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(54) **Fun park attraction**

Vergnügungsparkattraktion

Attraction de parc d'amusement

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Description

[0001] The present invention relates to an attraction particularly for fun parks, amusement parks and the like.

[0002] Different types of attractions for fun parks have already been proposed, and in particular of the nacelle type, i.e. comprising an element on which at least one group of seats for passengers is mounted, which is made to rotate about one or more axes.

[0003] For example, in the attraction described in European Patent EP0613706B1, the nacelle may rotate about a horizontal axis as it is mounted suspended and rotatable at an end terminating in a fork, of a support arm at the other end of which is a counterweight. The support arm, in intermediate position with respect to the two ends thereof, is hinged, rotatable on a horizontal axis, parallel to the one of rotation of the nacelle, with respect to the forked end, and supported by support columns. The fun for the passengers is generated by the rotations about a horizontal axis of the nacelle mounted on the support arm, which in turn will rotate, like a pendulum, about another horizontal axis, parallel to the one of rotation of the nacelle.

[0004] Another "nacelle" type attraction of known type is described in American Patent US5188566A. In this attraction, instead of a forked end of a support arm, a pair of parallel arms is used, at one end of which a nacelle rotatable about a horizontal axis is hinged, with rows of seats for passengers, parallel to the latter axis, and at the other end of which a counterweight is provided. The pair of parallel arms, in intermediate position with respect to the two ends, is also hinged rotatable about a horizontal axis, parallel to the one of rotation of the nacelle, which due to some support columns at variable height, may raise the two parallel arms to the wanted height. What is certain is that when the arms begin rotating about the horizontal axis like a pendulum, passengers will perform both a circular trajectory or arc, and they will rotate integrally both clockwise and counter clockwise with the nacelle about the horizontal axis of rotation thereof. In this second example, the axis of rotation of the nacelle and the one of rotation of the two support arms are also substantially parallel.

[0005] In International Patent WO03041826A1, reference is made to a fun park attraction comprising a support column, bottomly and rotatably constrained to a base which is integral with the ground and free at the top. A nacelle is constrained with sliding engagement to said support column and is intended to be capable of sliding thereon from the upper end to the lower one and vice versa. The attraction is characterized in that the lower end of the support column may rotate about a horizontal axis being reciprocally hinged with the base: the support column can thus move like an upside-down pendulum. In this type of known attraction, the nacelle will move along the column, but it is not provided for it to rotate with respect thereto.

[0006] In Patent DE202004001477U1, a type of known

attraction is described consisting of a "tower-like" middle support element, which is slidably hinged with a nacelle which can longitudinally lie thereon. An end of the middle element, equipped with counterweight, is constrained to a base by means of a universal joint, and can move radially therein with the restriction set by specific stops. The "tower-like" middle element can thus be inclined with respect to the vertical, and the upper end thereof can thus describe closed curvilinear trajectories. It is provided that the nacelle move along the middle element, but it is not provided for it to rotate with respect thereto.

[0007] EP1908505 and US2006/035715 describe further fun park attractions.

[0008] It would be desirable to have a fun park attraction which involves the passengers in rotations with an increased level of freedom, thus increasing the fun.

[0009] The main object of the present invention is to provide a fun park attraction, which ensures satisfaction and fun for its passengers in complete safety.

[0010] Another object of the present invention is to provide a fun park attraction, which is capable of transmitting accelerations along different directions to its passengers.

[0011] A further object of the present invention is to provide a fun park attraction both of the fixed installation type and of the movable type and transportable for travelling use.

[0012] In accordance with the invention, such an object is achieved with a fun park attraction as described in claim 1.

[0013] These and other features of the present invention will become more apparent from the following detailed description of some of the practical embodiments thereof, shown by way of non-limiting example in the accompanying drawings, in which:

figure 1 shows a perspective side view of a first embodiment of a fun park attraction according to the present invention;

figure 2 shows another perspective side view of the fun park attraction in figure 1, where two of the possible positions are noted, which can be taken on by a support nacelle for passengers, due to a half-turn rotation about one of the possible axes of rotation;

figure 3 shows a side view of the fun park attraction in figure 1, in which, similarly to figure 2, two of the possible positions are noted, which can be taken on by a support nacelle for passengers, due to a half-turn rotation about one of the possible axes of rotation;

figure 4 shows a perspective side view of a second embodiment of a fun park attraction according to the present invention, in lowered position;

figure 5 shows another perspective side view of the embodiment in fig. 4, in raised position;

figure 6 shows a perspective side view of the embodiment in fig. 4, in lowered position in which a different type of support nacelle for passengers is used; figures 7 and 8 show a perspective side view of types

of support nacelles for passengers according to the present invention;

figure 9 shows a fifth embodiment of a fun park attraction according to the present invention, in lowered position;

figure 10 shows a perspective view of an enlarged detail of a lifting and lowering system for a support arm of a fun park attraction, according to the present invention; and

figure 11 shows a perspective view of a sixth embodiment of a fun park attraction according to the present invention.

[0014] With reference to the above-listed figures from 1 to 3, it will be noted how, in a first embodiment, a fun park attraction 1 comprises a base resting on the ground 2, from which a support upright 4 overhangingly extends, substantially vertical, i.e. orthogonal to said base 2, having, if desired, a rectangular section with a lower end 42, which dimensions are longitudinally increased with respect to base 2, i.e. at the connection with the latter. The support upright 4 will support, at the free, upper end 41 thereof, driving means 5 connected with a rotating arm 6. The axis of rotation of the driving means 5 will not be perfectly horizontal but inclined, slightly, by an angle β e.g. of 15° (see fig. 3). As will be particularly noted in figures 2 and 3, the axis of rotation V-V' of the driving means 5 and the axis of symmetry S-S' of the rotating arm 6 are perfectly parallel and on the contrary, there is an angle α between axis S-S' and axis V-V', between 20° and 30° , if desired. The rotating arm 6 has one end 61 rotatably constrained to the support upright 4 by means of the driving means 5, and a second end 62 connected perpendicular close to the median point of a forked element 8, substantially describing a semi-circular broken line ending with a pair of ends 81 and 82. Said ends 81 and 82 lie on an axis O-O' substantially orthogonal to axis S-S' of the rotating arm 6. The two ends 81 and 82 rotatably support the two ends of a cross member 10, with substantially U-shaped profile, at the median point of which, and more precisely in the concave part thereof, support means 12 for passengers 15 are rotatably constrained. In particular, said support means 12 for a certain number of passengers 15, e.g. one dozen, are called "nacelle" 12 in jargon. In the example at hand, nacelle 12 consists of a disc-shaped element 13, which along the perimeter thereof, supports a group of seats 14 of known type, equipped with known safety means 141, for passengers 15. Nacelle 12 can rotate with respect to the cross member 10 along the axis of rotation T-T' substantially orthogonal to the axis of rotation O-O' of the cross member 10 with respect to the forked element 8. The rotation of nacelle 12 about axis T-T' can be idle or motorized by comprising driving means 17 and, preferably, a braking system 18 is provided for controlling the rotation speed of nacelle 12 about axis T-T'. Base 2 can provide a small ladder 20, preferably of retractable type.

[0015] With reference to the above-listed figures from

4 to 6, it will be noted how, in a second embodiment, a fun park attraction 1 comprises a base resting on the ground 2, from which a support upright 4 overhangingly extends, hinged at an end 42 thereof to said base 2. The other end 41 of the support upright 4 is constrained to said base 2 by means of the lifting elements 22, consisting of hydraulic cylinders of known type, if desired. Hinged at the end 41 of the support upright 4, preferably having substantially rectangular section, is an articulated joint element 23, substantially consisting of a pair of parallel triangular plates 24. A vertex 241 of plate 24 is exactly hinged with end 41 of the support upright 4, another vertex 242 of plate 24 is connected to an end 251 of a contrasting tie rod 25 in turn hinged, with its end 252, to said base 2. Connected to the third vertex of the two triangular plates 24 are driving means 5 on which a rotating arm 6 is mounted which, with respect to the first embodiment of the fun park attraction 1, will be much shorter. Similarly to the first embodiment shown in figures from 1 to 3, the rotating arm 6 in the second embodiment shown in figures 4 and 5 is also connected to a forked element 8 supporting similar nacelle 12. The substantial difference between the first and the second embodiment is that, in the example shown in figures 1-3, the axis of rotation V-V' of the driving means 5 has a predefined angle β with respect to a horizontal plane, while in the second example shown in figures 4 and 5, the axis of rotation V-V' of the driving means 5 will vary as the position varies of the two rectangular plates 24, i.e. based on the length taken on by the two lifting elements 22.

[0016] With reference to fig. 6, it will be noted that the fun park attraction 1 will differ from the one in figures 4 and 5 due to the fact that a different type of nacelle 12 was used other than the one disclosed above, coupled at the ends 81 and 82 of the forked element 8 by means of a straight cross member 10, in the median point in which, integral with said cross member 10, but rotatable about an axis T-T', orthogonal to the axis of rotation O-O' of said cross member 10 with respect to said forked element 8, a group of arms 26 is connected, radially arranged, angularly equally spaced, if desired, at the free ends of which groups of seats 14 of known type are connected for passengers 15.

[0017] Figures 7 and 8 show two possible versions of nacelle 12 disclosed above and shown in figure 6. In particular, nacelle 12 in fig. 7 consists of a cross member 10, suitable for being coupled with said forked element 8, having a slight curvature in median position, in which concavity, as occurs in nacelle 12 in fig. 6, a group of arms 26 is connected, radially arranged, angularly equally spaced, if desired, at the free ends of which groups of seats 14 of known type are connected for passengers 15. The peculiarity of the arms 26 of the nacelle in figure 7 is that said arms 26 are curved as though they were lying substantially on a spherical-cap shaped surface with the concavity oriented from the same part as the one of the cross member 10.

[0018] The nacelle in figure 8 differs from the one in

figure 7 because the arms 26 are not angularly equally spaced but are close to each other in pairs, and groups of seats 14 of known type, for passengers 15 are connected to their adjacent free ends.

[0019] With reference to figure 9, it will be noted how a third embodiment of a fun park attraction 1 is substantially a variant of the embodiment shown in figures 4 to 6 where a nacelle 12 was used consisting of two rows of groups of seats 14, parallel and backs opposed, mounted parallel on a support cross member 10, parallel to the axis of rotation O-O', which two ends are rotatably connected in the ends 81 and 82 of the forked element 8.

[0020] The base resting on the ground 2 can be conveniently replaced by a towable semitrailer, if an installation that is movable as required - or better yet is travelling - is opted for.

[0021] In practice and with reference to the first embodiment of the fun park attraction 1, i.e. the attraction described in figures 1 to 3, the passengers 15 will access nacelle 12 by climbing ladder 20, which will initially be positioned at the height of nacelle 12 to then be retracted so as not to interfere with moving elements of attraction 1. Once on board nacelle 12, each passenger will sit down in his/her own seat 14, remaining anchored there due to provided safety means 141. Once all the passengers 15 are in their seats 14, computerized control systems will activate the driving means 5, which depending on the program wanted, will cause the rotating arm 6 to perform complete turns, both clockwise and counter clockwise, about the axis of rotation V-V', or partial rotations. In fact, as the axis of rotation V-V' of the rotating arm 6 is generally, but not necessarily, inclined by an angle α with respect to the axis of symmetry S-S' of the rotating arm 6, end 62 of the rotating arm 6 will describe a circular trajectory each time said rotating arm 6 performs one turn. With respect to when they climbed onto nacelle 12, the passengers 15, due to a half turn by the rotating arm 6, will be upside down and the balance of nacelle 12 will be unstable and hence it will tend to return to stable balance by performing some rotations about axis O-O' while passing through the two ends 81 and 82 of the forked element 8. Moreover, nacelle 12 can simultaneously be placed into rotation along axis T-T' by means of the driving means 17, which are equipped with braking means 18 for controlling the accelerations to which the passengers 15 are subjected during the rotation of the rotating arm 6 about axis V-V', of nacelle 12 about axis O-O' and of axis T-T'.

[0022] All the other embodiments of the fun park attraction 1 share the fact that the support upright 4 may bring itself from a lowered position, in which it is substantially parallel to base 2, to a raised position in which, due to a rotation of an end 42 thereof, hinged to base 2, the end 41 thereof is moved away from base 2, pushed by the lifting elements 22. In the raised position, attraction 1 stands out for the fact that the rotating arm 6 also moves away from base 2, and as axis V-V' will be inclined with respect to base 2, end 62 of the rotating arm will also be

lifted. In the embodiments in figures 4, 5, 6 and 13, the raised position of attraction 1 will also lead to a raised height for nacelle 12.

[0023] In particular, nacelle 12 in the embodiments in figures 4, 5 and 6, equally to the embodiment in figures 1 to 3, can rotate about axis V-V' of the driving means 5, axis O-O' passing through the ends 81 and 82 of the forked element 8, orthogonal to axis V-V', to the axis of rotation T-T' of the driving means 17, orthogonal to axis O-O'. The rotation of nacelle 12 about axis O-O' causes axis T-T' to describe a plane on which axis V-V' of the driving means 5 will lie.

[0024] With reference to the embodiment in figure 9, with respect to the one shown in figures 4 to 6, a nacelle 12 was replaced with a disc-shaped base, or however rotating about axes T-T' and O-O', with a nacelle 12 only rotating about axis O-O' and hence with one less degree of freedom. This fact results in the passengers 15 being subjected to the accelerations only caused by the rotations about the axes V-V' and O-O'.

[0025] Similarly to the above disclosure, the passengers 15 will feel the accelerations generated by the rotation of the rotating arm 6 about axis V-V' and of the rotation of the support axles 34 for groups of seats 14 about axis O-O', the degree of freedom of the rotation about axis T-T' lacking in this embodiment. The rotation on axis O-O' causes the passengers 15 to perform somersault trajectories.

[0026] Figure 12 shows a fourth embodiment of a fun park attraction 1 according to the present invention, in which the support upright consists of a vertical column 4 which rigidly supports a fixed inclined arm 51 at one end 52 of which a motorized rotating element 53 is associated, which is driven by driving means 5, adapted to rotatably support, by means of connection means 8, a nacelle 12 for example similar to the one shown in figure 1.

[0027] With respect to the embodiment in said figure 1, the rotating element is substantially a plate 53, in place of arm 6, which first end 55 is rotatably associated with the fixed arm 51, and having a second end 54 supporting nacelle 12 by means of connection means 8.

[0028] Advantageously, in any one of the above-described embodiments, the connection means of nacelle 12 may comprise jointed means, for example arms connected by means of articulated joints.

[0029] In practice, any materials and also dimensions may be used, depending on the needs.

Claims

1. A fun park attraction (1) comprising a base resting on the ground (2), from which a support upright (4) overhangingly extends which supports, at a upper end (41) thereof, driving means (5) connected to a rotating arm (6), whereby the axis of rotation V-V' of said driving means (5) is inclined by an angle α with respect to the axis of symmetry S-S' of the rotating

arm (6),
 said rotating arm (6) having a first end (61) and a second end (62),
 said second end (62) being connected close to the median point of a forked element (8), ending with a pair of ends (81, 82), lying on an axis O-O' substantially orthogonal to the axis of symmetry S-S' of the rotating arm (6),

characterized in that

said attraction (1) is provided with exclusively a single rotating arm (6) having the first end (61) rotatably constrained to said support upright (4) by said driving means (5).

2. A fun park attraction (1) according to claim 1, **characterized in that** the axis of symmetry S-S' of the rotating arm (6) and the axis O-O' of the pair of ends (81, 82) of the fork (8) are coplanar,
 said pair of ends (81, 82) rotatably supporting the two ends of a cross member (10), at the median point of which support means (12) for passengers (15) are rotatably constrained.

said support means (12) for passengers (15) consisting of a disc-shaped element (13), along which perimeter it supports a group of seats (14) for passengers (15)

said support means (12) being rotatably mounted on said cross member (10) on an axis of rotation T-T' substantially orthogonal to the axis of rotation O-O' of the cross member (10) with respect to the forked element (8).

3. A fun park attraction (1) according to claim 1 or 2, **characterized in that** said axis of symmetry S-S' of the rotating arm (6) is inclined by said angle α between 20° and 30° with respect to said axis of rotation V-V'.

4. A fun park attraction (1) according to any one of the claims 1-3, **characterized in that** the rotation of said support means (12) for passengers (15), at the axis T-T', is motorized by driving means (17) and comprises a braking system (18) for controlling the rotation speed of the support means (12) about the axis T-T'.

5. A fun park attraction (1) according to any one of the claims 1-4, **characterized in that** said support means (12) are adapted to independently rotate about a first axis (O-O'), a second axis (T-T') and a third axis (V-V').

6. A fun park attraction (1) according to any one of the preceding claims, **characterized in that** said one end (61) of said rotating arm (6) is connected to said driving means (5) connected with said support upright (4) comprising lifting means (22) adapted to change the inclination of said support upright (4) with

respect to the ground and comprising an articulated joint element (23), connected to said base (2) by means of contrasting tie rods (25).

7. A fun park attraction (1) according to claim 6, **characterized in that** the articulated joint element (23) consists of a pair of parallel triangular plates (24), a first vertex (241) of the plates (24) being hinged at one end (41) of the support upright (4), a second vertex (242) of the plates (24) being connected at one end (251) of a contrasting tie rod (25), which other end (252) is in turn hinged at said base (2), driving means (5), on which the rotating arm (6) is mounted, being connected to a third vertex of the two triangular plates (24).

Patentansprüche

1. Vergnügungsparkattraktion (1), aufweisend eine auf dem Boden (2) ruhende Basis, von welcher ein Tragpfosten (4) sich vorstehend erstreckt, der an seinem oberen Ende (41) Antriebsmittel (5) trägt, die mit einem Dreharm (6) verbunden sind, wobei die Drehachse V-V' der Antriebsmittel (5) um einen Winkel α bezüglich der Symmetrieachse S-S' des Dreharms (6) geneigt ist,
 wobei der Dreharm (6) ein erstes Ende (61) und ein zweites Ende (62) aufweist,
 wobei das zweite Ende (62) nah am Mittelpunkt eines Gabelements (8) angebunden ist, das mit einem Paar von Enden (81, 82) endet, die auf einer Achse O-O' liegen, die im Wesentlichen orthogonal zu der Symmetrieachse S-S' des Dreharms (6) ist, **dadurch gekennzeichnet, dass** die Attraktion (1) mit ausschließlich einem einzigen Dreharm (6) vorgesehen ist, welcher das erste Ende (61) mittels der Antriebsmittel (5) drehbar an dem Tragpfosten (4) gehalten aufweist.
2. Vergnügungsparkattraktion (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Symmetrieachse S-S' des Dreharms (6) und die Achse O-O' des Paares von Enden (81, 82) der Gabel (8) koplanar sind,
 wobei das Paar von Enden (81, 82) die zwei Enden eines Querelements (10) drehbar lagern, an dessen Mittelpunkt Tragmittel (12) für Passagiere (15) drehbar gehalten sind,
 wobei die Tragmittel (12) für Passagiere (15) aus einem scheibenförmigen Element (13) bestehen, entlang dessen Umfang es eine Gruppe von Sitzen (14) für Passagiere (15) trägt,
 wobei die Tragmittel (12) an dem Querelement (10) drehbar gelagert auf einer Drehachse T-T' sind, die im Wesentlichen orthogonal zu der Drehachse O-O' des Querelements (10) bezüglich des Gabelements (8) ist.

3. Vergnügungsparkattraktion (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Symmetrieachse S-S' des Dreharms (6) um den Winkel α zwischen 20° und 30° bezüglich der Drehachse V-V' geneigt ist. 5
4. Vergnügungsparkattraktion (1) nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** die Drehung der Tragmittel (12) für Passagiere (15), an der Achse T-T', durch Antriebsmittel (17) motorisiert ist, wobei ein Bremssystem (18) zum Kontrollieren der Drehgeschwindigkeit der Tragmittel (12) um die Achse T-T' vorgesehen ist. 10
5. Vergnügungsparkattraktion (1) nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** die Tragmittel (12) dazu ausgebildet sind, sich unabhängig um eine erste Achse (O-O'), eine zweite Achse (T-T') und eine dritte Achse (V-V') zu drehen. 15
6. Vergnügungsparkattraktion (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das eine Ende (61) des Dreharms (6) mit den Antriebsmitteln (5) verbunden ist, die mit dem Tragpfosten (4) verbunden sind, mit Hubmitteln (22), die dazu ausgebildet sind, die Neigung des Tragpfostens (4) bezüglich des Bodens zu verändern, und mit einem Gelenkverbindungselement (23), das mittels entgegengesetzten Verbindungsstangen (25) mit der Basis (2) verbunden ist. 20 25 30
7. Vergnügungsparkattraktion (1) nach Anspruch 6, **dadurch gekennzeichnet, dass** das Gelenkverbindungselement (23) aus einem Paar von parallelen dreieckigen Platten (24) besteht, wobei eine erste Ecke (241) der Platten (24) an einem Ende (41) des Tragpfostens (4) angelenkt ist, eine zweite Ecke (242) der Platten (24) an einem Ende (251) einer entgegengesetzten Verbindungsstange (25) angebunden ist, deren anderes Ende (252) wiederum an der Basis (2) angelenkt ist, und Antriebsmittel (5), an welchen der Dreharm (6) angebracht ist, mit einer dritten Ecke der zwei dreieckigen Platten (24) verbunden sind. 35 40

Revendications

1. Attraktion de parc d'amusement (1) comprenant une base reposant sur le sol (2), à partir de laquelle s'étend en saillie un support vertical (4) qui supporte, à une extrémité supérieure (41) de celui-ci, un moyen d'entraînement (5) connecté à un bras rotatif (6), de sorte que l'axe de rotation V-V' du dit moyen d'entraînement (5) est incliné d'un angle α par rapport à l'axe de symétrie S-S' du bras rotatif (6), le dit bras rotatif (6) ayant une première extrémité (61) et une deuxième extrémité (62), 50 55

la dite deuxième extrémité (62) étant connectée près du point médian d'un élément fourchu (8), se terminant par une paire d'extrémités (81, 82), situées sur un axe 0-0' sensiblement orthogonal à l'axe de symétrie S-S' du bras rotatif (6)

caractérisée en ce que

la dite attraction (1) est munie exclusivement d'un simple bras rotatif (6) dont la première extrémité (61) est contrainte de manière rotative au dit support vertical (4) par ledit moyen d'entraînement (5).

2. Attraction de parc d'amusement (1) selon la revendication 1, **caractérisée en ce que** l'axe de symétrie S-S' du bras rotatif (6) et l'axe 0-0' de la paire d'extrémités (81, 82) de la fourche (8) sont coplanaires, ladite paire d'extrémités (81, 82) supportant de manière rotative les deux extrémités d'un élément transversal (10), au point médian duquel un moyen de support (12) pour passagers (15) est contraint de manière rotative. 15 20

ledit moyen de support (12) pour passagers (15) consistant en un élément en forme de disque (13), le long duquel le périmètre supporte un groupe de sièges (14) pour passagers (15)

ledit moyen de support (12) étant monté de manière rotative sur l'élément transversal (10) sur un axe de rotation T-T' sensiblement orthogonal à l'axe de rotation 0-0' de l'élément transversal (10) par rapport à l'élément fourchu (8). 25 30

3. Attraction de parc d'amusement (1) selon la revendication 1 ou 2, **caractérisée en ce que** ledit axe de symétrie S-S' du bras rotatif (6) est incliné dudit angle α entre 20° et 30° par rapport audit axe de rotation V-V'. 35

4. Attraction de parc d'amusement (1) selon l'une quelconque des revendications 1 à 3, **caractérisée en ce que** la rotation dudit moyen de support (12) pour passagers (15), à l'axe T-T', est motorisée par un moyen d'entraînement (17) et comprend un système de freinage (18) pour commander la vitesse de rotation du moyen de support (12) autour de l'axe T-T'. 40

5. Attraction de parc d'amusement (1) selon l'une quelconque des revendications 1 à 4, **caractérisée en ce que** ledit moyen de support (12) sont adaptés pour tourner indépendamment autour d'un premier axe (0-0'), un deuxième axe (T-T') et un troisième axe (V-V'). 45 50

6. Attraction de parc d'amusement (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ladite extrémité (61) dudit bras rotatif (6) est reliée audit moyen d'entraînement (5) relié audit support vertical (4) comprenant des moyens de levage (22) adaptés pour modifier l'inclinaison par rapport au sol dudit support vertical (4) et com- 55

prenant un élément de joint articulé (23), relié à ladite base (2) au moyen de barres de liaison de contraste (25).

7. Attraction de parc ludique (1) selon la revendication 6, **caractérisée en ce que** l'élément de joint articulé (23) est constitué d'une paire de plaques triangulaires parallèles (24), un premier vertex (241) des plaques (24) étant articulé à une extrémité (41) du support vertical (4), un deuxième vertex (242) des plaques (24) étant relié à une extrémité (251) d'une barre de liaison de contraste (25), l'autre extrémité (252) étant à son tour articulé sur ladite base (2), du moyen d'entraînement (5), sur lesquels est monté le bras rotatif (6), étant reliés à un troisième vertex des deux plaques triangulaires (24).

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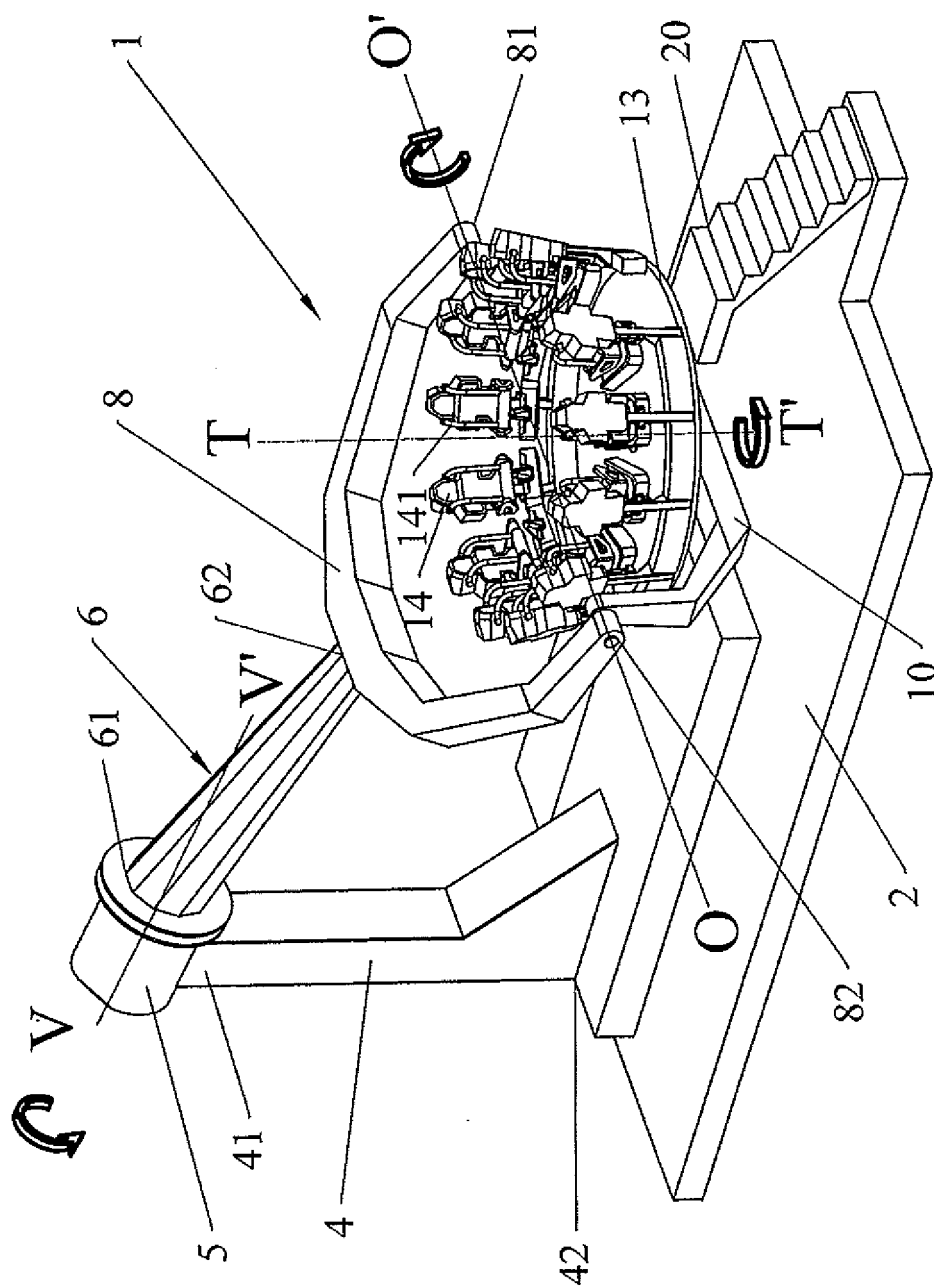
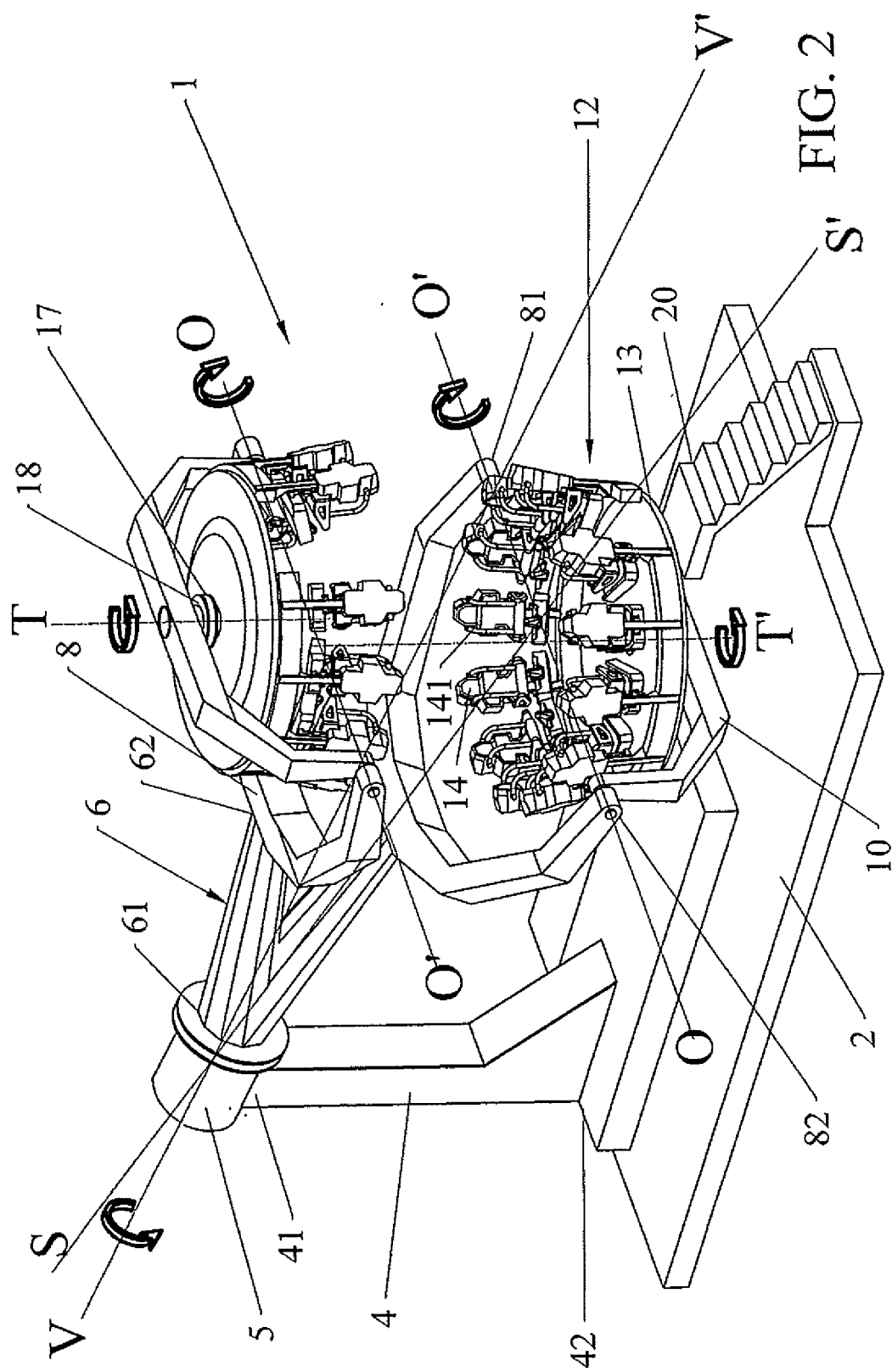


FIG. 1



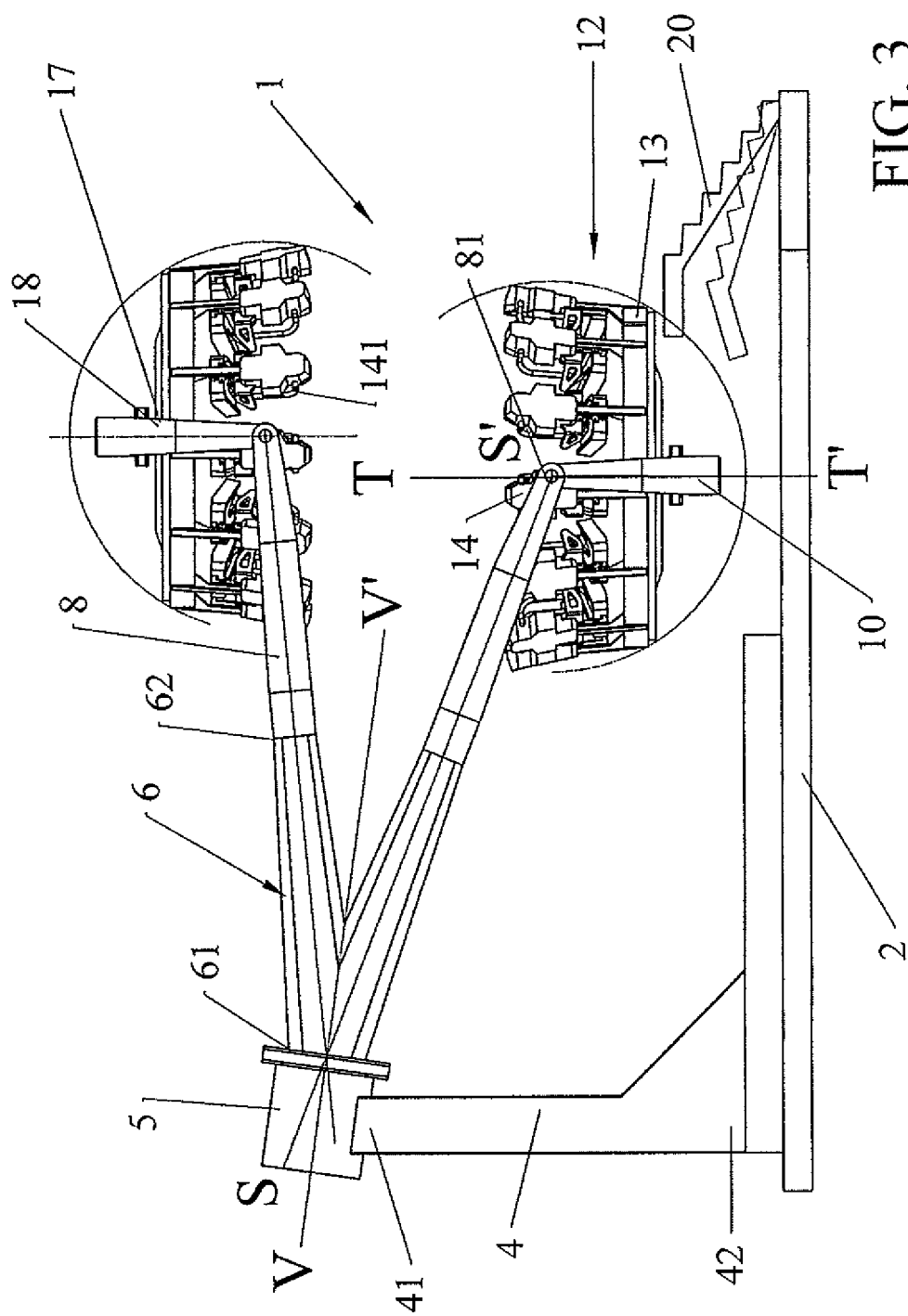


FIG. 3

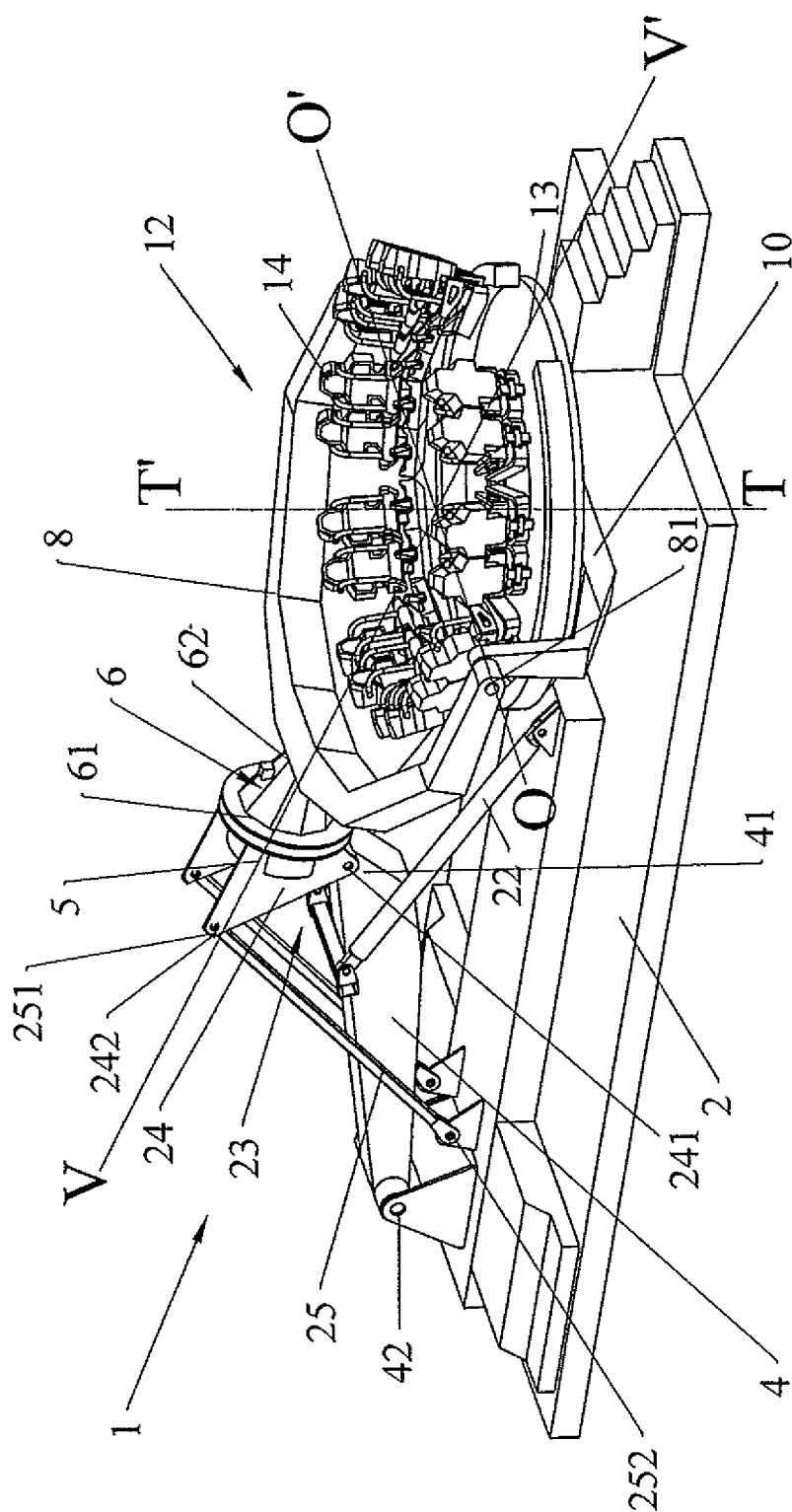


FIG. 4

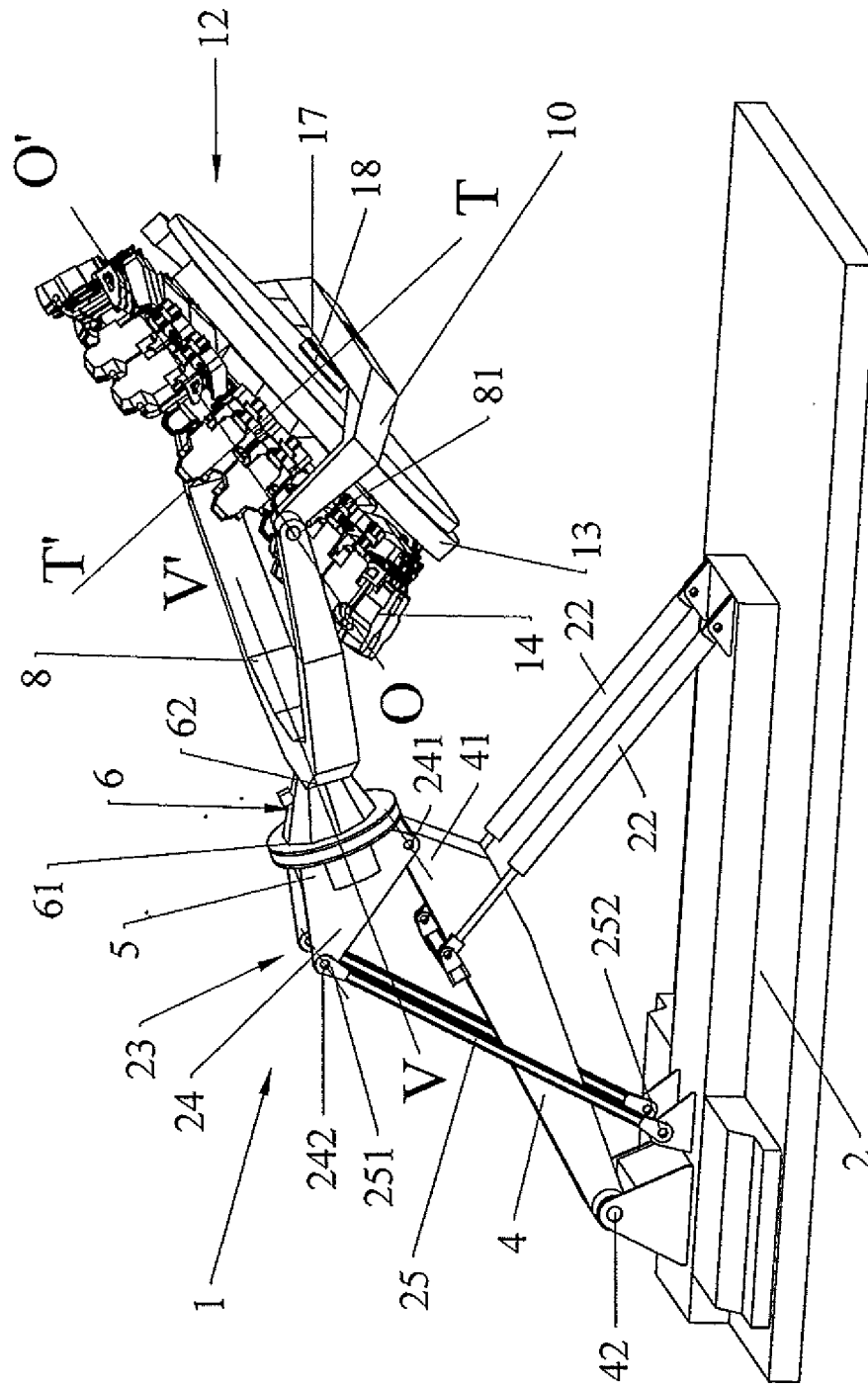
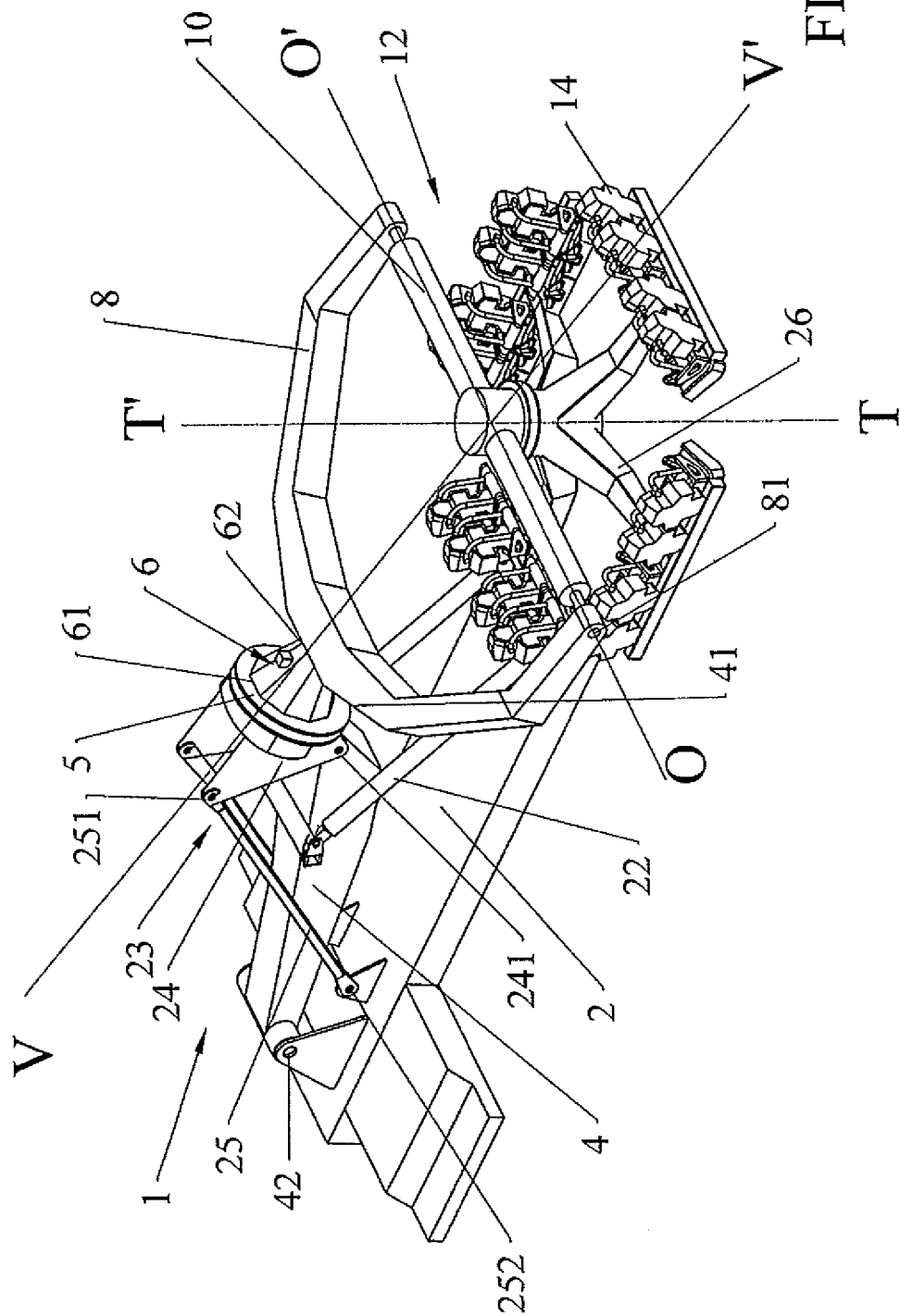
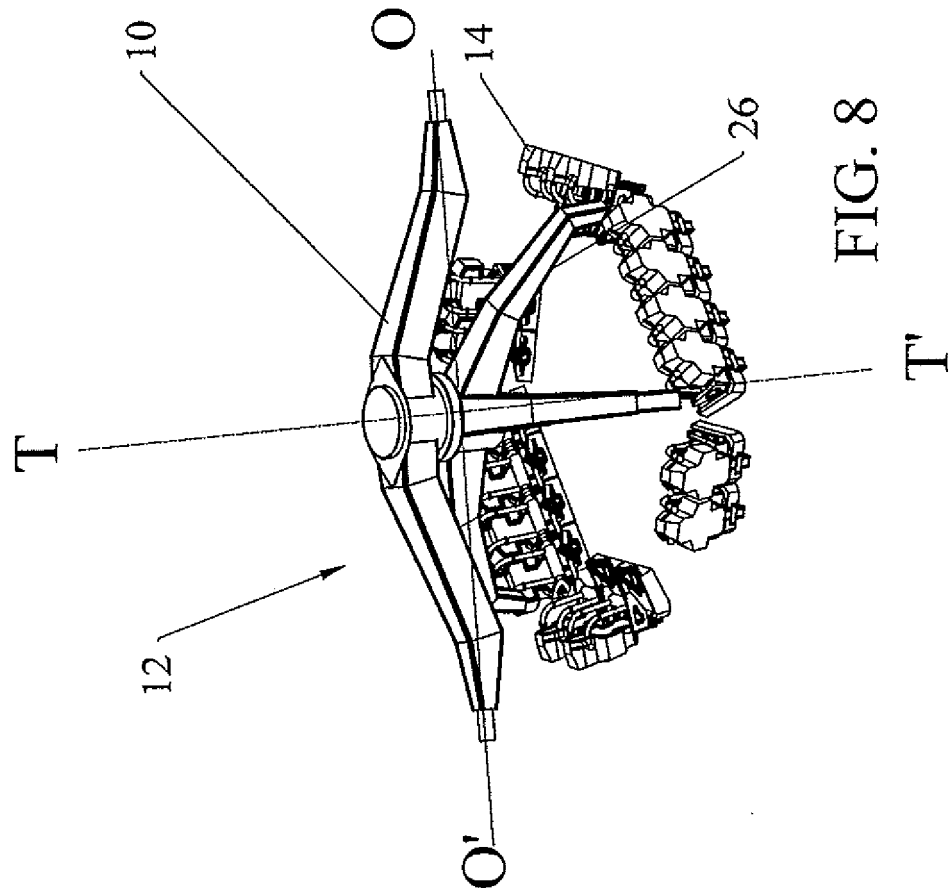
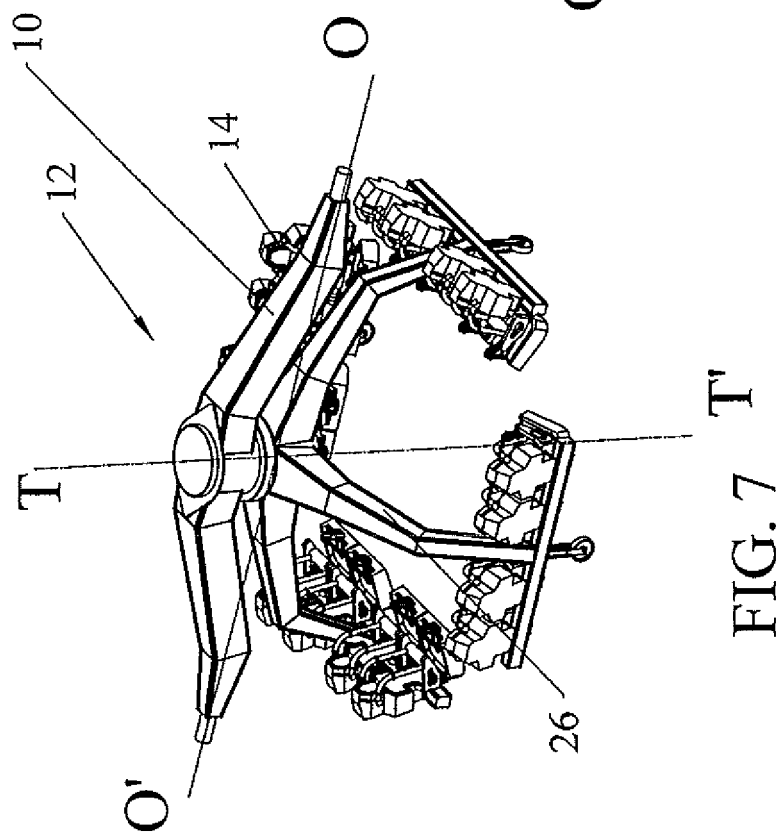


FIG. 5





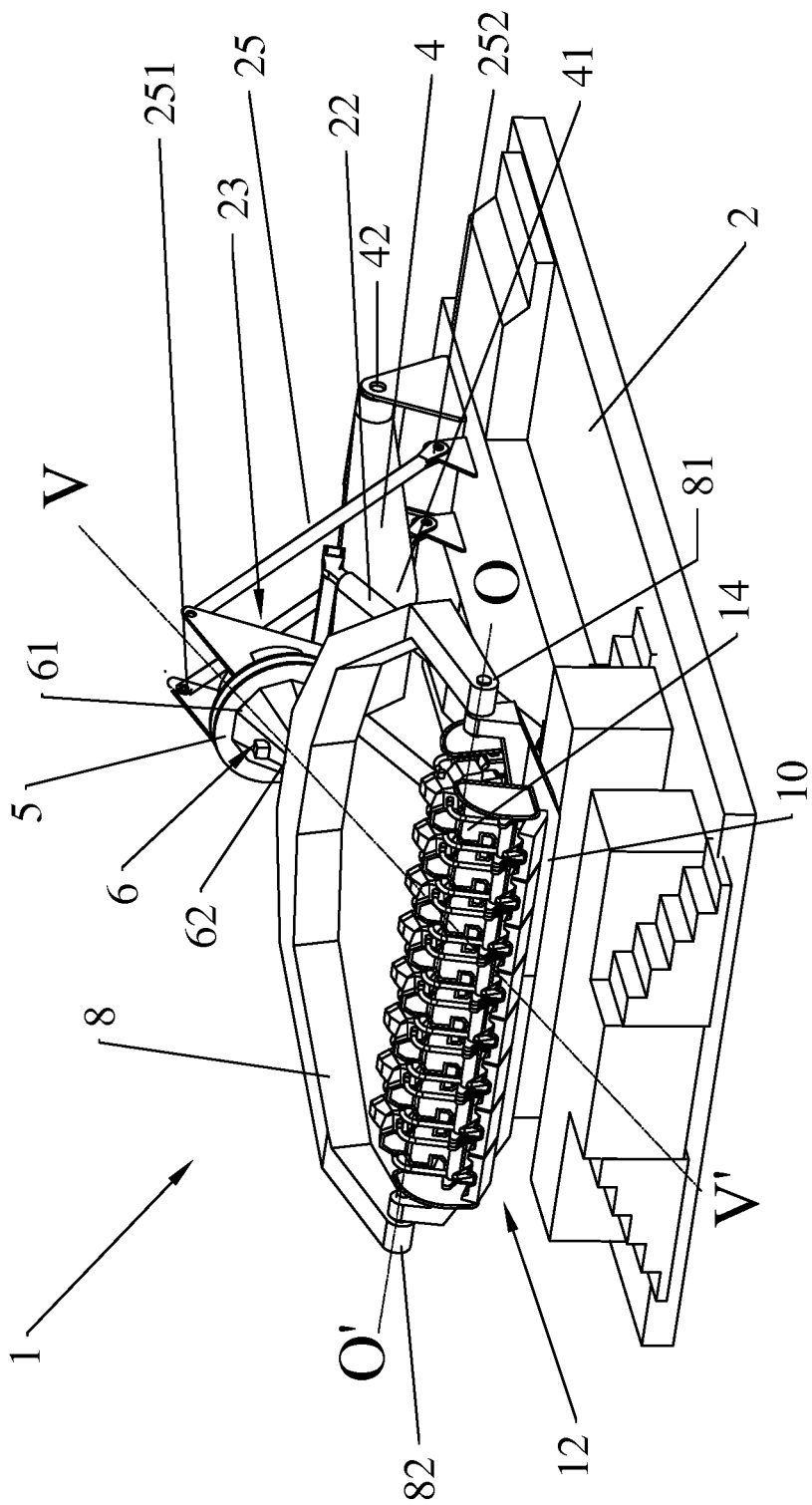


FIG. 9

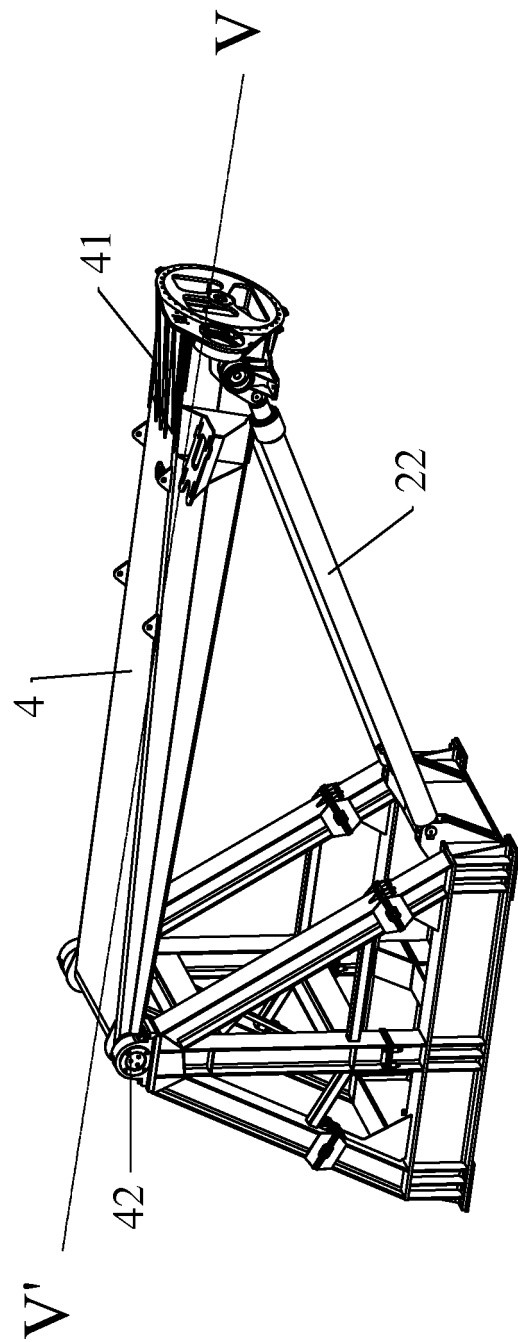


FIG. 10

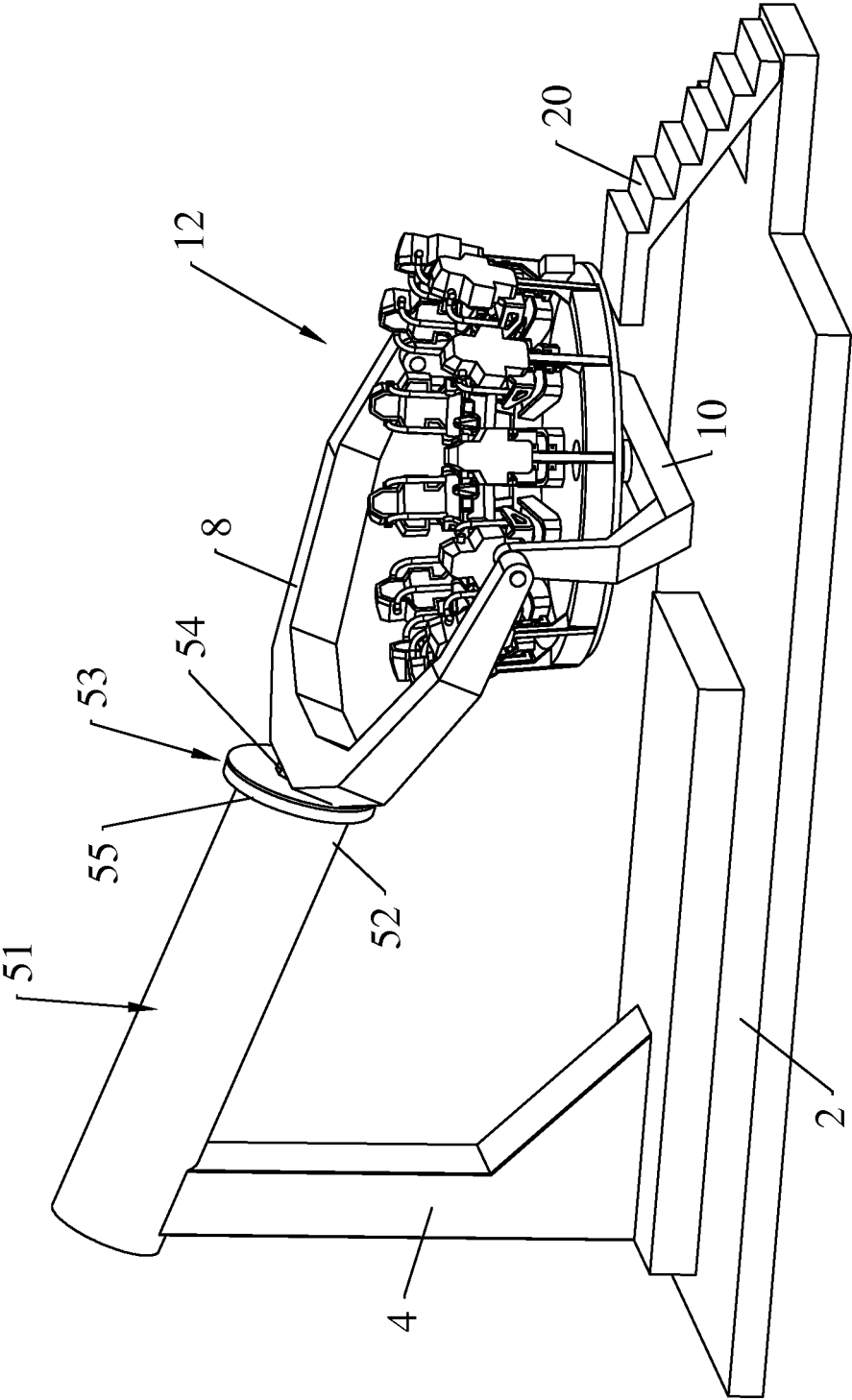


FIG.11

REFERENCES CITED IN THE DESCRIPTION

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