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(54) **Equipment for funfair**

(57) An equipment for a funfair comprises:
- a rigid closed shell (20) provided internally thereof with at least a place for a passenger;
- a frame (10) for supporting the shell (20),
- being means for constraining and supporting the shell which enable the shell (20) to rotate about an axis which varies continuously throughout a range of a plurality of axes having any orientation;
- and means for imparting rotations on the shell, which rotations are unordered with respect to the axis.

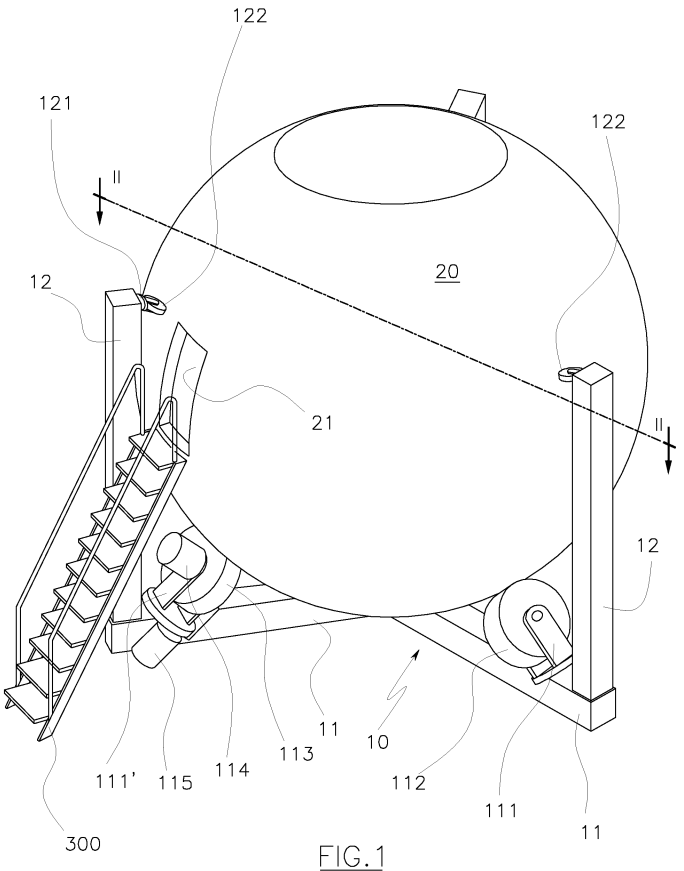

FIG. 1

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Description

[0001] The invention relates to equipment for a funfair, affording places to a certain number of passengers who are solidly anchored internally of a moving ride, for example constituted by a closed shell.

[0002] The invention relates to the field of equipment which offers passengers a random series of unordered and unpredictable ride trajectories.

[0003] The passengers' enjoyment consists in being subjected to centrifugal forces and accelerations which vary continuously in direction and sort.

[0004] The aim of the invention is to make available an equipment which realises the above movements on a continuous trajectory which varies without any continuity of course, but randomly.

[0005] The aim is attained by an equipment which rotates unorderedly about an axis which continuously changes within a bundle of axes all passing through a point.

[0006] The point can be fixed or can be subjected to unordered movements.

[0007] The equipment is constituted by a closed shell, generally of an ovoid shape, preferably spherical, internally of which are located places for the passengers to sit, for example solidly anchored seats which receive and securely hold the passengers.

[0008] The shell is supported on a frame by means for constraining which enable the shell to rotate about a diameter axis thereof which axis changes continuously thanks to the motion imparted on the shell.

[0009] The means for constraint can be of various nature, and in themselves of known type, such as a trio of pirouetting wheels, a trio of idle spherical bearings, or even means for support based on an air cushion, or simple sliding supports having a low friction coefficient.

[0010] The motion allowed by the means for constraint comprises a succession of rotations which, in the case of a open or closed spherical shell, maintain the centre of the spherical shell fixed with respect to the frame.

[0011] The frame can be subjected in turn to unordered movements.

[0012] The invention further comprises means for imparting the desired movements on the shell with respect to the frame, as well as means for imparting the unordered movements on the frame.

[0013] The constructional and functional advantages and characteristics of the invention will emerge clearly from the detailed description that follows, illustrated by the figures of the appended drawings, which illustrate a preferred but non-limiting embodiment, given by way of example.

Figure 1 illustrates the invention in a perspective view in a first embodiment thereof.
Figure 2 is a section along line II-II of figure 1.
Figure 3 is a detail of figure 1.
Figure 4 is section along line IV-IV of figure 2.
Figure 5 shows the invention is a perspective view, in a second embodiment thereof.
Figure 6 is a view along section VI-VI of figure 5.
Figure 7 is a detail of figure 1.

[0014] With reference to the first embodiment, illustratred in figures 1-4, 10 denotes a base frame constituted by three beams 11 which are coplanar and diverging and positioned at 120° from one another.

[0015] A column 12 rises from the ends of each of the three beams 11.

[0016] At the ends of the beams 11, in proximity to the columns 12, are located two identical forks 111, one only of which is visible on the right of figure 1, and a further fork 111', , all of which forks 111, 111' are each rotatable about an axis thereof, which axis preferably converges together with the axes of the other forks towards a common point, fixed relative to the frame 10.

[0017] Each of the two forks 111 bears an idle wheel 112, while the further fork 111' bears a wheel 113 keyed on the shaft of an electric motor 114 fixed to the fork.

[0018] The rotations of the shaft of the motor 114 are controlled by an encoder, not illustrated, and are commanded by an electric processor according to a predetermined program.

[0019] The axis of the fork 111' bearing the motor 114 is connected to the shaft of a motor 115 which causes the fork 111' to rotate at random.

[0020] The rotations of the fork 111', which preferably have an oscillating motion, are controlled by an encoder, not illustrated, and are commanded by an electronic processor according to a predetermined program.

[0021] A shell 20, in the first embodiment having a spherical conformation, rests on the three wheels 112, 113, a centre of which shell 20 preferably coincides with the point of convergence of the rotation axes of the forks 111, 111'.

[0022] At the top of the columns 12 are located three identical forks 121 which are each free to rotate about an axis thereof, which axis preferably converges, together with the other axes, towards the point of convergence of the rotation axes of the forks 111 and 111'.

[0023] Each of the three forks 121 bears an idle wheel 122.

[0024] The three wheels 122 are placed in sliding contact with the spherical closed shell 20 having the centre thereof preferably coinciding with the point of convergence of the rotation axes of the forks 111, 111' and 121.

[0025] The forks 111 and 121 with the relative wheels realise a system of pirouetting wheels, i.e. wheels which can be freely oriented in all directions by rotating about the rotation axes of the respective forces.

[0026] By activating the motor 114 the spherical shell 20 is set in rotation about the axis passing through the centre and parallel to the rotation axis of the wheel 113.

[0027] By activating the motor 115 the direction of the axis of the motor 114 is changed, as is the rotation axis of the spherical shell 20 (figure 7).

[0028] The rotations of both motors 114 and 115 are controlled by an encoder which commands a halt in a fixed position, which is also the rest position of the spherical shell 20.

[0029] The spherical shell 20 exhibits a door 21 for opening and gaining access to the inside thereof, which door 21, in the rest position, is always in the same place, indicated in figure 1, for access and exit of the passengers, using a removable staircase 300.

[0030] A ledge 22 is arranged at the same level as the door 21 (figure 2) on an internal side of the spherical shell 20, and fixed by known means which are not illustrated.

[0031] The ledge 22 is on a diameter plane of the spherical shell 20, at an equator of the spherical shell 20, and seats 23 are solidly anchored on the ledge 22, which seats 23 are equipped with security belts for retaining the passengers.

[0032] The spherical shell 20 can also contain a plurality of ledges in parallel positions, or also a series of seats arranged randomly.

[0033] With the aim of improving passenger safety, a ballast weight 24 is used (figure 4); the weight 24 is fixed to the shell in a special zone thereof i.e. a zone where it will bring the shell back into the rest position should the motors 114, 115 break down.

[0034] In the illustrated embodiment, the ballast weight 24 is located internally of the shell, at the lower "pole" thereof. Naturally, the weight of the ballast weight 24 is chosen taking into account the weight of the shell 20 including the weight of the passengers and the power of the motors 114, 115.

[0035] The spherical shell 20 is generally constructed by welding segments of sheet metal having a spherical profile, and can exhibit polar zones thereof constituted by a transparent cap.

[0036] The random activation of the motors 114 and 115 can be commanded either manually or, as mentioned before, via an electronic processor which responds to a special program.

[0037] In the second embodiment, shown in figures 5 and 6, the equipment exhibits a shell 220 having a hemispherical configuration.

[0038] The shell 220 is open rather than closed, as in the first embodiment.

[0039] With respect to the first embodiment as described above, in the second embodiment the three columns with respective fixed forks with wheels located at the top thereof are absent. All the remaining elements of the first embodiment are present in the second embodiment, where they are denoted using the same numerical references with the addition of the suffix "2". Thus, for the descriptions of those common elements, reference is made to the description relating to the first embodiment.

[0040] In the above-illustrated examples the frame 10, 210 is fixed to the ground surface; it could however be supported, at least at one of the beams 11, 211, by mobile rest means which can impart unordered motion thereon.

[0041] The mobile means are easily imaginable by an expert in the field and are therefore not described or illustrated further herein.

[0042] Although in the present invention the shell used to realise the equipment for a funfair is represented and described with reference to spherical configurations, it would however be possible to use any other configuration able to contain seats for passengers and to be rotated about an axis which varies continuously throughout a plurality of axes having any orientation. Purely by way of example, an alternative to the described configurations might be shells having an elliptical shape.

Claims

1. Equipment for a funfair, comprising:

- a rigid closed shell (20) provided internally thereof with at least a place for a passenger;
- a frame (10) for supporting the shell (20);
- being means for constraining and supporting the shell which enable the shell (20) to rotate about an axis which varies continuously throughout a range of a plurality of axes having any orientation;
- means for imparting rotations on the shell, which rotations are unordered with respect to the axis.

2. The equipment of claim 1, **characterised in that** the means for constraining and supporting the shell are a trio of pirouetting wheels (112, 113).

3. The equipment of claim 2, **characterised in that** the axes about which the wheels (112, 113) pirouette converge towards a single point.

4. The equipment of claim 3, **characterised in that** the point is internal of the shell (20).

5. The equipment of claim 1, **characterised in that** the means for constraining and supporting the shell (20) are a trio of idle spheres.

6. The equipment of claim 1, **characterised in that** the means for constraining and supporting the shell (20) are means for sliding having a low friction coefficient.

7. The equipment of claim 1, **characterised in that** the means for imparting unordered rotations on the shell are a wheel (113) arranged tangentially of the shell (20), the wheel being mounted on a fork (111'), an axis of which fork (111') is free to rotate with respect to the frame (10); a first electric motor (114) having controlled rotations and being mounted on the fork (111') in order to set the wheel (113) in rotation, and a second electric motor (115) having controlled rotations and being mounted on the fork (111') in order

to set the fork (111') in rotation with respect to the frame (10).

8. The equipment of claim 7, **characterised in that** it comprises an electronic processor which independently commands the rotations of the first and second electric motors (114, 115) according to a program ordering random movements thereof.

9. The equipment of claim 1, **characterised in that** at least a circular ledge (22) is located internally of the shell, on which at least a circular ledge (22) a series of seats (23) for passengers is aligned.

10. The equipment of claim 9, **characterised in that** the shell (20) is provided with an opening (21) for access to seats (23).

11. The equipment of claim 1, **characterised in that** a ballast weight (24) is fixed internally of the shell (20), which ballast weight (24) returns the shell (20) into a rest position.

12. The equipment of claim 1, **characterised in that** the shell (220) exhibits a closed spherical conformation.

13. The equipment of claim 1, **characterised in that** the shell (220) exhibits an open hemispherical conformation.

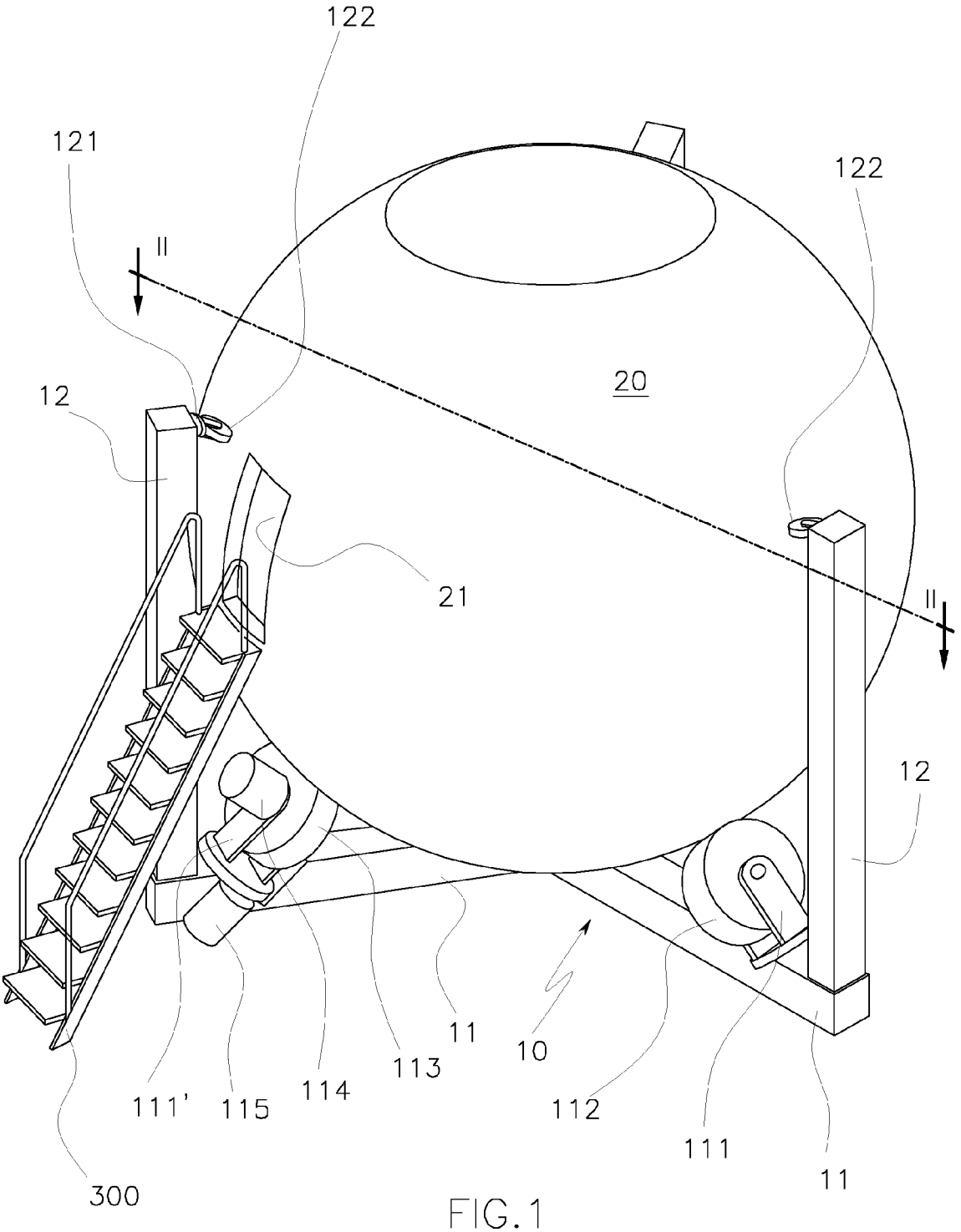


FIG.1

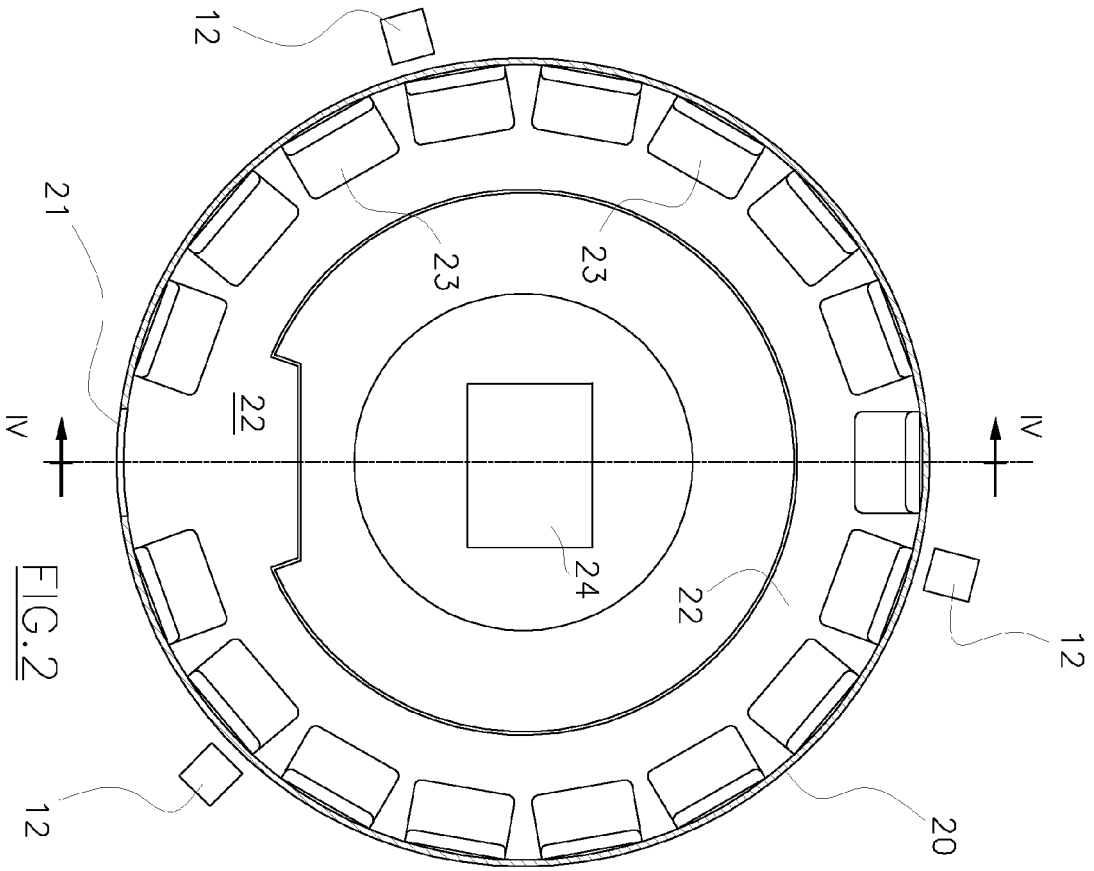


FIG.2

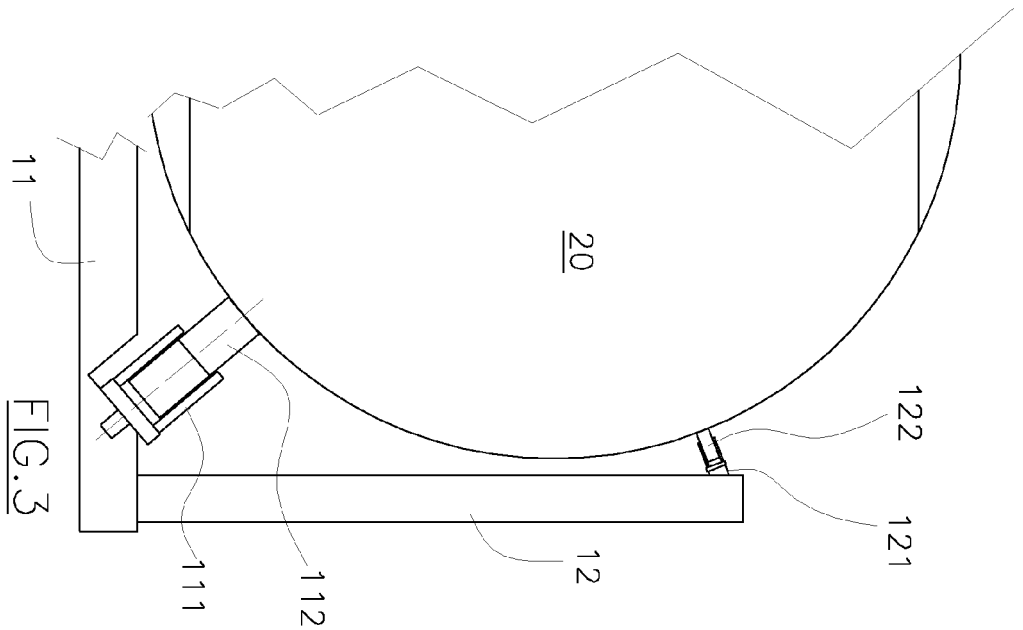
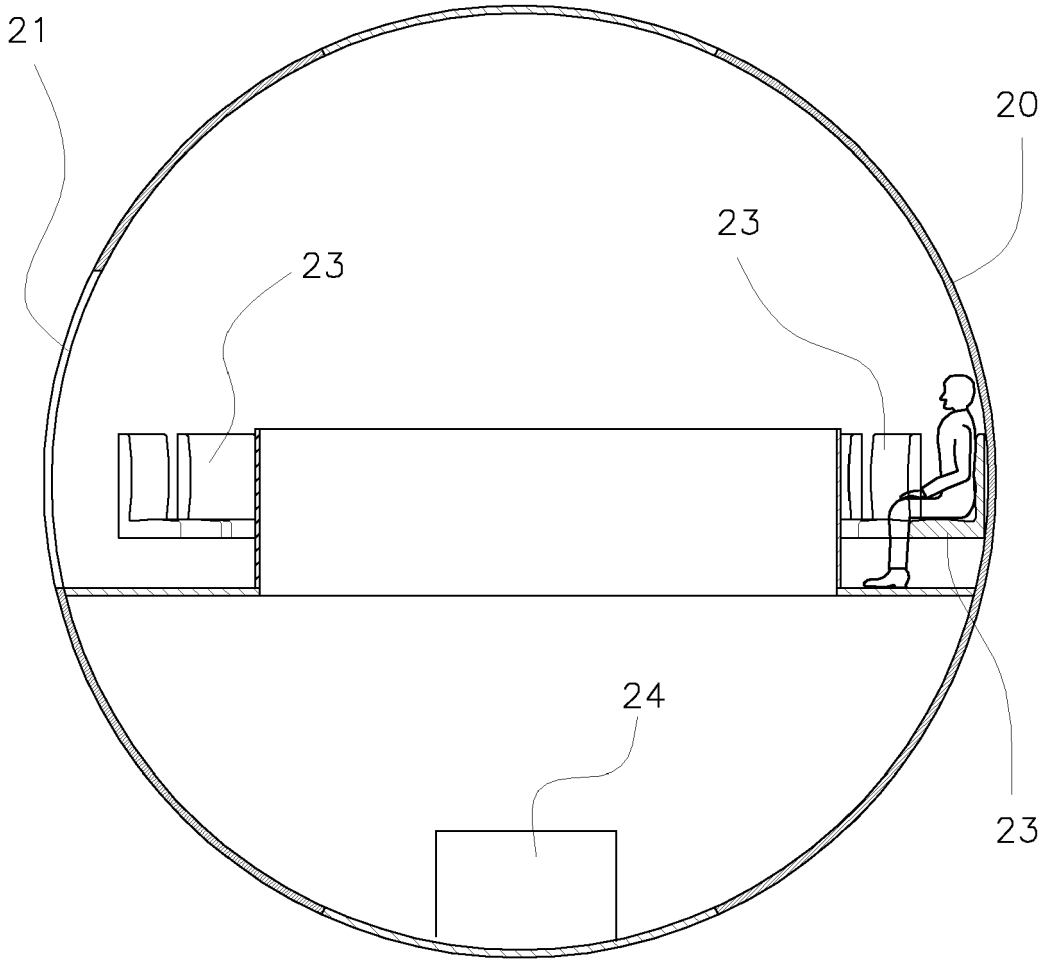


FIG.3

FIG.4



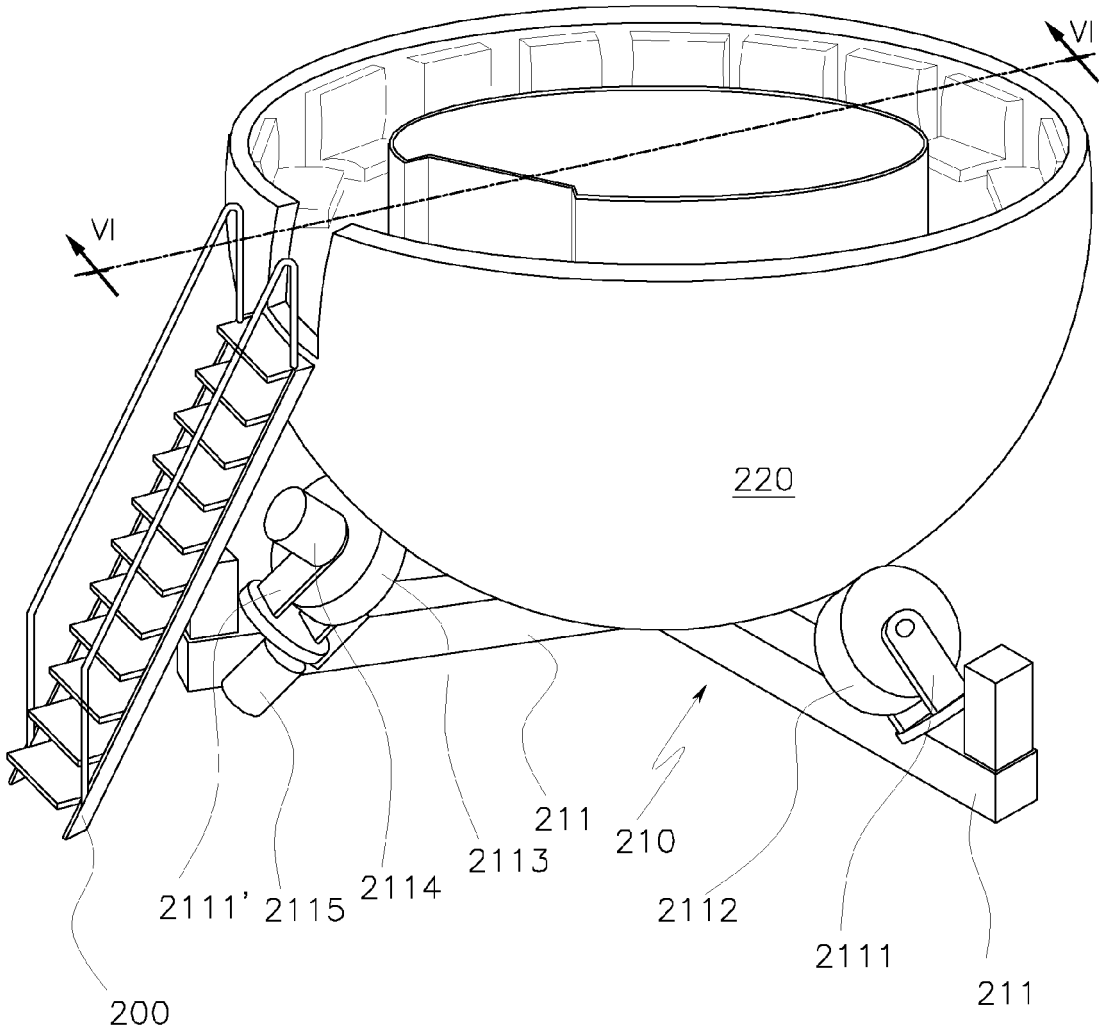
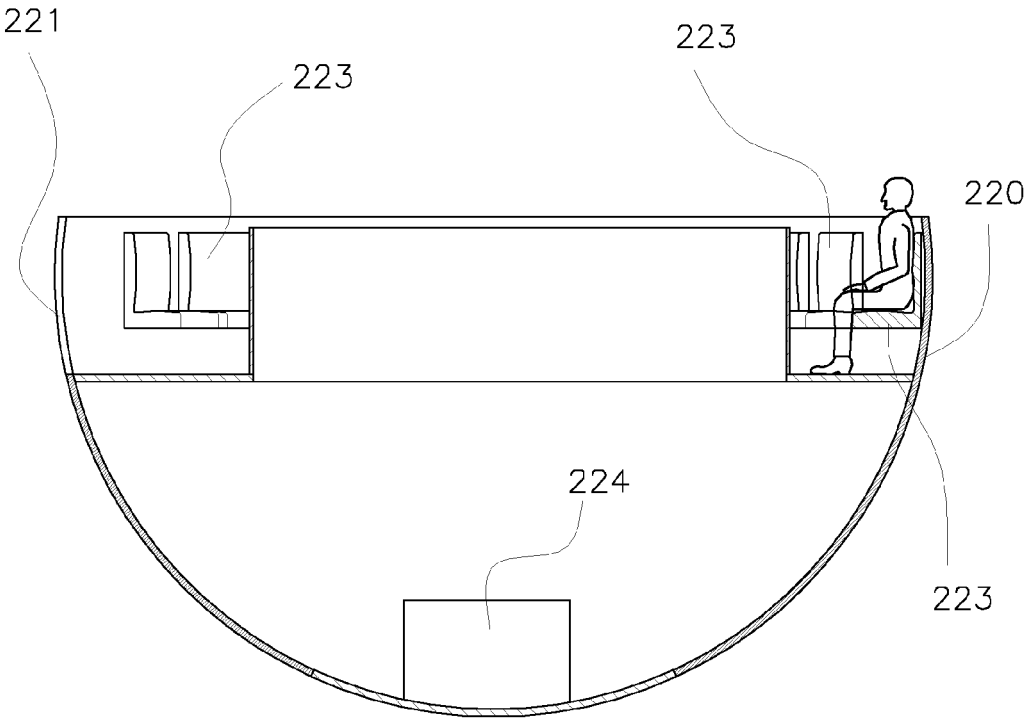


FIG.5

FIG.6



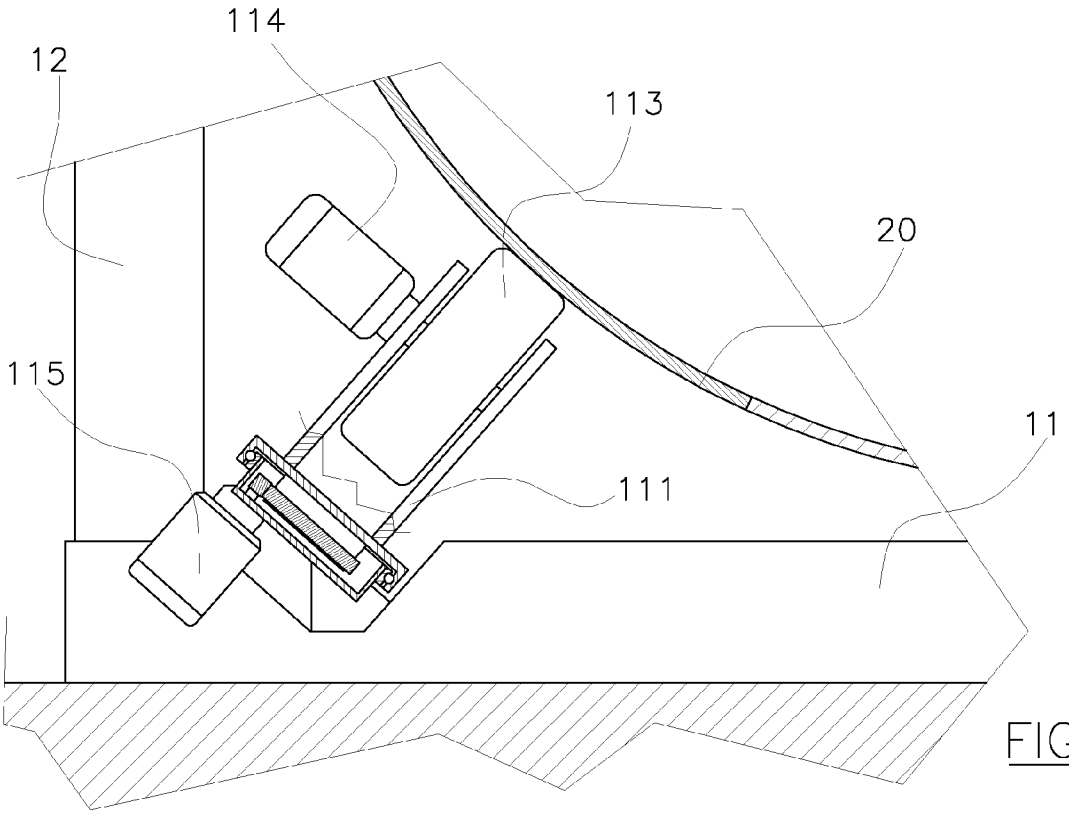


FIG.7

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EUROPEAN SEARCH REPORT

Application Number
EP 06 12 6616

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 6 017 276 A (ELSON MATTHEW [US] ET AL) 25 January 2000 (2000-01-25) * column 2, line 45 - column 5, line 4 * * column 5, line 31 - line 38 * * column 7, line 7 - line 45 * -----	1-4,7-12 9	INV. A63G31/16
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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	18 October 2007	Lucas, Peter

CATEGORY OF CITED DOCUMENTS

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