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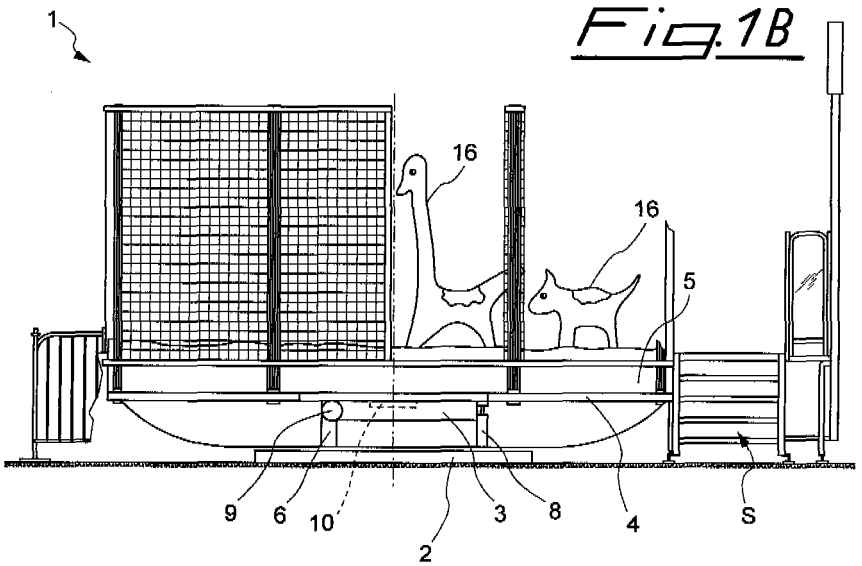
(54) **Amusement device**

(57) An amusement device comprises a play structure made of elastically yelding material to cushion the stress received, which is mounted on a platform provided with means for rotating upon itself and/or means for varying the angle of the surface of the platform with respect to the horizontal.



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Description

[0001] The present invention concerns an amusement device.

[0002] More specifically, the present invention concerns an amusement device comprising a structure made of elastically yelding material, like for example the structures provided with foamed elements, or structures of the type known as inflatable, and in general structures made of elastically yelding material with which the users can interact.

[0003] Embodiments of inflatable amusement devices in various forms, even complex, are known, provided with elements which are in general also inflatable, or made of foamed material, which in addition to being decorative allow the user, generally a child, to interact with the elements, for example by climbing on them and riding them, or using them for other types of play. In particular said devices can be used as obstacle courses, as elements to hide behind, bump into and ride and, if of suitable shape, for sliding and rolling on.

[0004] The devices of inflatable type are made of a structure formed by sheets of impermeable material joined together to reproduce a selected shape, which is erected when inflated by a blower or other air inflation means. The height of the inflatable elements can be sufficient to provide a chute, again obtained in the structure itself, and the characteristic of the material makes it safe for use by children; in fact, the inflated structure has yelding and elastic characteristics at the same time, i.e. the inflated sheet partially yields when subjected to a weight, returning to its original shape when the weight is removed.

[0005] Furthermore, the elastic and yelding characteristics of the structure allow on the one hand to cushion the falls of the users and on the other make to increase the fun by making the user movements on the structure more unstable, thus increasing the possibility of a fall.

[0006] For children toys in particular, the possibility to have games that are soft and fluffy such to be clearly safer than the rigid ones, is an important advantage, especially because the child can move alone on the structure. All these game possibilities can be achieved only by using elements made of a material which is defined in this invention as an elastically yelding material.

[0007] The term "elastically yelding material" indicates a material, single or made of several different materials, which is not rigid and which partially yields, compressing substantially when subjected to a load, for example the weight of a child, but which basically maintains its original form, therefore sustaining the load applied. Once the load has been removed, the material returns to its original shape. This means that if the user impacts, imparts a force or even rides said object, since the latter is elastically yelding, it deforms far enough to cushion the load applied. Examples of "elastically yelding material" are the inflatable structures described above, with a combination of impermeable sheets with air blown in and elastic foamed materials, generally covered with sheets.

[0008] The problem with the known structures is that they are used only a few times before the user loses interest in them due to the repetitive nature of their use. The object of the present invention is to solve the above problem by providing an amusement device of the inflatable type or with elastically yelding material which can be easily modified and has variable characteristics such as to make it stimulating and interesting.

[0009] Said object is achieved by means of the present invention, which concerns an amusement device, of the type comprising a play structure made of elastically yelding material to cushion the stress received, **characterised in that** said play structure is mounted on a platform, said platform being provided with means for rotating it upon itself (i.e. rotate about its own axis) and/or means for varying the angle of the surface of said platform with respect to the horizontal.

[0010] In particular, the present invention provides an amusement ride which combines a mechanical structure, i.e. an oscillating revolving base, with a structure made of elastically yelding material, for example an inflatable or a soft material, preferably provided with elements which are also elastically yelding and which are connected to said elastically yelding structure and with which the users can interact in many different ways.

[0011] According to one aspect of the invention, containment means are also provided to prevent the users of the play structure falling off during rotation and oscillating motion given to the play structure by the platform.

[0012] According to another aspect of the invention, the play structure is an inflatable comprising a plurality of elements fixed and/or moving with respect to said structure, for example free balls and skittles which are fixed in a position and can be knocked down. In this case, during rotary and oscillating motion given by the platform to the play structure, the balls (or other elements) will move between the skittles and the users.

[0013] According to another aspect, the balls are small and housed in a portion of the play structure, which forms a container wide enough to hold the users, forming a "ball pool".

[0014] According to a further aspect, the play structure can be very simply removed from the platform and the platform can be folded to facilitate transport of the same.

[0015] The device according to the invention has numerous advantages.

[0016] Firstly the movement generated by the platform makes use of the play structure much more attractive and less repetitive: the variability of the movement translates into a variability of the structure, which changes with the movement itself: for example, the initially low part of the structure is moved upwards and tilted, substantially forming a "new" structure during use of the same.

[0017] Furthermore, the amusement device allows the users to use all the elements present on the moving platform, i.e. the soft base layer and the soft figures mounted on it, so that all impact and loads applied during play can

be fully absorbed, guaranteeing greater user safety during use.

[0018] A further advantage of the present invention is that the appearance of the amusement ride can be varied frequently and rapidly, disassembling and removing part or all of the play structure.

[0019] Another advantage is that of providing a structure that can be used for therapeutic and rehabilitative purposes.

[0020] The amusement ride, object of the present invention, solves the problem of providing attractions, especially for children, that guarantee freedom of movement and interaction with all the elements of the amusement ride available to the public in complete safety, by means of elastically yelding supports, elements and figures.

[0021] The invention will be now described in detail with reference to the drawings annexed thereto for illustrative non-limiting purposes, in which:

- Figures 1 a and 1b are lateral views of a device according to the invention;
- Figure 2 is an overhead view of the device of Fig. 1;
- Figures 3A-3C and 4A-4B are views of details of the device;
- Figure 5 is a lateral view in section of the combination of the base frame and supporting frame of Figures 3 and 4;
- Figure 6 and Figure 7 are an overhead view of the rotating platform;
- Figures 8A-8C show an operating scheme of the platform;
- Figure 9 is an overhead view of the play structure; and
- Figure 10 is a partial lateral view of the play structure and of the device in the complex.

[0022] Fig. 1a-1b and Fig. 2 show an embodiment of a device 1 according to the invention, comprising a play structure made of elastically yelding material 5 (for example, an inflatable, a mattress, a combination of mattress and inflatable etc.) mounted on a platform 4, or analogous type of support, provided with means for rotating it upon itself and/or means for varying the angle of the supporting platform 4. In the embodiment shown, the means for rotating and tilting the platform 4 comprise a base frame 2 and a supporting frame 3. The term "platform" indicates any means suitable for sustaining the play structure 5 and transmitting to it the movement of the rotating and/or tilting means. In other words, the amusement device thus obtained forms a rotating and tilting amusement ride in which the usable portion, i.e. the play structure 5, is made of an elastically yelding material.

[0023] The play structure 5 is mounted on the platform 4 and bound to it via known means, for example metal spring catches and belts. The structure 5 is made of a material which is elastically yelding but resistant so as to withstand the weight and activity of the users during use. Elastically yelding materials are used which provide elasticity, resistance to cutting and crushing, resistance to atmospheric ageing and to heat, inertia towards chemical agents, oils and solvents. The play structure 5 can be an inflatable, a mattress, an elastic mat or a combination thereof. As already mentioned, the term elastically yelding material indicates a non-rigid material able to sustain and cushion the loads and pressures generated by the activities carried out on it by the users, partially deforming during stress and returning to its initial shape when the stress is removed.

[0024] In the preferred embodiment, at least one part of the play structure 5 is an inflatable. This structure 5 preferably has a circular shape and is formed by one or more concentric rings connected to one another, as shown in Fig. 9. The central part of the circular inflatable is empty to house an inflating blower 14 powered by an electric motor. The inflatable is provided with a valve 15 connected to the inflating blower 14, which by forcing the air inside the inflatable maintains the shape thereof. In other embodiments according to the invention the inflatable can have a shape different from the circular one, and the blower can be positioned laterally instead of in the centre. Any different positions of the blower with respect to the inflatable are made possible by the fact that the blower 14 is integral with the rotating platform 4. The electricity to power the blower is supplied by a method known in the art, for example by rotating contact between guides, made of brass for example, not shown, positioned on the moving part and brushes (not shown) positioned on the fixed part.

[0025] On the soft play structure 5 made of elastically yelding material, a plurality of figures or elements are preferably present which can be fixed 16 or movable 16A with respect to the structure 5, as shown in Fig.10. If the elements are positioned fixed, they can be at least partly bent and folded by the users; Fig. 1b shows fixed elements 16 of the so-called "rideable" type.

[0026] The connection, if the figures or elements 16 are fixed with respect to the structure 5, can be by means of stitching, zipping or welding. The figures or elements 16 are connected by means of a hole to the inflatable part of the structure 5 so that said elements 16 can be inflated using the same blower 14. In other embodiments according to the invention, the elements 16 are connected directly to the platform 4 and inflated by means of single blowers integral with said platform 4. According to another embodiment of the invention, the play structure 5 comprises a plurality of balls or spheres or other figurative elements freely moving on the structure to interact with the users; in this case the balls will be preferably larger than 50 cm. One embodiment comprises a plurality of small balls contained in a portion of housing present on the play structure to form a so-called "basin" or "ball pool", known per se, which can accommodate some users and which is integrated in and moved with the play structure 5 according to the invention.

[0027] The rotating platform 4 is provided with contain-

ment means 17, for example nets and relative means of support for the same, connected peripherally to said platform and suitable for preventing the users from falling off the structure 5 during use of the play structure. Any slits or spaces present between the play structure 5 and the containment means 17 arranged peripherally are eliminated by means of elements made of foam or analogous material.

[0028] The platform is spun and its angle is varied by means comprising a double frame formed of a base frame 2 on which a supporting frame 3 for the platform is hinged.

[0029] The base frame 2 of the device 1 is anchored to the ground and is provided with a support 6 for a joint, a track 7 housing a guide wheel 7a and supports 8a for lifting cylinders 8, as shown in Fig. 1a-1b and in Fig. 3A-3C.

[0030] The sustaining or supporting frame 3, shown in Fig. 4A and 4B, is a frame in the form of a trapezium, made of tubular elements, which has on the smaller base a joint 9 and on the larger base supports 8b for the lifting cylinders 8 and a guide wheel 7a. The guide wheel 7a allows the supporting frame 3 to move vertically, and prevent transverse movements of the same.

[0031] The joint 9 of the supporting frame 3 is inserted in the support 6 fixed on the base frame 2 and the lifting cylinders 8, preferably two, are positioned between said frames 2 and 3 and connected to the respective supports 8a and 8b, as shown in Fig. 5. The supporting frame 3 is provided with means 10 (Fig. 4A and 4B) to transmit the rotary motion to the platform 4 which is mounted above said supporting frame 3 as shown in Fig. 6. In the embodiment shown, the means 10 consist of a fifth wheel.

[0032] The rotating platform 4 is a folding or modular frame mounted on the supporting frame 3 and connected to the fifth wheel 10 by coupling means known per se. According to the preferred embodiment of the invention, as shown in Fig. 7 the platform 4, made of tubular elements, is divided into three portions 4a, 4b, 4c connected by connecting means 13, for example hinges and alike, which allow it to be dismantled and/or folded.

[0033] The supporting frame 3 allows the platform 4 to be raised, and then tilted, alternatively on one of the lifting cylinders 8 or simultaneously on both the cylinders 8 providing an oscillating motion.

[0034] In fact, the platform 4 can take on different configurations via the different positions of the lifting cylinders 8, as shown in Fig. 8a-8c. In Fig. 8a the lifting cylinders 8 are positioned at the same height, but not at their maximum extension, with respect to each other and with respect to the joint 9 so that the platform 4 is horizontal. This position of the platform 4 is the initial one which allows the users to get onto the play structure for example from the stairs S shown in Fig. 1a, 1b, 2 and 10.

[0035] In Fig. 8b and Fig. 8c the lifting cylinders 8 are positioned in an alternating manner, one at maximum extension and one at minimum extension. The variation in the angle of the platform 4, measured at the joint 6, is between 2 and 10 degrees with respect to the horizontal and preferably between 4 and 8 degrees. The optimal maximum angle on the joint is equal to 8 degrees with respect to the horizontal. The maximum angle is reached when, with respect to the joint, one cylinder is completely raised and the other is completely lowered.

[0036] The platform 4, in addition to being raised in a differentiated manner by means of the lifting cylinders 8, is also subject to a rotary motion by means of a fifth wheel 10 or analogous means for transmission of movement. The fifth wheel 10, integral with the supporting frame 3 and driven by an electromechanical device 11, serves to impart a rotary motion to the platform 4 to which it is bound.

[0037] Therefore, the platform 4 can be spun at a variable speed in a clockwise and anticlockwise direction by means of an electromechanical device 11 connected to the fifth wheel 10, and simultaneously can be made to oscillate by the lifting cylinders 8, or pistons or cams driven by electromechanical, pneumatic or hydraulic systems.

[0038] The oscillating and rotary motions can take place simultaneously or individually and have the purpose of creating in the user a sensation of unbalance, instability and swaying.

[0039] The device is driven by an external control unit 18, as shown in Fig.1, which is manually controlled or which, in a preferred embodiment, is provided with some pre-defined programs that vary the speed and the rotation direction of the platform 4, and the oscillation of the system by the relative lifting of the cylinders 8.

[0040] During operation the structure is spun and tilted; by controlling the drive of the motor 11 and pistons 8, it is possible to vary speed and direction of rotation of the platform, in addition to the tilting angle and the time the platform remains in one position. In this way it is possible to generate a plurality of "cycle" profiles, with greater or lesser intensity and difficulty, thus creating new user interest. Furthermore, if the fixed elements 16 are mounted in a removable manner (for example with a zip), they can be replaced to give the play structure a new configuration, thus also creating new user interest while maintaining almost all of said structure.

Claims

1. Amusement device, of the type comprising a play structure made of elastically yelding material to cushion the stress received, **characterised in that** said play structure is mounted on a platform provided with means for rotating upon itself and/or means for varying the angle of the surface of said platform with respect to the horizontal.

2. Device as claimed in claim 1, furthermore comprising containment means arranged peripherally to said platform to prevent the users falling off the device during the use thereof.

3. Device as claimed in one of the preceding claims, wherein said play structure comprises a plurality of elements fixed and/or mobile with respect to said structure.

4. Device as claimed in claim 3, wherein said play structure comprises a plurality of balls or other elements freely moving on said structure or in a portion of it.

5. Device as claimed in one of the preceding claims, comprising one or more elements positioned fixed and at least partly yelding and which can be bent by the users of the device.

6. Device as claimed in one of the preceding claims, wherein said play structure is at least partly formed by an inflatable structure.

7. Device as claimed in claim 5, wherein said platform supports means for inflating said inflatable structure.

8. Device as claimed in one of the preceding claims, wherein said means for rotating the platform comprise a base frame 2, a second oscillatory frame hinged to said base frame and means for mounting said platform in a rotating manner on said oscillatory frame.

9. Device as claimed in one of the preceding claims, wherein said means for varying the angle of the platform comprise two cylinders 8 that can be operated independently and are fixed to said oscillatory frame and to said base frame.

10. Device as claimed in claim 8 or 9, wherein the variation in angle of said platform is between 2 and 10 degrees on the horizontal.

11. Device as claimed in one of the claims from 8 to 10, furthermore comprising a control unit to control the operation of said means for rotating and varying the angle of said platform.

12. Device as claimed in one of the preceding claims, wherein said platform can be disassembled and/or folded.

13. Device as claimed in one of the preceding claims furthermore comprising one or more of the characteristics described in the present description.

Fig.1A

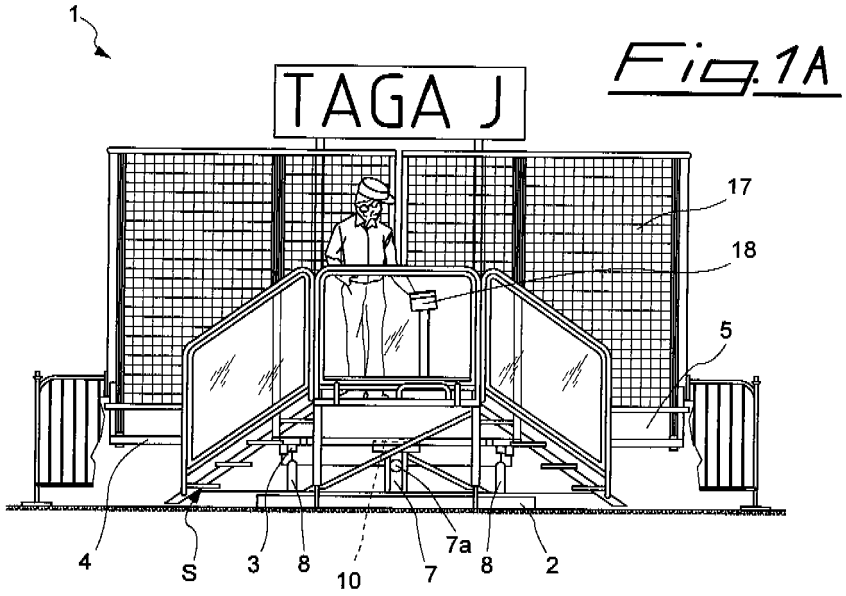


Fig.1B

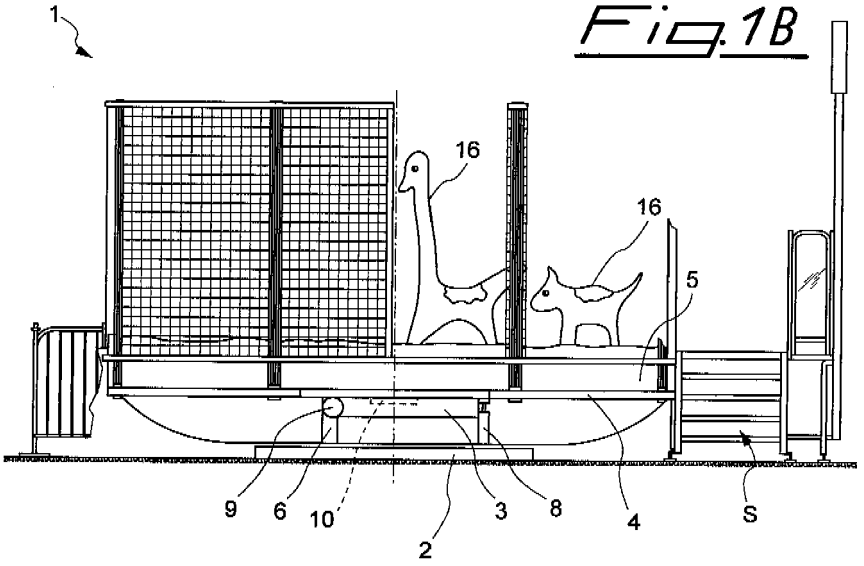


Fig.2

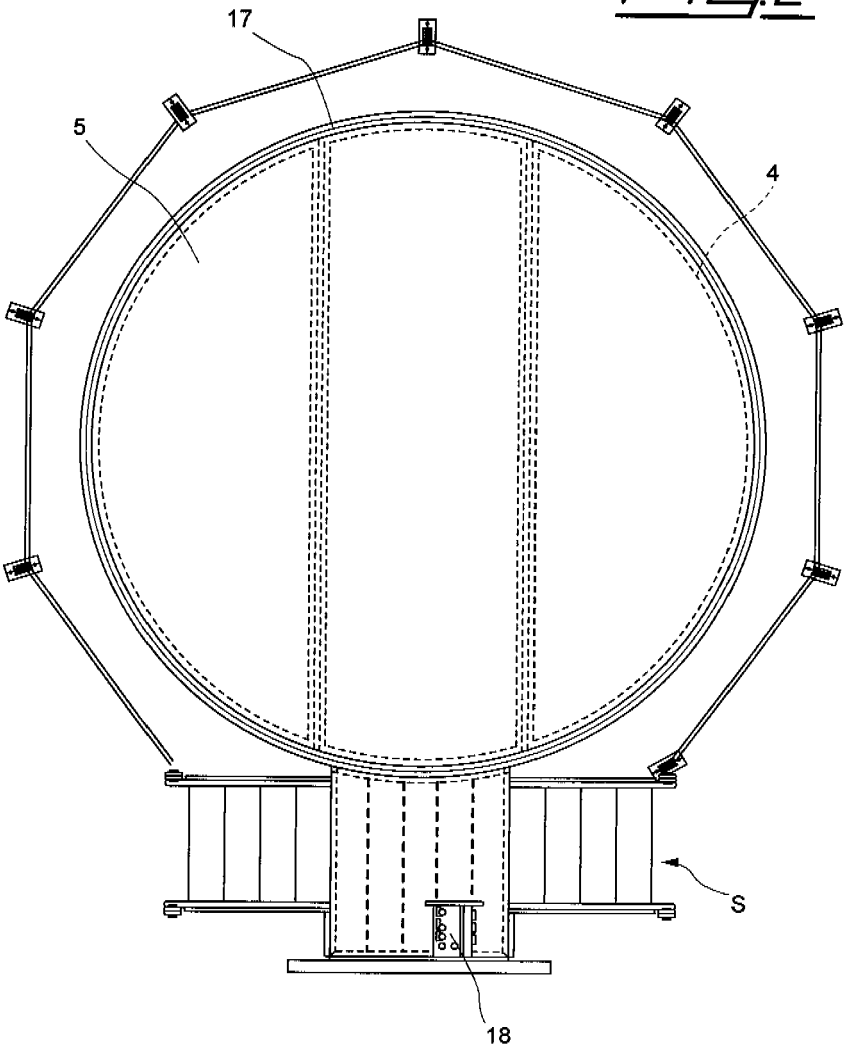


Fig.3A

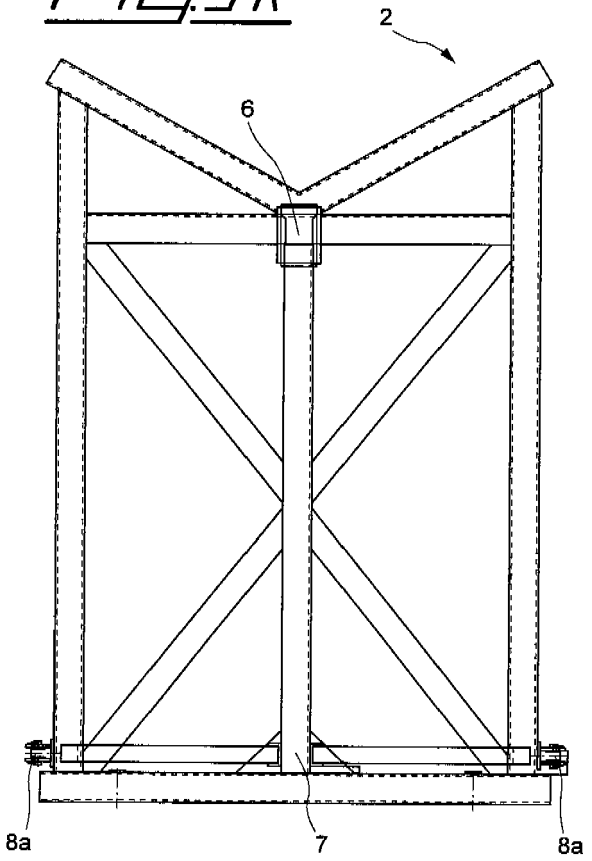
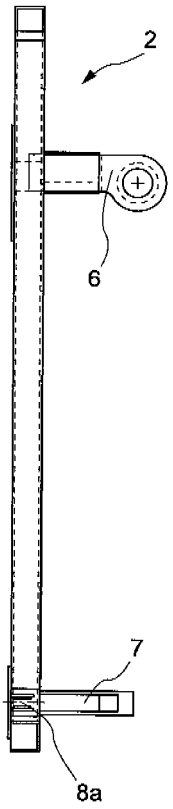


Fig.3B



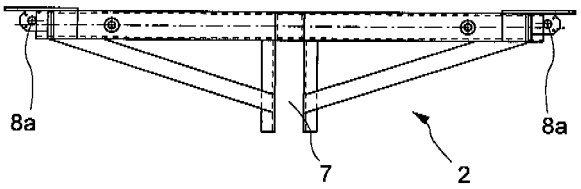


Fig.3C

Fig.4B

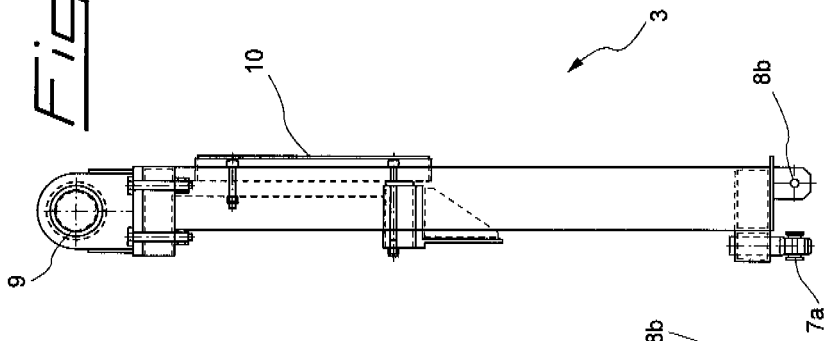


Fig.4A

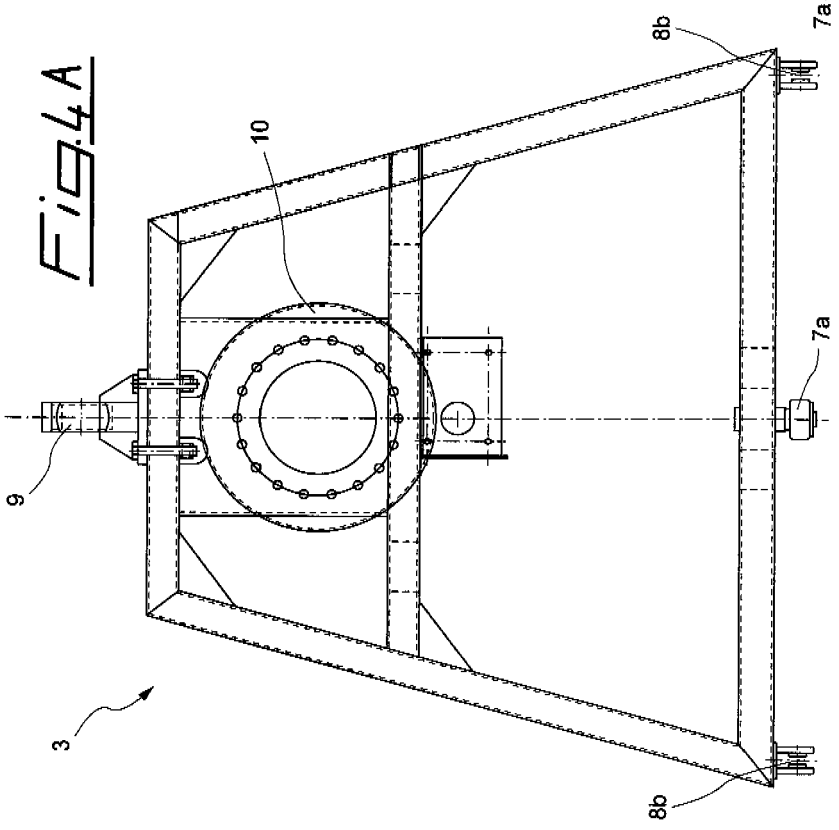


Fig.5

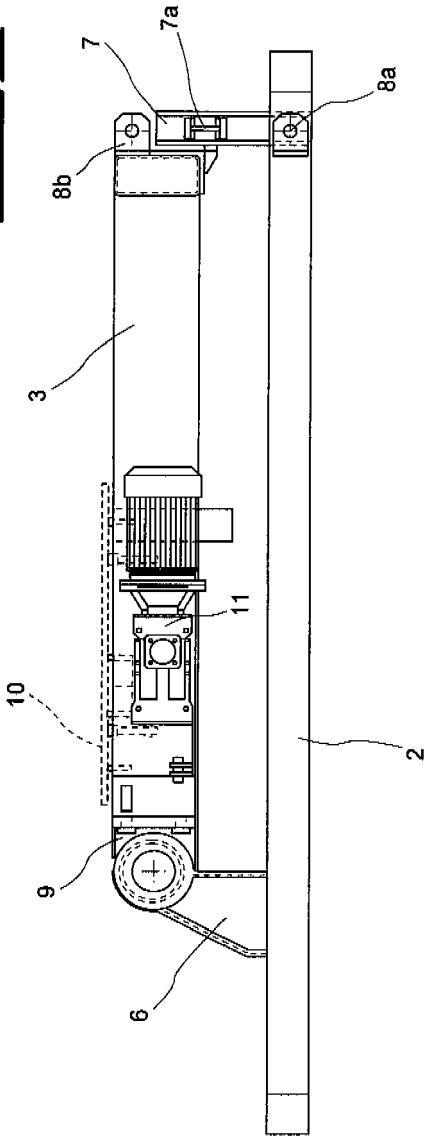


Fig.6

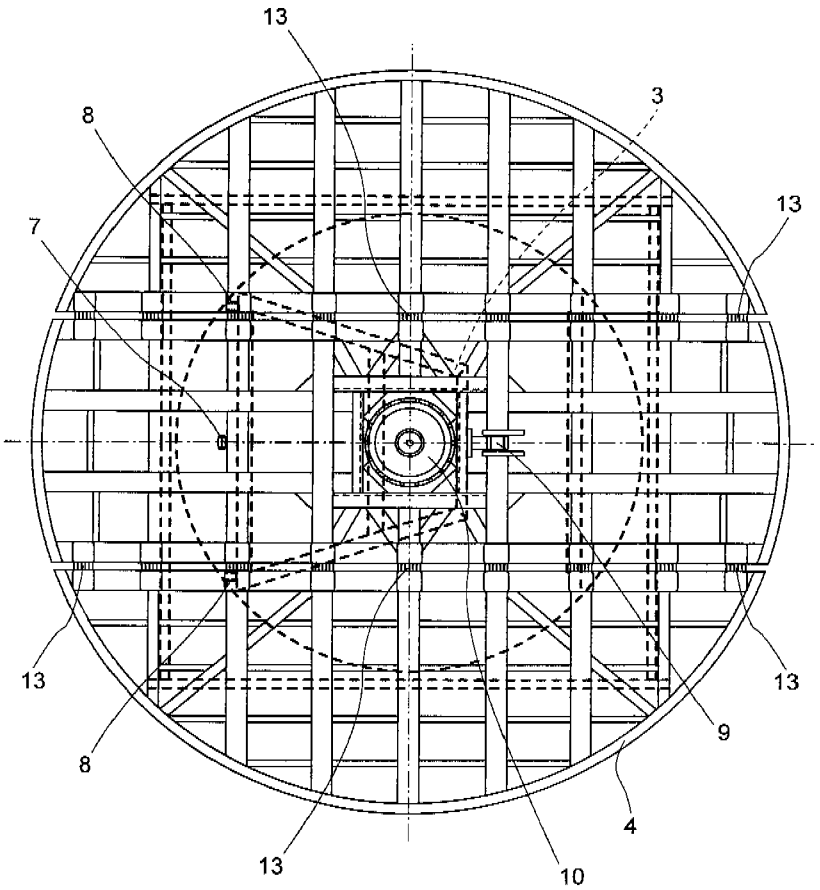
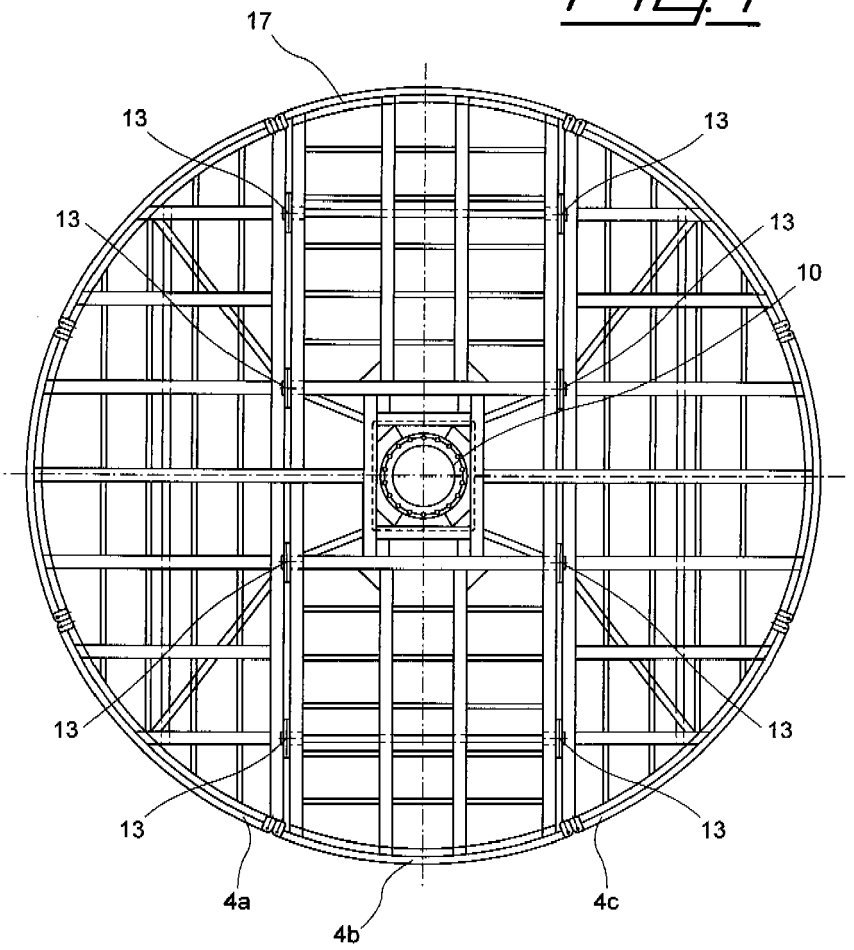


Fig.7



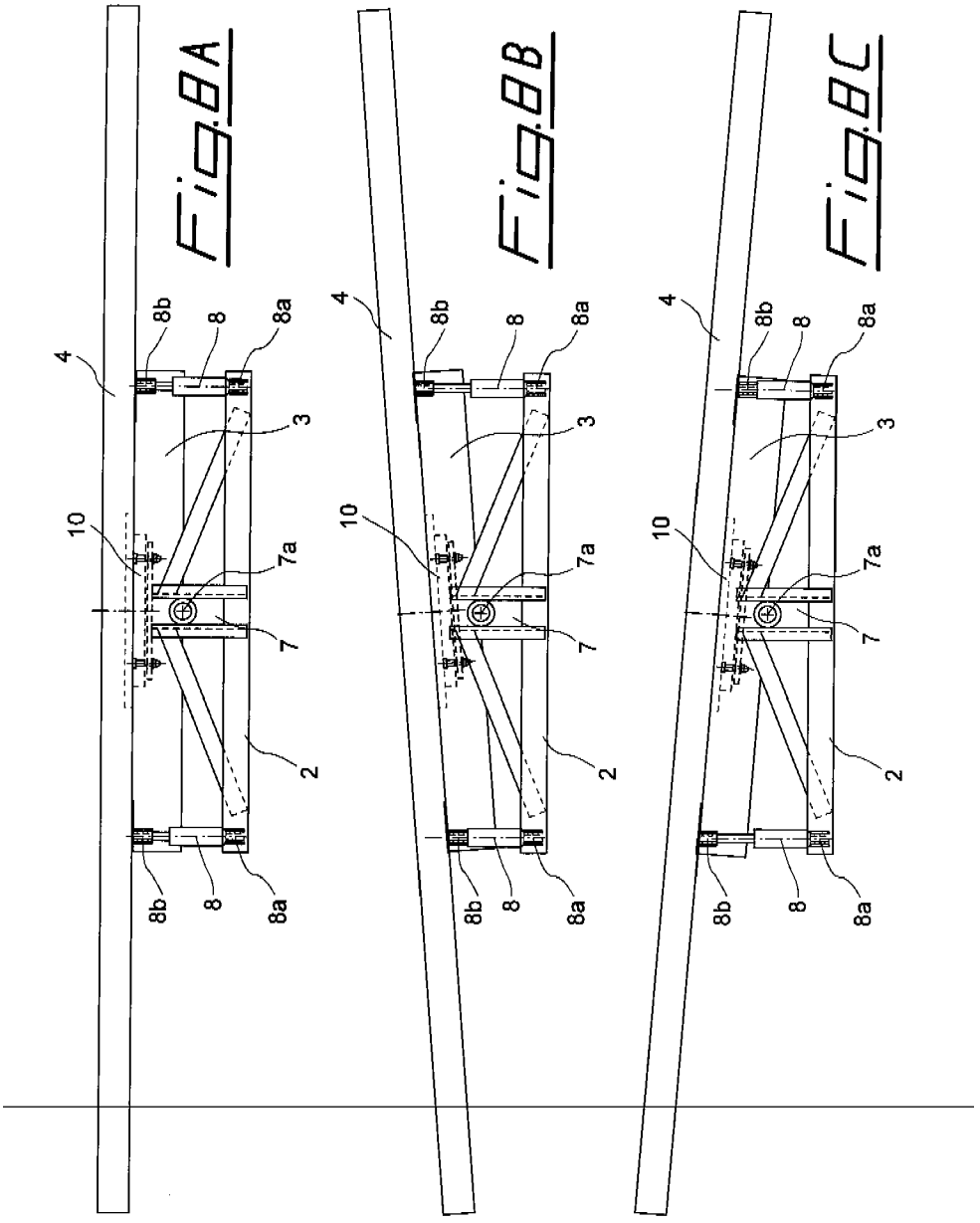


Fig.8A
Fig.8B
Fig.8C
4
8b
8
8a
3
10
7a
7
2

Fig.9

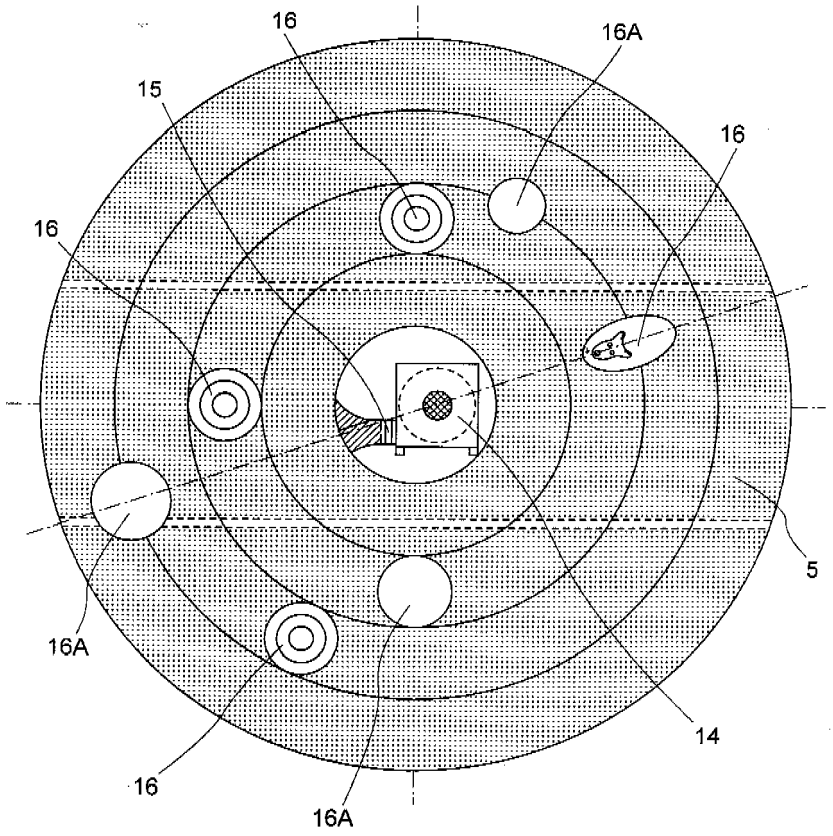
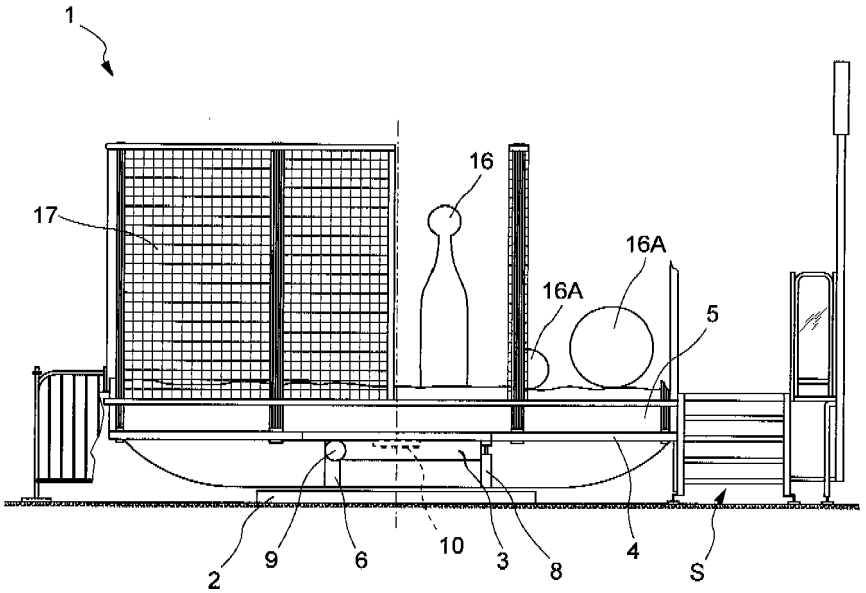


Fig.10



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EUROPEAN SEARCH REPORT

Application Number
EP 08 00 1134

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 1 465 012 A (ERNEST KOHLER) 14 August 1923 (1923-08-14) * page 1, line 71 - page 2, line 20; figures * -----	1-3,5,8, 10-13 4	INV. A63G1/38
X	DE 25 23 102 A1 (BERG GUENTHER VON) 9 December 1976 (1976-12-09) * page 6, line 21 - page 7, line 21; claim 1; figures * -----	1-3,5, 8-13	
Y	GB 220 685 A (GEORGE JESSOP) 20 August 1924 (1924-08-20) * page 2, line 26 - line 34; figures * -----	4	
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A	GB 2 404 878 A (JONES HEFIN LLOYD [GB]) 16 February 2005 (2005-02-16) * page 4, line 22 - page 6, line 11; figures * -----	1-3,5	
			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	3 June 2008	Lucas, Peter

CATEGORY OF CITED DOCUMENTS

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