 R

[56] **References Cited**

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Primary Examiner—Robert S. Ward, Jr.
Assistant Examiner—Gene A. Church

[57] **ABSTRACT**

This device for uncoupling and re-coupling automatically the gondolas 37 of a fun-fair ride comprises a belt-line system mounted on a movable chassis 1 adapted to be brought in alignment with the loop path followed by said gondolas.

This belt-line system comprises essentially a pair of registering pivoting posts rigid with a pair of parallel rails 9, 9*a*, one post 7 carrying an endless chain 13 and a ramp 14, the opposite post 8 carrying a longer ramp 27, members for controlling the rails and ramps in order to retain the gondola coupling member 38, and permit the passage of said support 24 between said rails, while the posts at the outlet end of the belt-line comprise similar ramps 30, 31 adapted to cause said gondolas to be coupled to their supports, and a loop track terminating on one side beneath the uncoupling station and on the other side beneath the coupling station.

6 Claims, 10 Drawing Figures

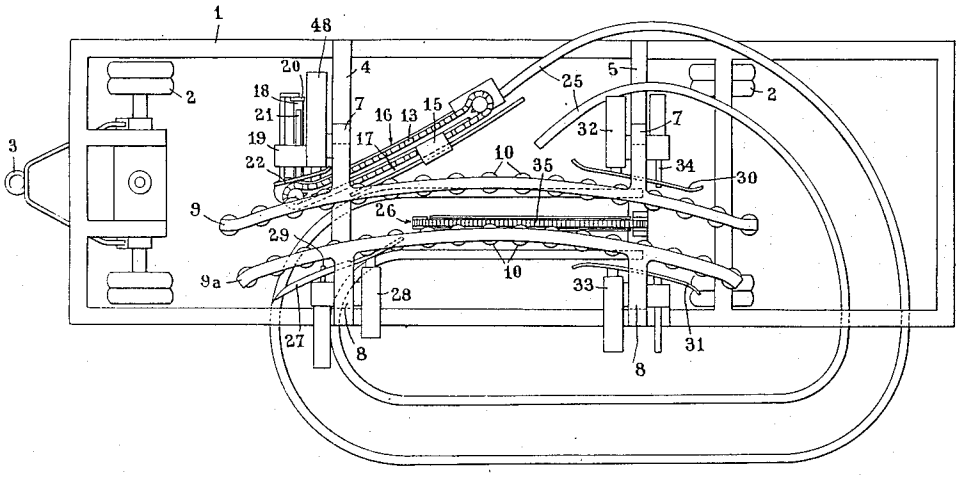
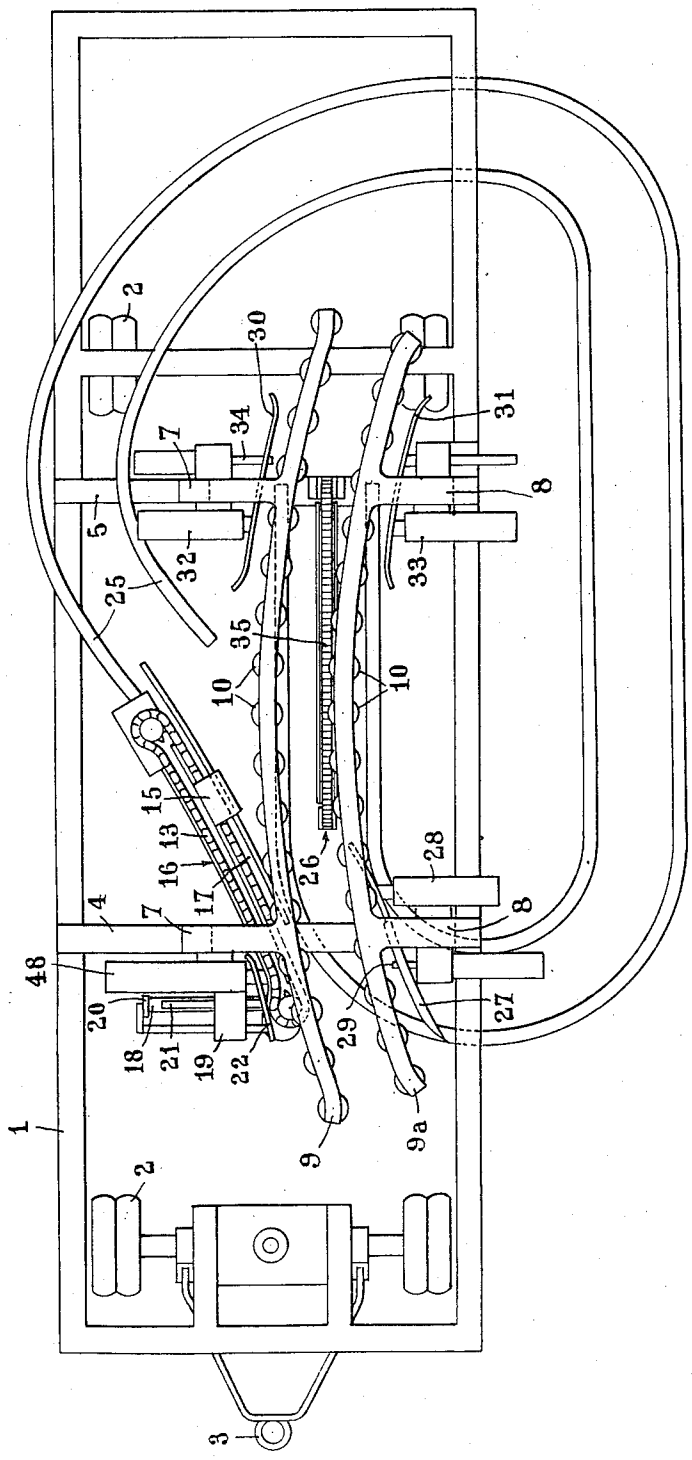


Fig.1.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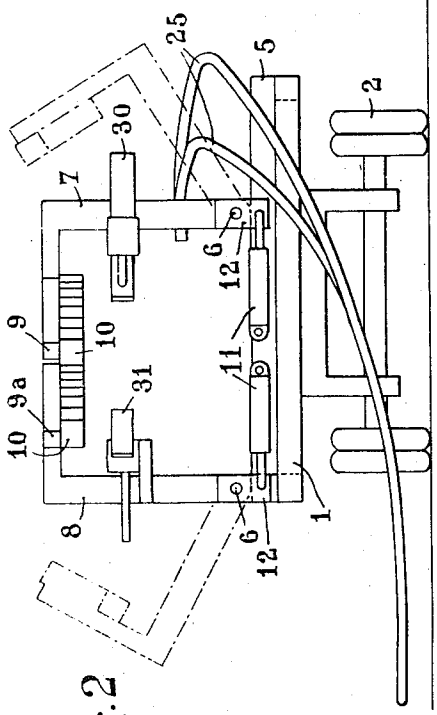
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Fig.2

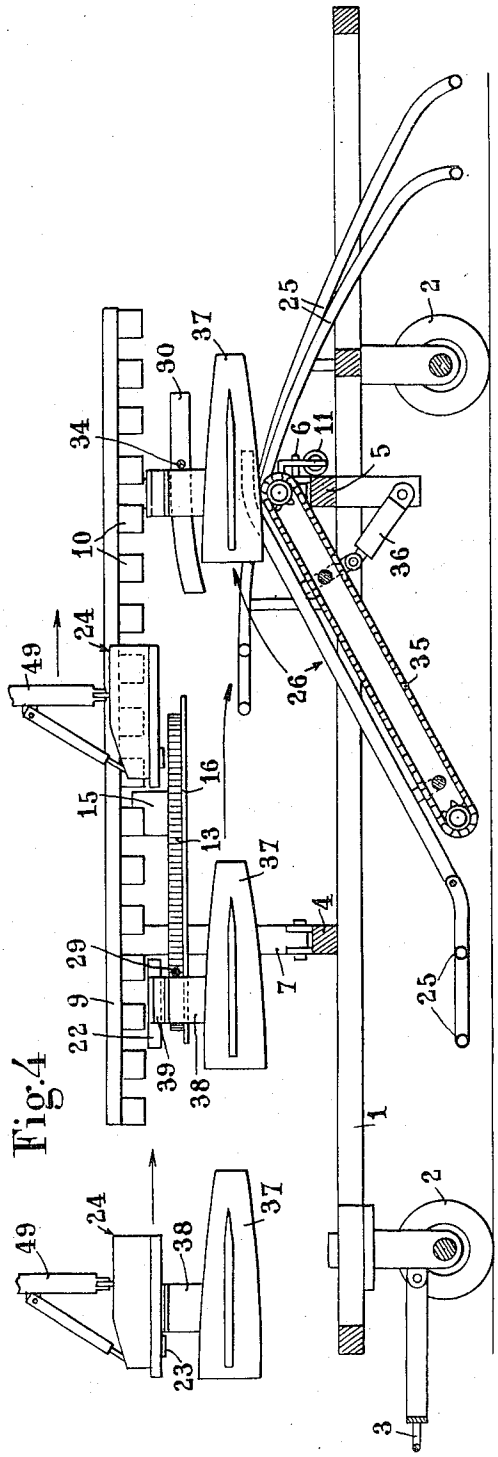
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Fig.4

Fig. 3.

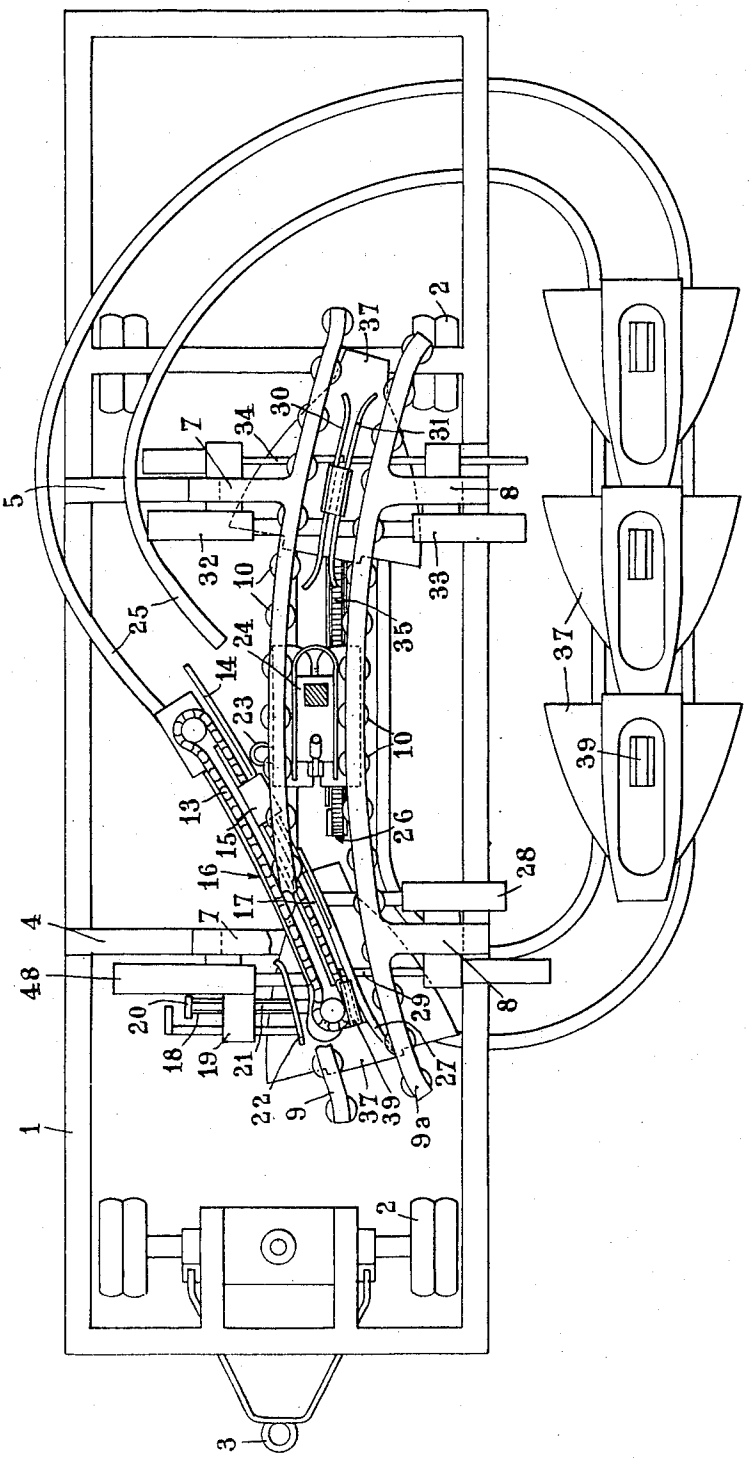
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Fig.5.

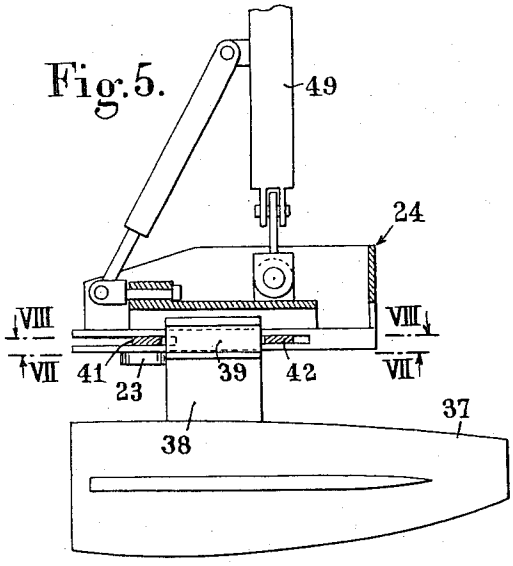


Fig.6.

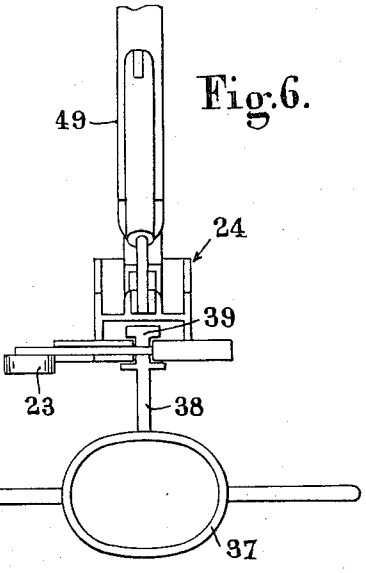


Fig.7.

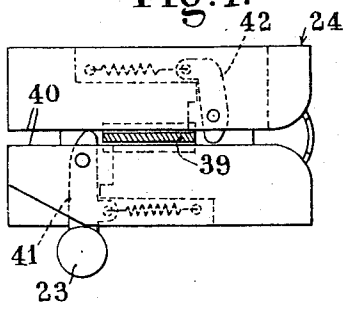


Fig.8.

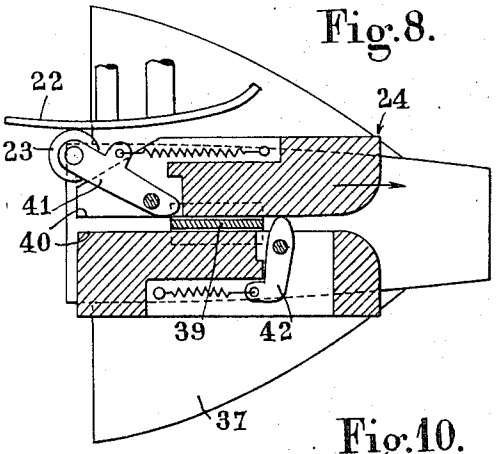


Fig.9.

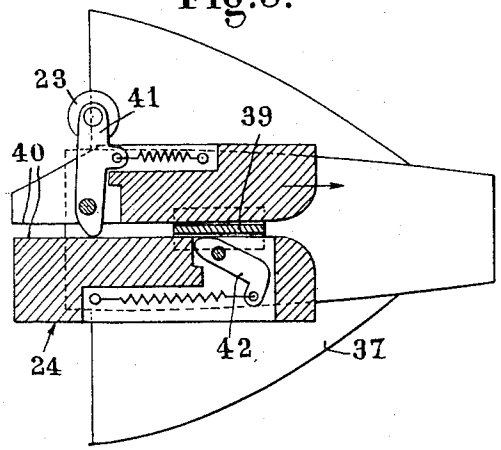
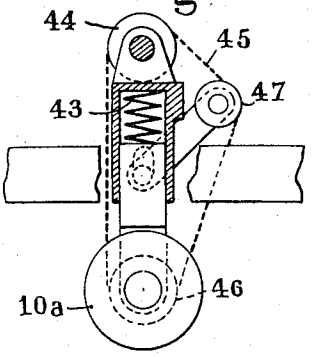


Fig.10.



DEVICE FOR AUTOMATICALLY COUPLING AND UNCOUPLING THE GONDOLAS OF A FUN FAIR RIDE

FIELD OF THE INVENTION

The present invention relates to a device for automatically coupling and uncoupling the gondolas of a fun fair ride or roundabout, notably a ride of the type disclosed in a prior U.S. Pat. application Ser. No. 407,452 filed by the same Applicant.

Conventional rides or roundabouts must be stopped completely for allowing the passengers to step in and out; therefore, some means had to be conceived for directing or switching at a given moment the gondolas or cars to an interchange area or belt line system where they are detached from their support, cleared to a side-track and then brought back to a station where they can resume their ride.

SUMMARY OF THE INVENTION

It is therefore the essential object of this invention to provide, in a ride of the type set forth, an interchange area, to be referred to hereinafter as the belt line, comprising essentially a movable frame structure supporting, by means of a pair of parallel posts pivoted at their lower ends so that they can be moved towards and away from each other by pivoting, a pair of parallel rails having a curvature corresponding to the path normally followed by the gondolas during their normal travel in the ride or roundabout proper, and members for guiding, routing and loading the gondolas, said members being so disposed that said gondolas can be uncoupled from their supports at the inlet end of the belt line and subsequently delivered to a side-track or siding to enable the passengers to step out from the gondolas, and finally re-coupled to said supports after the gondolas, having received other passengers, have been driven to the outlet end of said belt line.

The pair of guide rails, equipped with driven or loose rollers, are actuated by means of hydraulic or pneumatic rams or cylinders for either allowing the gondolas on the ride to proceed or diverting them by actuating the switches.

These rails are adapted to co-operate with ramps and chain emans responsive to thrust and abutment means, so as to separate the gondolas from their supports when the gondolas engage the gap between the close-spaced rails of the belt line where similar members are provided for coupling the gondolas to their supports.

Moreover, a loop track has one end overhanging the uncoupling station and another end overlying the coupling station.

The gondolas are suspended from an I-sectioned member engageable between the lips of a supporting plate connected to the suspension rod of the ride and provided with means operable by members rigid with the rails for separating or re-coupling the I-sectioned member and the support.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plane view from above illustrating diagrammatically a typical embodiment of the invention;

FIG. 2 is an end elevational view thereof;

FIG. 3 is a view similar to FIG. 1 but completed by gondolas shown during their transfer;

FIG. 4 is a vertical section taken along the axis of the belt line;

FIG. 5 is a detail view showing on a larger scale and in axial section a gondola with its support;

FIG. 6 is an end view corresponding to FIG. 5;

FIG. 7 is a horizontal section taken along the line VII—VII of FIG. 5, with the gondola support in its locked condition;

FIG. 8 is a horizontal section taken along the line VIII—VIII of FIG. 5, showing the release of a gondola;

FIG. 9 is a view similar to FIG. 8 but showing the coupling of a gondola to its support, and

FIG. 10 is a detail view showing a typical mounting of power rollers.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIG. 1, the essential component elements of the belt line or interchange system according to this invention for the gondolas of a fun-fair ride comprise a trailer frame structure or chassis 1 mounted on road wheels 2 and adapted to be coupled to a tractor or toher powered vehicle by means of a coupling socket 3. This frame comprises a pair of parallel transverse members 4, 5 having each pivoted thereon, by means of pivot pins 6, the lower ends of a pair of posts 7, 8 registering with each other, as shown. At their free upper ends these posts 7, 8 carry a pair of parallel guide rails 9, 9*a* rigidly secured thereto and carrying free-rotating rollers 10; however, power-driven rollers 10 may also be used.

The movements of the pivoted posts 7, 8 toward and away from each other is obtained by means of hydraulic or pneumatic rams 11 having their cylinders pivoted to the relevant cross member 4 or 5 and their piston rods connected to lower extensions 12 of said posts 7, 8.

These rams 11 are controlled either automatically or manually for each gondola switching or interchanging manoeuver.

At the inlet end the rails 9, 9*a* diverge slightly from each other (as shown on the left-hand portion of FIGS. 1 and 3) and comprise switches consisting on the side of rail 9 of an endless chain 13 driven by suitable means (not shown) and a flat metal ramp 14 carried by a bridge 15 rigid with a horizontal plate 16 secured to the post 7 and supporting the assembly consisting of said chain 13 and ramp 14; the chain 13 and ramp 14 are parallel to each other and comprise therebetween a guide 17 for the gondola suspension member 39.

The switches are operated by means of a control ram 48 having its piston rod rigid with a sliding rod 18 guided in a support 19 and provided with a perpendicular upturned head 20 engaging the end of another rod 21 rigid with a cam 22. This cam 22 is adapted to engage a roller follower 23 for controlling the release of the support 24 of each gondola.

A track comprising two rails 25 is disposed close to, and constitutes an extension of, the switches for directing by gravity, manually or mechanically the gondolas having completed a loop run to the gondola supply station 26.

The switches comprise on the opposite side 9*a* a flat metal ramp 27 co-acting with, and constituting the forward extension of, the ramp 14. Said flat metal ramp 27 is controlled by means of a ram 28 carried by the post

8. In this ramp a hole receiving a stop member 29 is formed for stopping the gondolas.

On the gondola supply side 26 a pair of guide ramps 30 and 31 actuated as in the preceding case by rams 32 and 33 are provided under the rails 9 and 9*a*; one of these ramps, for example ramp 30, has a hole formed through it for receiving an abutment rod 34.

Beneath the gondola supply station 26 the track 25 terminates in close vicinity of the ramps 30 and 31, and a chain 35 is provided for lifting the gondolas and positioning same between said ramps.

A ram 36 is provided for pivoting the assembly 26 vertically, when necessary.

Each gondola 37 comprises a suspension arm 38 terminating with an I-sectioned member 39 adapted to engage its web between the lips 40 of the support 24 of gondola 37.

This support 24 comprises a first spring-loaded pawl 41 rigid with the follower control roller 23 responsive to cam 22 (FIG. 8) and another opposite spring-loaded pawl 42.

The above-described assembly operates as follows:

When the gondola support 24 and the gondola 37 associated therewith approach the switches, of which the rails 9, 9*a* are moved towards each other by the action of the control rams 11 and the assembly comprising the chain 13 and ramps 14, 27 set by the rams 48 and 28 in an axial position, the cam 22 drives the pawl 41 so as to retract same and thus permit the egress of member 39 retained by the stop 29 while the support 24 continues its forward movement towards the gondola supply station.

At this time, the gondola 37 is released and its suspension arm is directed by the I-sectioned member 39 into the guide 17 extending between the chain 13 and ramp 14 towards the track 25, the support 24 rigid with the suspension arm 49 of the ride being also released and driven for engagement between the rails 9 and 9*a*.

At this time, the gondola 37 waiting at the top of the track 26 is held against movement by the stop 34 and engages the gap formed between the lips 40 of support 24, and the member 39 will push back and retract the pawl 42 so as to restore the coupling between the gondola 37 and a support 24. The assembly is then started and returned to the ride, and rotates therewith until the ride is stopped. During this time, the belt line is open. When the ride is stopped, the belt line is closed and the gondola 37 is aligned with the belt line, the arms 38 engaging the guide member 17 thereof for accomplishing the above-described uncoupling and supply cycle, while the supports 24 continue their travel between the rails 9 and 9*a*.

In the drawings, plain, loosely rotating rollers 10 mounted on the guide rails 9 and 9*a* are shown; however, it would not constitute a departure from the present invention to provide rollers 10 provided with shock-absorbers 43 and controlled mechanically by means of pulleys 33, an endless chain 45 and a return pulley 46, with the interposition of a tension roller 47.

Of course, this invention should not be construed as being strictly limited by the specific form of embodiment shown and described herein, since many modifications and changes may be brought thereto without departing from the gist of the invention, as will readily occur to those conversant with the art.

One of the essential advantages characterising this invention is that it permits of saving time, since the ride may continue to operate with gondolas filled with passengers while other gondolas wait on the rails or other passengers step in or out.

When the ride has completed its run, it is stopped, the belt line system remains open, the ride controlled by suitable rams (not shown) is inclined so as to present the gondolas to the belt line system; when the gondolas are in their aligned positions, the belt line is closed and each gondola supporting device is engaged between the rollers and driven thereby. The clamping action exerted by these rollers on the device is compensated by the shock-absorbers.

The uncoupling device is then started, the driven gondola engages the switches and is braked on the siding; after new passengers have stepped in, a mechanism drives the gondola towards the exit point of the belt line where it is locked and carried along by the supports having continued their travel.

When all the gondolas are loaded, the belt line opens and the ride resumes its operation.

What I claim as new is:

1. A device for automatically uncoupling and coupling the gondolas of a fun-fair ride, of the interchanger or belt-line type which comprises a frame structure 1 mounted on wheels 2 and having a pair of parallel cross members 4, 5 interconnecting a pair of longitudinal frame members at the ends of said device, two pairs of registering posts 7, 8 pivoted to said cross members, the posts of each pair being adapted to be moved towards and away from each other by manual or automatic means in order to move a pair of parallel rails 9, 9*a* towards and away from each other, said rails 9, 9*a* having the same curvature as the loop of said ride along which the gondolas are normally driven during the ride operation, one post 7 on the side of the incoming gondolas carrying beneath the rails 9, 9*a* an endless chain 13 and a ramp 14, the opposite post 8 carrying a longer ramp 27, members for controlling the movements of said rails and ramps in order to lock the coupling member 38 of a gondola 37 and allow the relevant support 24 to continue its travel between said rails, the pair of posts 7, 8 on the outlet side of the belt line comprising similar ramps 30, 31 adapted to cause said gondolas to be coupled with their supports, and a loop track 25 terminating on one side beneath the uncoupling station and on the other side beneath the coupling station for routing the released or uncoupled gondolas towards the coupling station.

2. Device as set forth in claim 1, wherein switches are provided at the inlet end of said belt line and comprise said endless chain 13 and said ramp 14, said switches being controlled simultaneously with the starting of said chain 13 by a ram 48 and a cam 22 rigid with a sliding rod 20 coupled to said ram 48, so as to release the driving arm of the gondola to be switched.

3. Device as set forth in claim 1, wherein the pivotal movements of the pairs of posts 7, 8 are controlled by means of rams 48, 28 at the inlet end of the belt line and by other rams 32, 33 at the outlet end thereof.

4. Device as set forth in claim 3, wherein each gondola is supported by a free arm 38 terminating with an I-sectioned beam 39 adapted to slide between the lips 40, 41 of a member 24 pivoted to the suspension arm 49 of the ride between a pair of retaining, spring-loaded pawls 41 and 42.

5. Device as set forth in claim 4, characterised in that an abutment rod 34 responsive to a control ram 32 is adapted to retain said gondola between said ramps 30, 31 at the outlet end of the belt-line.

6. Device as set forth in claim 1, wherein at least some of said rollers 10*a* carried by said rails 9, 9*a* are power rollers.

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