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(54) Amusement device

(57) This invention relates to an amusement device, for example a roller coaster, comprising a vehicle track, an amusement vehicle for one of more passengers, supported and guided by the vehicle track and vehicle drive means for effecting displacement of the amusement vehicle along the vehicle track. The amusement device according to the invention further comprises an emergency track, extending along at least a part of the vehicle track and a rescue carriage that can accommodate one or more passengers, supported and guided by the emergency track. Rescue carriage drive means are provided for effecting displacement of the rescue vehicle along the emergency track. A platform is part of the rescue carriage. When the amusement vehicle has come to a standstill, the rescue carriage can move towards the amusement vehicle, after which the passengers can disembark from the amusement vehicle onto the platform and enter the rescue carriage. The rescue carriage and the passengers accommodated thereby can move on to an exit position where the passengers can disembark the rescue carriage.

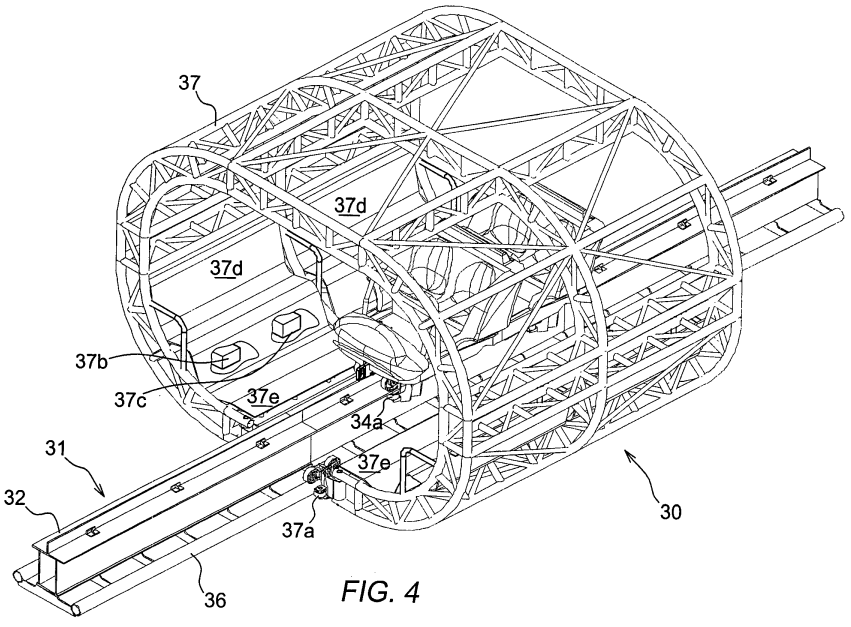


FIG. 4

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Description

[0001] The invention relates to an amusement device, for example a roller coaster, comprising a vehicle track, an amusement vehicle for one of more passengers, supported and guided by the vehicle track and vehicle drive means for effecting displacement of the amusement vehicle along the vehicle track.

[0002] This type of amusement device is well known from the art and applied in many amusement parks, mostly as roller coasters having an end-less track. In rare cases, it can occur that the vehicles are stuck in their position somewhere along the track. In particular when the vehicle drive means require electricity, such a blocking will occur in cases of power failure. It is also possible to effect an initial displacement of the amusement vehicle by launch means, after which the amusement vehicle is driven by gravity and/ or kinetic or potential energy. Blocking can occur due to unforeseen high friction between the vehicle and track or due to failure of wheels or due to wind effects. Therefore, many amusement devices are provided with an emergency power supply in order to return the vehicles and the persons in there to a safe place suitable for the one or more persons to be evacuated from the amusement device. Operators require that the time to evacuate people is short. It is common to limit this time to 20 minutes. Since this is often too short to restore the power supply or to activate the emergency power supply, other emergency provisions are often provided. For example towing vehicles with their own drive means can be installed on the vehicle track to tow back the vehicles to a safe place one by one. This, however, in general requires too much time. Another well-known emergency provision is a so-called cherrypicker, which can be of any type, provided with a platform for receiving persons. A cherrypicker can rescue people from the vehicle by allowing them to enter a cage. A drawback of such a cherrypicker is that in some cases, it is not possible for the cherrypicker to reach all places of the vehicle track, for example parts of the vehicle track located above water or in a tunnel. Moreover, the use of cherrypickers or cranes is unwanted because of the negative publicity the use of such vehicles generates.

[0003] The object of the invention is to provide an amusement device with an emergency provision capable of rescuing one or more persons from the vehicle so that the passengers can move on to an exit position, in particular from parts of the vehicle track that are difficult to reach.

[0004] This objective is accomplished by an amusement device according to the invention, comprising an emergency track, distinct from the vehicle track, extending along at least a part of the vehicle track, a rescue carriage that can accommodate one or more passengers, supported and guided by the emergency track, rescue carriage drive means for effecting displacement of the rescue vehicle along the emergency track, a platform, being part of the rescue carriage, so that when the amusement vehicle has come to a standstill the rescue carriage can move towards the amusement vehicle, after which the passengers can disembark from the amusement vehicle onto the platform and enter the rescue carriage, so that the rescue carriage and the passengers accommodated thereby can move on to an exit position where the passengers can disembark the rescue carriage.

[0005] Such a separate emergency track allows the rescue carriage to move along and overtake one or more amusement vehicles. The vehicle track can for example be an end-less vehicle track. At relevant places of the vehicle track where possibly rescuing operations should take place, the emergency track should extend along the vehicle track. After such a place, the emergency track can deviate from the vehicle track to a safe place where the persons can leave the rescue carriage.

[0006] The vehicle drive means and the emergency carriage drive means may comprise rollers, a motor and a storage battery. Possibly, a linear motor is used, or alternatively, a hydraulic motor is used. The amusement device can also be gravity-based, as a result of which vehicle drive means are provided in a particular place, for example as a lift ramp in the vehicle track. The vehicle drive means can be designed as launch means such as a catapult. Then, it is not necessary to provide each vehicle with vehicle drive means. Separate rescue drive means make it possible for the rescue carriage to be moveable when the drive means of the amusement vehicle fail. For example, the rescue drive means comprise a manually operable cable winch to drive the rescue carriage, or a back-up power unit to drive the emergency carriage. A platform allows the passengers to leave the amusement device in a safe manner: when the amusement vehicle stands still, for example in cases of power failure, the rescue vehicle can move with its own driving means to the amusement vehicle. The platform of the amusement vehicle preferably extends below the amusement vehicle, so that no gap is present. In a preferred embodiment, the platform is of a non-transparent construction, to prevent panic from passengers with hydrophobia or fear of heights. The passenger can disembark the amusement vehicle by stepping on the platform. The sense of safety of the passenger will increase when no ground or water is visible under the platform. From the platform, the passenger can take a seat in the rescue carriage and move on to an exit position. An exit position suitable for the one or more persons leaving the amusement device can for example be a staircase for descending to ground level.

[0007] In possible embodiments of the amusement device according to the invention, the emergency track extends next to, below or above the vehicle track. Both the vehicle track and the emergency track can comprise any type of rail, such as a monorail or two parallel rails, or other track types such as a hovertrain track or a cable. Possibly, the emergency track comprises a monorail positioned above the vehicle track. In another possible em-

bodiment, an emergency track comprising two rails is provided below the vehicle track, making it possible for a tunnel-shaped emergency carriage to cross over the amusement vehicle.

[0008] In a preferred embodiment of the amusement device a composite rail construction comprises the vehicle track and the emergency track. Benefits of such a composite rail construction are for example that it is easy to be constructed, it does not require many additional materials, and it does not require a lot more space. The additional emergency track will (almost) be invisible.

[0009] The rescue carriage is preferably provided with enough seats to rescue at least the persons of one amusement vehicle, but possibly also the persons of more amusement vehicles. Possibly, rows of seats or benches are provided on both sides of the vehicle track. This allows passengers to leave the amusement vehicle on both sides. Possibly also safety belts are provided with the seats in the rescue carriage. In another preferred embodiment, no seats are provided in the rescue carriage. The passengers are moved to the exit position standing on the platform, preferably in a restraint device.

[0010] In a preferred embodiment of the amusement device according to the invention, the rescue carriage is designed such that it is capable of at least partially covering one or more amusement vehicles. When at least partially covering the amusement vehicle from which persons are to be rescued, this rescuing operation can be performed without being visible from outside the amusement device. This is in particular beneficial in cases where the persons to be rescued are in panic, or when they are seated uncomfortably in the amusement vehicle, for example when a person is wearing a skirt.

[0011] More preferably, the rescue carriage is designed such that in rest, i.e. not in the case of emergencies, the rescue carriage forms part of the surroundings of the amusement device. For example, when the rescue carriage is designed as a tunnel part, capable of 'cocooning' an amusement vehicle, this tunnel part can be placed in front of a tunnel forming part of the scenery of the amusement device. In normal operation, the amusement vehicle can drive through this tunnel element. Also, the rescue carriage can be shaped as part of a solar panel, placed in an outer space scenery. Many more other designs of the rescue carriage are possible.

[0012] In a preferred embodiment, the rescue carriage can also be used as a maintenance carriage for the maintenance of, for example, the amusement track, the scenery or amusement vehicles.

[0013] The amusement device according to the invention can furthermore be provided with tugger vehicles to tug the abandoned amusement vehicles back to a starting position of the amusement device. In a preferred embodiment, the rescue carriage is capable of tugging one or more amusement vehicles.

[0014] The invention furthermore relates to a method of rescuing persons from a vehicle of an amusement device, using a rescue carriage according to any of the previous claims.

[0015] The invention furthermore relates to a rail construction comprising at least a tread for a vehicle, suitable for transporting one or more persons in an amusement device, and a tread for a rescue carriage, capable of rescuing one or more persons from the vehicle and transporting them to a safe place suitable for the one or more persons leaving the amusement device.

[0016] The invention will be explained in more detail with reference to the drawings, in which:

Figures 1a and 1b show schematically a first embodiment of an amusement device according to the invention,
Figure 2 shows schematically a second embodiment of an amusement device according to the invention,
Figure 3 shows schematically a third embodiment of an amusement device according to the invention,
Figure 4 shows schematically a fourth embodiment of an amusement device according to the invention,
Figure 5 shows a cross-section through the amusement device of figure 4,
Figure 6 shows a cross-section through a fifth embodiment of an amusement device according to the invention,
Figure 7 shows an embodiment of a tugger vehicle
Figure 8 shows schematically a sixth embodiment of an amusement device according to the invention.

[0017] Figures 1a and 1b show schematically a first embodiment of an amusement device 1 according to the invention. In figure 1a, a schematic perspective view of a vehicle track 2 is shown, composed of two mutually connected parallel rails. Along the vehicle track 2 at least one amusement vehicle 3, shown schematically in figure 1b, is moveable by vehicle drive means 4. The vehicle drive means could be an autonomous motor for each vehicle, but also a centrally driven winch system. The vehicle drive means could also include a lift ramp in the track as is e.g. common for gravity-based roller coasters and the like. In the vehicle 3 one or more persons 5 can be seated. Next to the vehicle track 2 an emergency track 6 extends. In the shown part of the vehicle track 2 the emergency track 6 extends substantially parallel to the vehicle track 2. The emergency track 6 is designed as a monorail, on which a rescue carriage 7 is moveable. The rescue carriage 7 comprises a platform 7a onto which the persons can step to enter the carriage 7. Platform 7a is designed as a floor. Furthermore the rescue carriage comprises a bench 7b, possibly equipped with safety belts (not shown). The rescue carriage can be designed as open or close as desired. In fig. 1b it is indicated in dotted lines how much a cover 7c could (not) cover the vehicle 3. In a possible embodiment, parts of the cover 7c could be removable. For example, a wall part could turn away in a horizontal position to be stored under the platform or be a part of the scenery. Alternatively, part of the cover could be formed by painted fabric, which can

be curled up.

[0018] Figure 2 shows schematically a second embodiment of an amusement device 10. A vehicle track 12 is composed of two parallel mutually connected rails, along which at least one amusement vehicle 13 is moveable. In the amusement vehicle 13 two persons 15 are seated. Above the vehicle track 12, an emergency track 16 extends in parallel. The emergence track 16 is in the shown embodiment designed as a cable, but also a monorail or other form of rail could be used. A rescue carriage 17 is connected to the cable 16. The rescue carriage 17 is composed of two wing-shaped elements, capable of at least partially encapsulating the vehicle 13. The wing parts 17 could comprise hinges at the upper end close to the cable 16, in order to hinge the wings 17 away when desired. Each wing 17 comprises a platform 17a onto which the passengers can enter the carriage 17. Furthermore, seats 17b with seat belts 17c are provided in the rescue carriage 17.

[0019] Fig. 3 shows yet another embodiment of the amusement device according to the invention. Amusement device 20 comprises a vehicle track 22 composed of two mutually connected parallel rails and an emergency track 26 also composed of two mutually connected parallel rails, located below the vehicle track 22. On the vehicle track 22 amusement vehicles such as vehicle 23 are moveable, into which one or more persons can be seated. On the emergence track 26 a very diagrammatically shown rescue carriage 27 is moveable. The rescue carriage 27 completely encapsulates the amusement vehicle 23. For reasons of clarity, part of the carriage 27 is depicted open.

[0020] Figs. 4 and 5 show a preferred embodiment of an amusement device 30. A framework rescue vehicle 37 is shown, cocooning a single rail construction 31. The framework can be covered by any type of painted plating. The rail construction 31 has a vehicle track 32 for an amusement vehicle 33 to travel across, and an emergency track 36 along which the rescue carriage 37 can travel. The vehicle track 32 is designed as an upside-down turned "T", around which rollers 34a of guide means 34 of the amusement vehicle 33 clasp. The emergency track 36 is designed as a set of parallel tube-shaped bars, around which wheels 37a of the rescue carriage 37 clasp. The rescue carriage 37 is furthermore provided with a motor 37b and a storage battery 37c. Benches 37d and platforms 37e are provided on both sides of the rescue carriage 37. The rescue carriage 37 is designed as a tunnel element through which the amusement vehicle can drive.

[0021] Fig. 6. shows a cross-section through an amusement device 60. A rail construction 61 comprises two rails 62 forming a vehicle track 62. Across the vehicle track 62, a vehicle 63a can travel, whereby rollers 63b, connected via framework 63c to the vehicle 63a, roll along rails 62. The rails 62 form a continuous track. Rail construction part 61a connects to rail construction to the ground. Furthermore, the rail construction 61 comprises two rails 66 forming an emergency track 66. Across the emergency track 66, a rescue carriage 67a can travel, whereby rollers 67b, connected via framework 67c to the rescue carriage 67a, roll along rails 66. The rescue carriage 67 is provided with two platforms 67d, extending below the amusement vehicle 63a. Furthermore, restraints 67e are provided, capable of strapping a standing person.

[0022] Fig. 7 shows an example of a tugger vehicle 40. Such a tugger vehicle can collect the amusement vehicles one by one, for example in cases of malfunctioning of the vehicle drive means. Preferable, the passengers of these amusement vehicles have been rescued by a rescue carriage according to the invention. The tugger vehicle 40 moves along the amusement vehicle track 32 with rollers 41. The tugger vehicle 40 is driven by motors 42, and the tugger vehicle 40 is provided with storage batteries 43.

[0023] In fig. 8 a sixth embodiment of an amusement device 50 according to the invention is shown very diagrammatically. This amusement device comprises a vertical vehicle track 52 which supports and guides amusement vehicles designed as seats 53. Possibly, the amusement vehicles are rows of seats. The seats are driven along the vehicle track 52 by vehicle drive means 54. An emergency track 56 is provided parallel and close to the vehicle track 52. Along this emergency track 56 rescue carriages 57, again designed as seats, can travel. The rescue carriages 57 are each provided with a platform 57a onto which the passengers to be rescues can step. The rescue carriages 57 are driven by rescue carriage drive means 57b when it is necessary to rescue passengers.

Claims

1. Amusement device, for example a roller coaster, comprising:

- a vehicle track,
- an amusement vehicle for one of more passengers, supported and guided by the vehicle track,
- vehicle drive means for effecting displacement of the amusement vehicle along the vehicle track,

characterized by

- an emergency track, extending along at least a part of the vehicle track,
- a rescue carriage that can accommodate one or more passengers, supported and guided by the emergency track,
- rescue carriage drive means for effecting displacement of the rescue vehicle along the emergency track,
- a platform, being part of the rescue carriage, so that when the amusement vehicle has come

to a standstill the rescue carriage can move towards the amusement vehicle, after which the passengers can disembark from the amusement vehicle onto the platform and enter the rescue carriage, so that the rescue carriage and the passengers accommodated thereby can move on to an exit position where the passengers can disembark the rescue carriage.

2. Amusement device according to one or more of the previous claims, in which the emergency track extends next to, below or above the vehicle track.

3. Amusement device according to one or more of the previous claims, in which a composite rail construction comprises the vehicle track and the emergency track.

4. Amusement device according to one or more of the previous claims, in which the vehicle track and/ or the emergency track comprise a rail or a cable.

5. Amusement device according to one or more of the previous claims, the rescue carriage comprises seats, preferably on both sides of the vehicle track, preferably rows of seats or benches, preferably provided with seat belts.

6. Amusement device according to one or more of the previous claims, in which in which the rescue carriage is designed such that it is capable of at least partially covering one or more amusement vehicles.

7. Amusement device according to one or more of the previous claims, in which the rescue carriage is designed as a tunnel element through which the amusement vehicle can drive.

8. Method of rescuing persons from a vehicle of an amusement device, using a rescue carriage according to any of the previous claims.

9. Composite rail construction comprising

- a vehicle track supporting and guiding an amusement vehicle for one of more passengers,
- an emergency track extending partly along the vehicle track, supporting and guiding a rescue carriage that can accommodate one or more passengers.

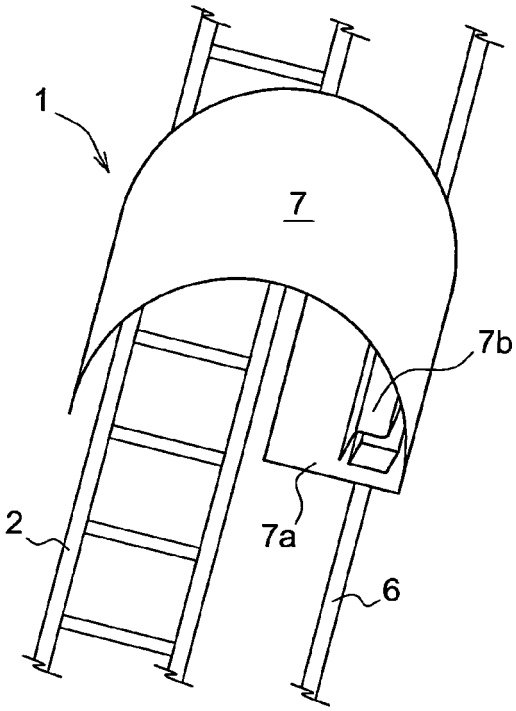


FIG. 1a

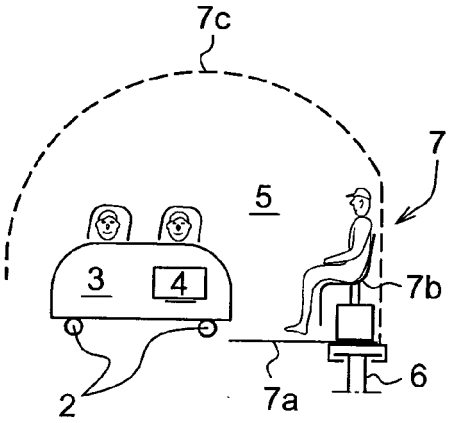


FIG. 1b

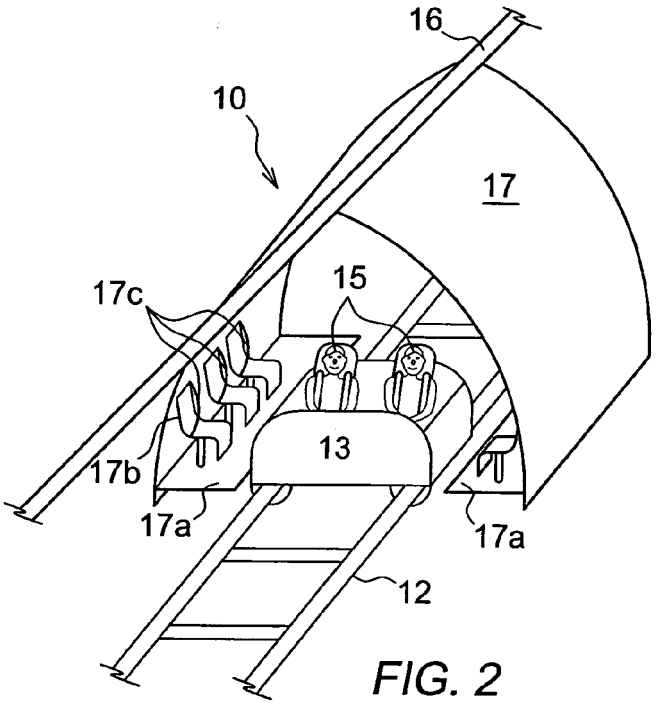


FIG. 2

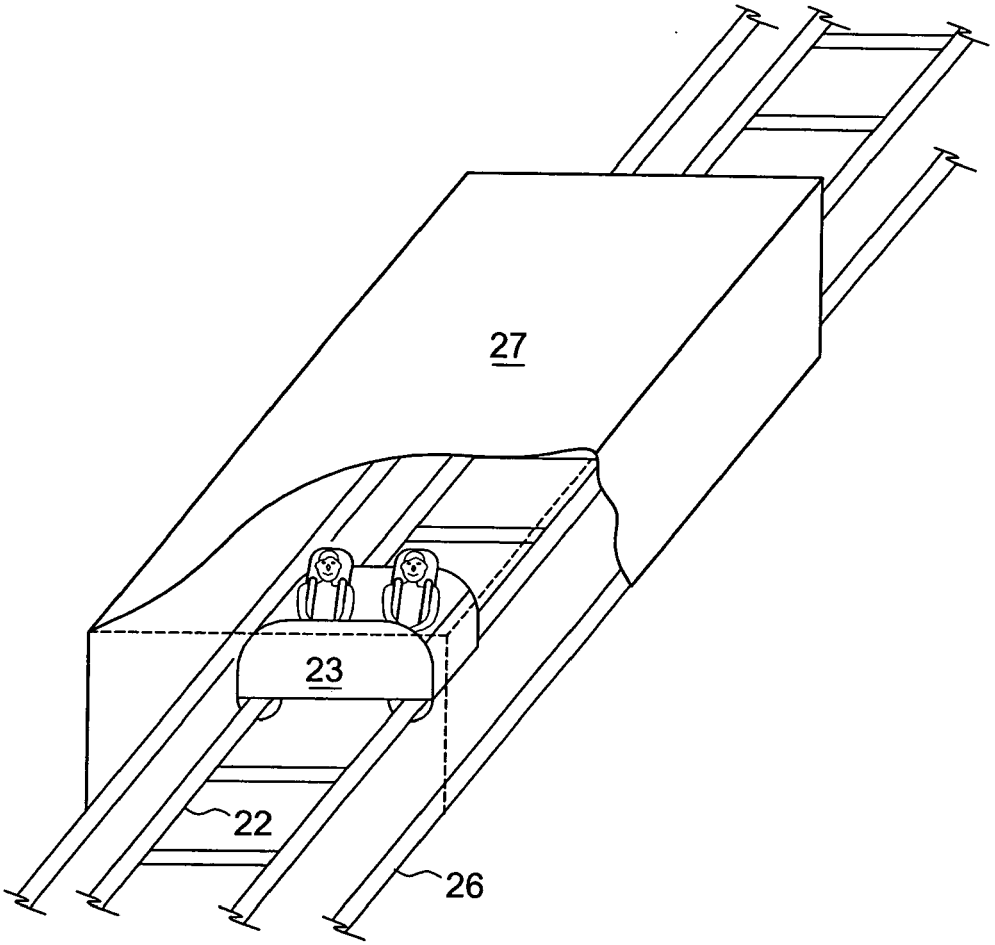


FIG. 3

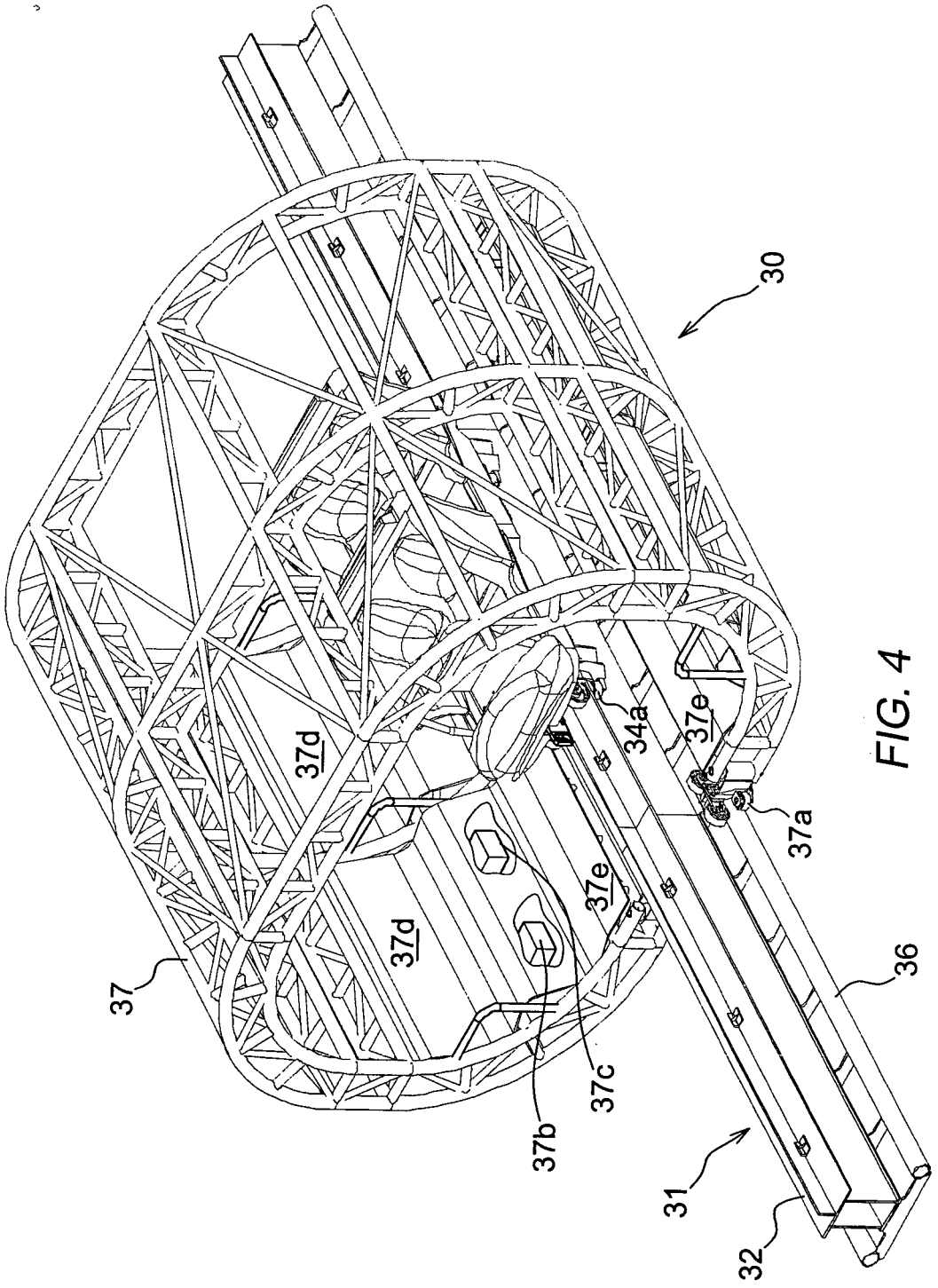


FIG. 4

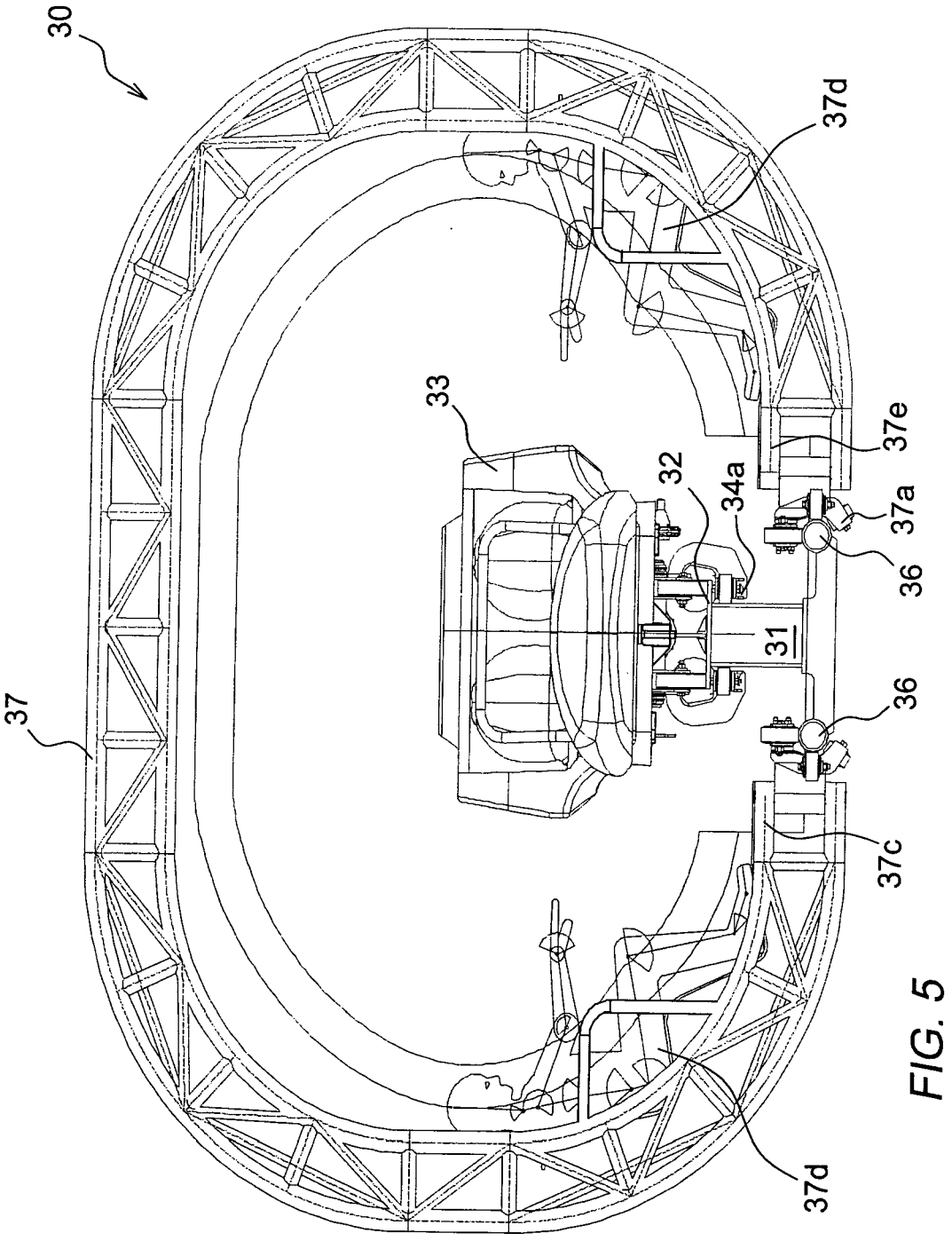


FIG. 5

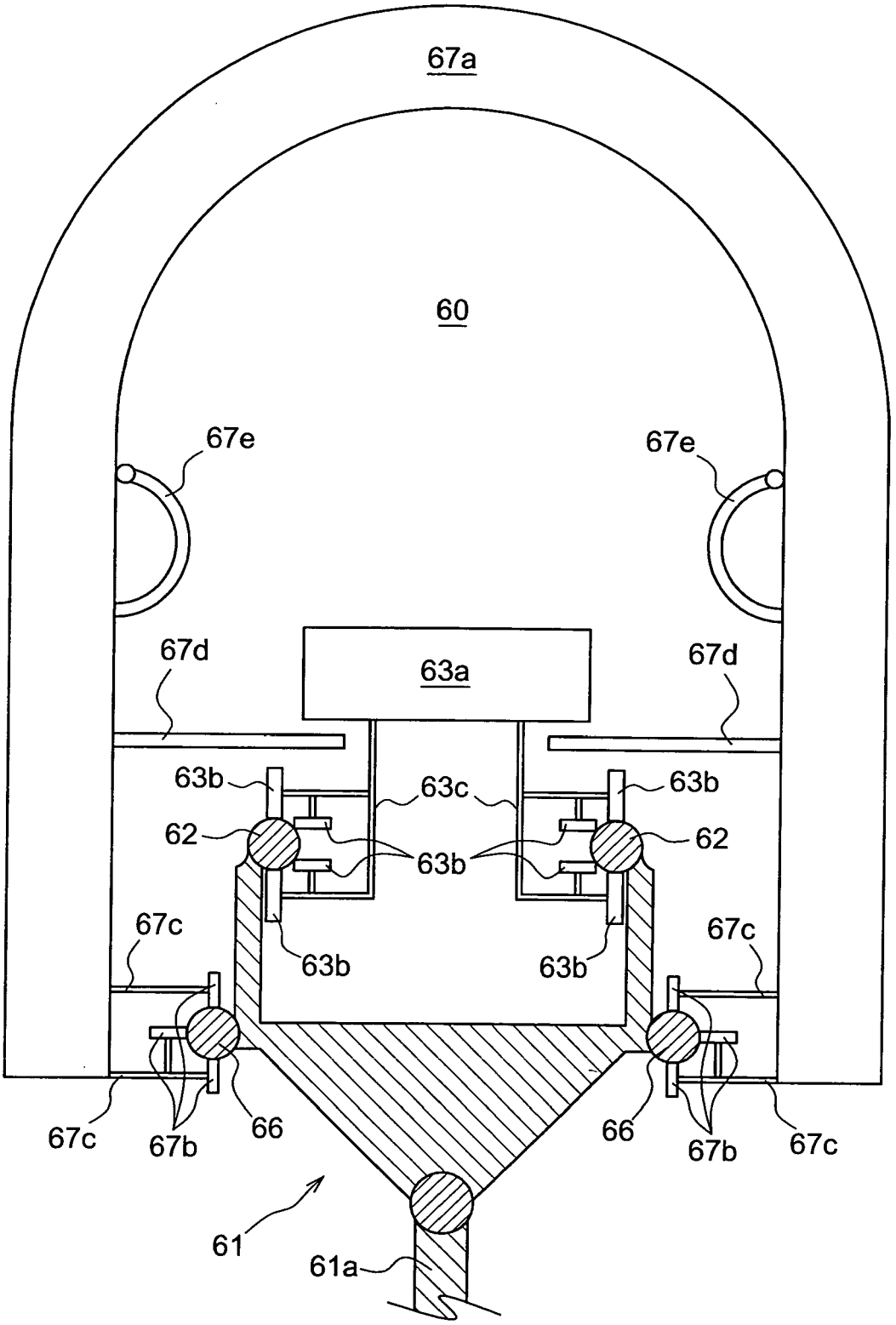

67a
60
67e
67e
67d
63a
67d
63b
63c
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FIG. 6

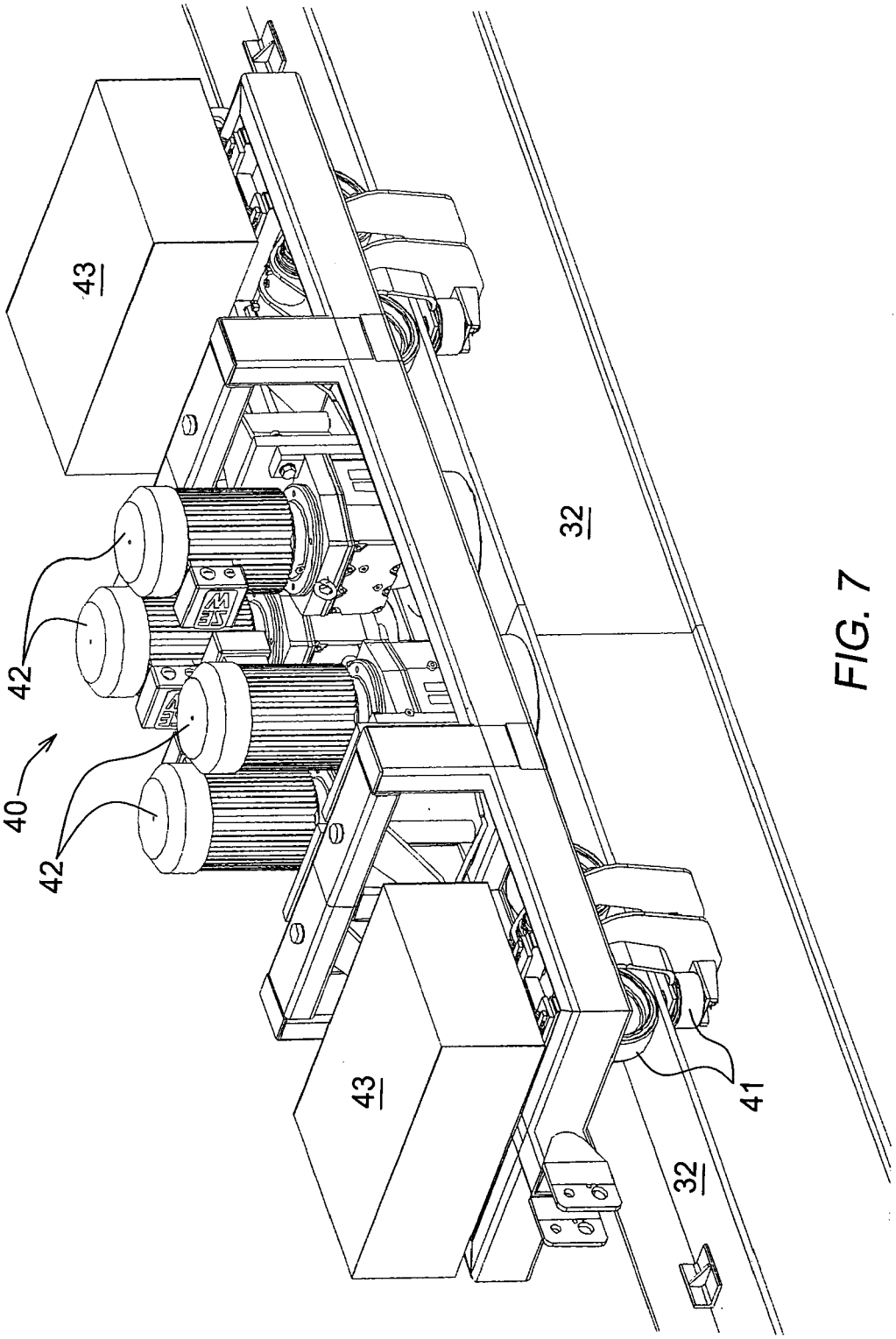


FIG. 7

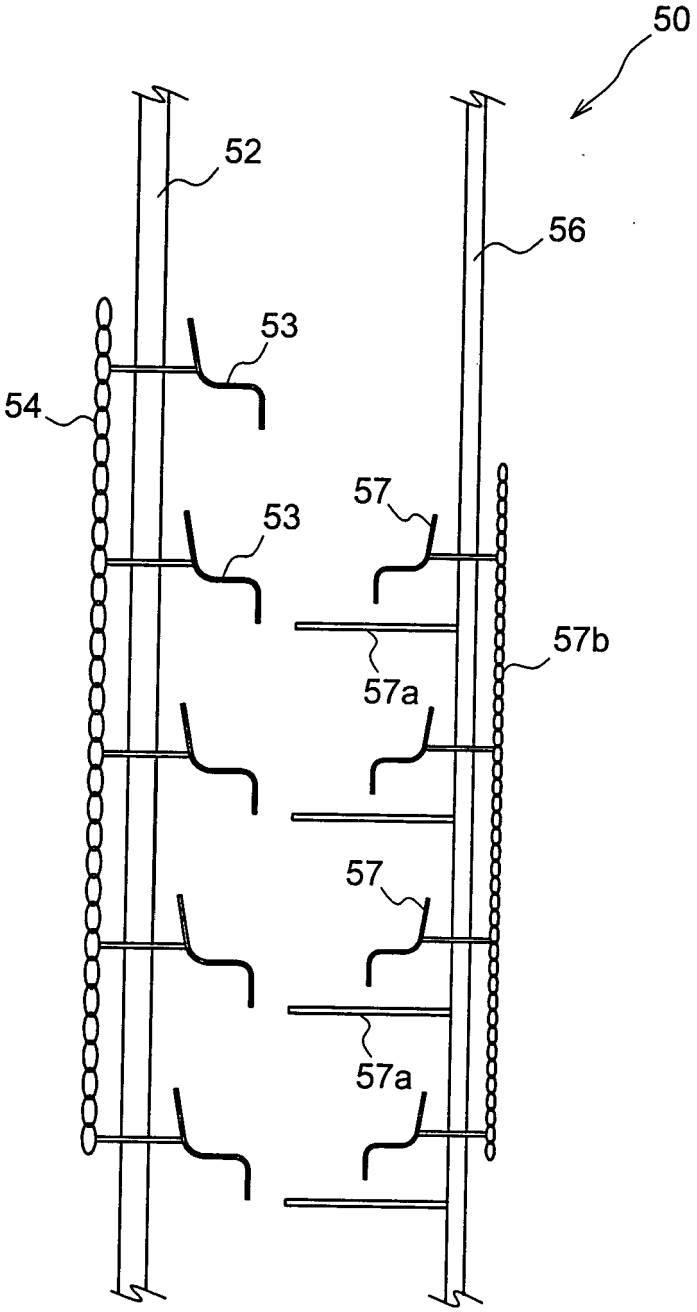


FIG. 8

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EUROPEAN SEARCH REPORT

Application Number
EP 05 07 6122

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

A63G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	2 December 2005	Turmo Peruga, R

CATEGORY OF CITED DOCUMENTS

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