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(54) Rotatable parking space.

(57) This invention relates to a rotatable parking device including an upright power-driven wheel (20) with two parallel sections (21, 21) which is rotatably supported in a vertical plane, and a plurality of casings (30) for housing motor vehicles (100) pivotally connected between the sections (21, 21). Each casing (30) has a bottom (33), two opposite open sides adapted to be an ingress and an egress for the motor vehicle (100), and blocking members (34, 70) for immobilizing the motor vehicle (100) associated with the casing (30) when the wheel (20) rotates. In this way, many motor vehicles (100) can be housed in the casings (30) which are suspended on the wheel (20) and maintain a horizontal position while the wheel (20) rotates in a vertical plane. The wheel (20) may be located either above or partially under the ground so as to conserve parking space.

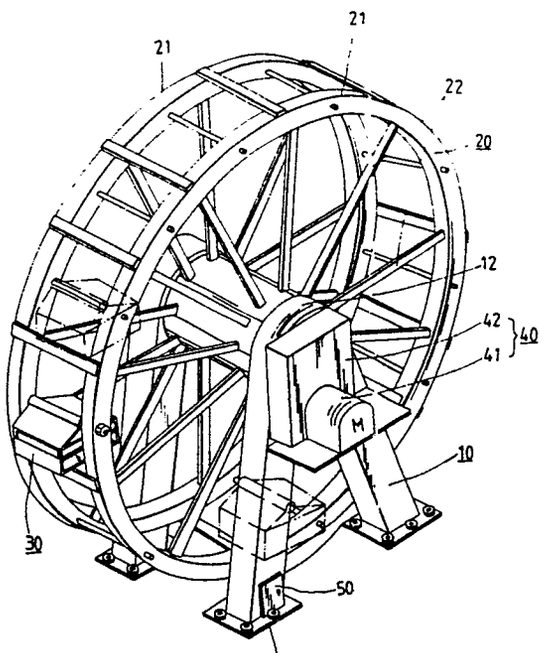

FIG.1

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ROTATABLE PARKING DEVICE

This invention relates to a parking device, particularly to a parking device which includes an upright power-driven wheel made in two sections having casings suspended between said sections for the housing of many automobiles.

As is well known, the increase the parking space is an important problem to be solved in a crowded city. It is desired that maximum utilization of limited space car can be achieved regarding the parking of motor vehicles.

It is therefore a main object of this invention to provide a rotatable parking device thereby reducing the amount of parking space required on the ground.

Accordingly, a rotatable parking device of this invention includes an upright power-driven wheel with two parallel sections which is rotatably supported in a vertical plane, and a plurality of casings for the purpose of housing motor vehicles pivotally connected between the sections. Each casing has a bottom, two opposite open sides adapted to be an ingress and an egress for a motor vehicle, and means for immobilizing said motor vehicle, said motor vehicle associated with the casing when the wheel rotates. In this way, many motor vehicles can be housed in the casings. These motor vehicles can also be maintained in a horizontal position while rotated about the wheel within a vertical plane. The wheel may be located either above or partially under the ground so as to conserve parking space.

Other features and advantages of this invention will become apparent in the following detailed description of the preferred embodiments of this invention with reference to the accompanying drawings, in which:

Fig.1 is perspective view of a preferred embodiment of a rotatable parking device of this invention.

Fig. 2 is a perspective view of a preferred embodiment of a casing for housing motor vehicles according to this invention.

Fig. 3 are a schematic view showing a rotatable parking device located above the ground in an operative position and an enlarged view of a stopper mounted on the bottom of the casing so as to prevent the motor vehicle therein from slippage.

Fig. 4 is a perspective schematic view showing the connection between the wheel spokes and the wheel axle of the upright power-driven wheel of this invention.

Fig. 5 is a side view of another preferred embodiment of the a rotatable parking device of this invention.

Fig. 6 is a schematic view showing a rotatable parking device located partially underground.

Fig. 7 is a perspective schematic view showing another type of casing for a rotatable parking device according to this invention.

Referring to Fig. 1, a perspective view of a rotatable parking device of this invention is shown. The rotatable parking device includes an upright wheel 20 rotatably supported by legs 10. The lower ends 11 of the legs 10 are respectively fixed on the ground. The wheel 20 is driven by a driving device 40 associated with the legs 10. The driving device 40 includes a motor 41, a transmission case 42 and a power supply means (not shown). A control device 50 is mounted near one of the end 11 of the leg 10 for controlling the driving device 40. In this respect, the wheel may be driven to rotate at a predetermined angle and a given speed. The wheel 20 has two parallel rims 21, 21 and a plurality of spokes 22 connected to an axle 23 (see Fig. 3) which is driven by the driving device 40. The wheel spokes 22 are preferably engaged with the wheel axle 23 by nuts and bolts , as best illustrated in Fig. 4, so that they can be separated from the wheel axle 23 for transport. A plurality of casings 30 for housing motor vehicles 100 are pivotally connected between the rims 21, 21. Thereby, the casings 30 are maintained in a horizontal position while the wheel rotates in a vertical plane.

Referring to Fig. 2, a perspective view of a casing 30 for housing a motor vehicle 100 is shown. Each of said casings 30 has a pivot hole 31 at its top portion which is passed through a pivot pin 32 so as to be pivotally connected to the rims 21, 21 of the wheel 20. Each casing 30 has a bottom 33 and two opposite, opened sides adapted to be an ingress and an egress for a motor vehicle 100. Rows of ribs 34 are provided on the bottom 33 of the casing 30 so as to prevent the vehicle 100 which is left in the casing 30 from slippage when the wheel 20 rotates. Wedge blocks 70 are preferably provided under the wheels 101 of the motor vehicle 100 for blocking the motor vehicle 100, as best illustrated in Fig. 3. The two opposite opened sides of the casing 30 may arranged in a direction perpendicular to that of the axle 23 or parallel to that of the axle 23, as shown in Fig. 7. Two hatches 35, 35 are respectively and pivotally connected to the edges of the opened sides of the casing 30 so that said hatches 35, 35 can be opened or closed thereby permitting the vehicle 100 to be loaded or unloaded by passing over one of said hatches 35 when one of the casings 30 is rotated to its lowest position, as shown in Fig. 3. The hatches 35, 35 are preferably controlled by an

oil pressure system.

Referring to Fig. 5, a side view of another preferred embodiment of a rotatable parking device is shown. The embodiment includes two power-driven upright wheels 20′, 20′. Each of the wheels 20′, 20′ is provided with a plurality of casings in a manner similar to that described hereinbefore so as to increase the number of motor vehicles to be housed.

It is to be understood that the rotatable parking device can also be mounted in a cavity 80 formed in the ground with the upper portion of said parking device partially located above the ground, as best illustrated in Fig. 6. In this situation, the ends of the wheel axle 23 are rotatably mounted on the opposing walls which are defined by the cavity 80 under the ground. A shield 90 is preferably provided over the cavity 80 so as to protect the rotatable parking device from rain, heat, and dust etc. A vehicle 100 can enter or leave the casing when the wheel 20 rotates to a predetermined position in a direction perpendicular to that of the axle 23 of the wheel 20, (as shown in Fig. 6), or in a direction parallel to that of the axle 23 of the wheel 20 with another type of casing 30′ having different opened sides thereof with respect to the casing 30 in Fig. 6, as best illustrated in Fig. 7.

Claims

1. A rotatable parking device comprising:
an upright power-driven wheel (20) with two parallel sections (21, 21) which is rotatably supported in a vertical plane; and
a plurality of casings (30) for housing motor vehicles (100) pivotally connected between said sections (21, 21), each casing (30) having a bottom (33), two opposite open sides adapted to be an ingress and an egress for said motor vehicle (100), and means (34, 70) for immobilizing said motor vehicle (100) associated with said casing (30) when said wheel (20) rotates.

2. A rotatable parking device as claimed in Claim 1, wherein each of said open sides is closed by a hatch (35) pivotally connected to an edge of said bottom (33) so that said hatches (35, 35) can be closed or opened permitting each of said motor vehicles (100) to be loaded or unloaded by passing over one of said hatches (35, 35).

3. A rotatable parking device as claimed in Claim 1, wherein said immobilizing means (34, 70) includes rows of ribs (34) protruded upwardly from said bottom (33) of said casing (30) so as to prevent said motor vehicle (100) from slippage when said wheel (20) rotates.

4. A rotatable parking device as claimed in Claim 1, wherein said wheel (20) is located above the ground.

5. A rotatable parking device as claimed in Claim 1, wherein said wheel (20) is partially located under the ground.

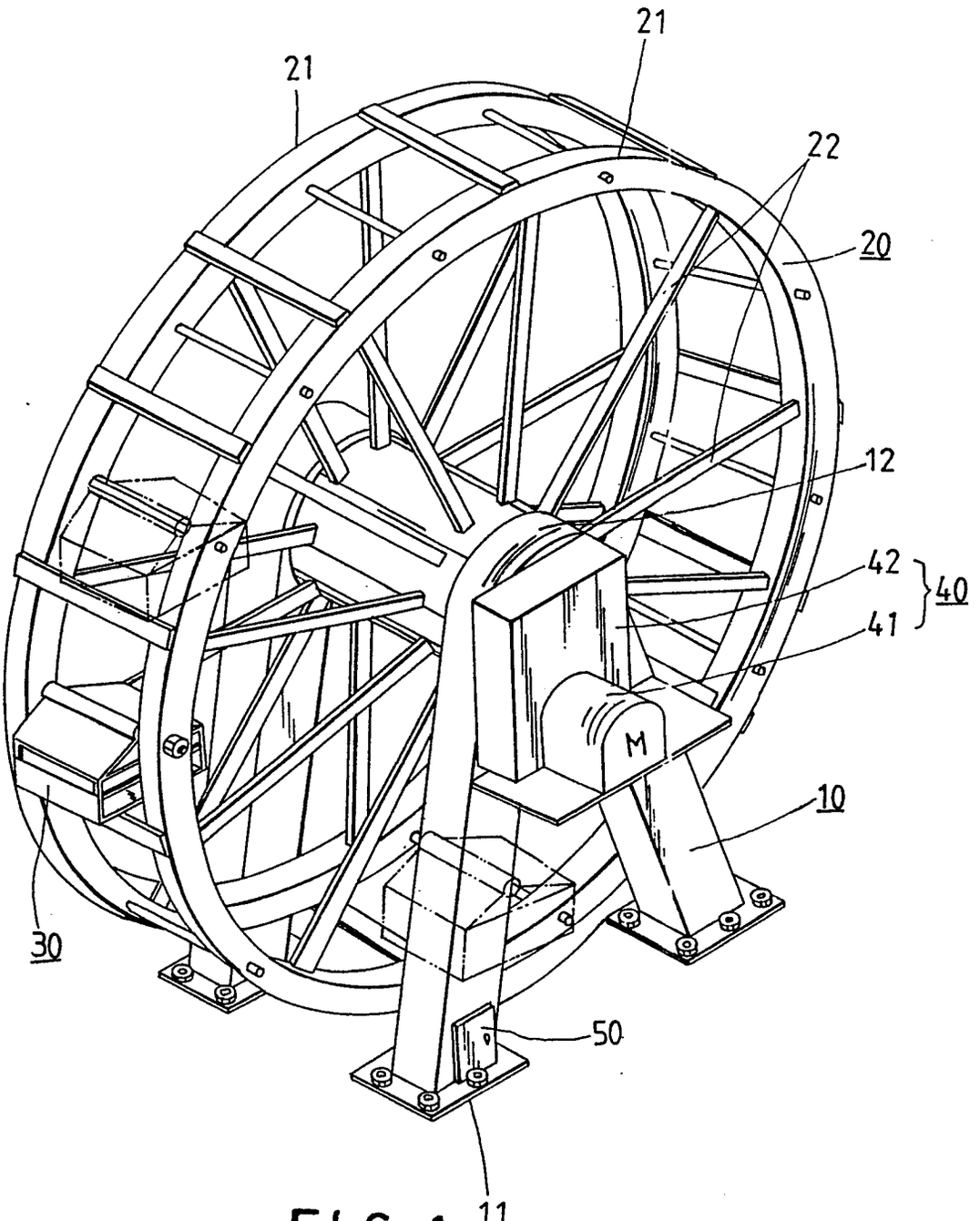

FIG.1

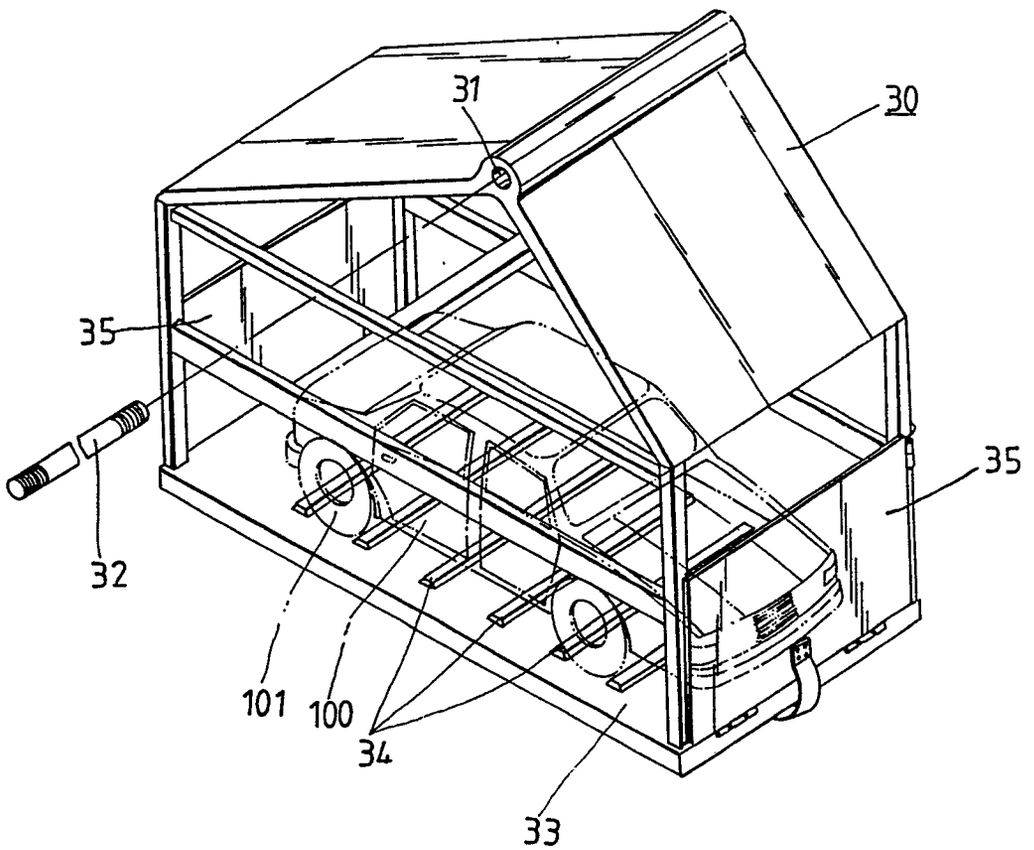

FIG.2

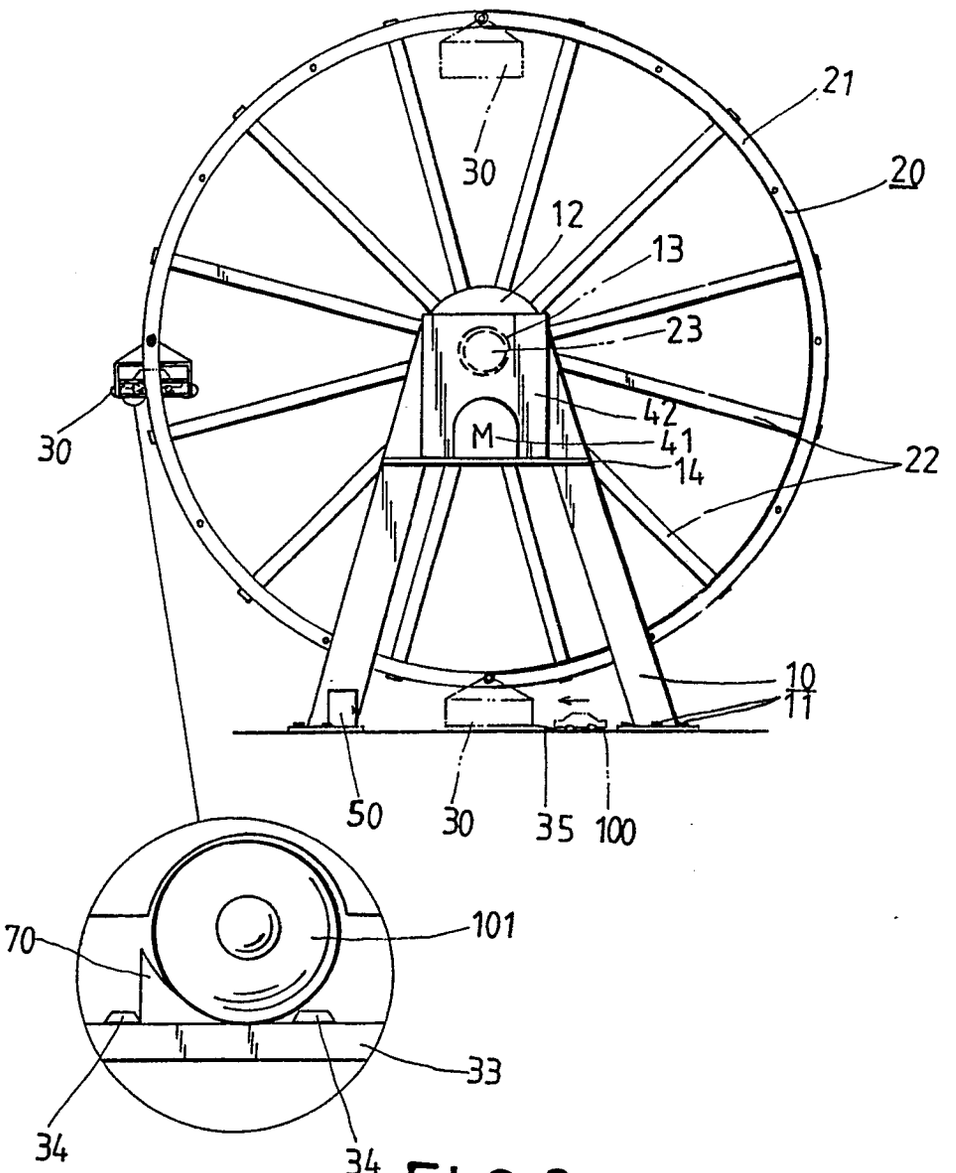

FIG.3

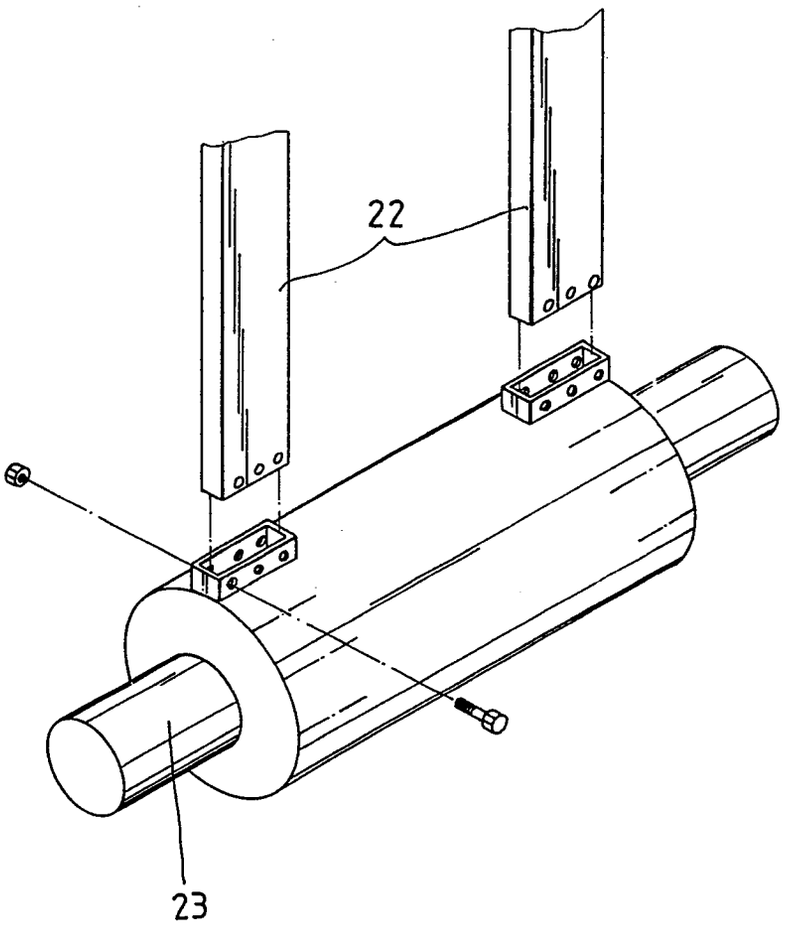

FIG.4

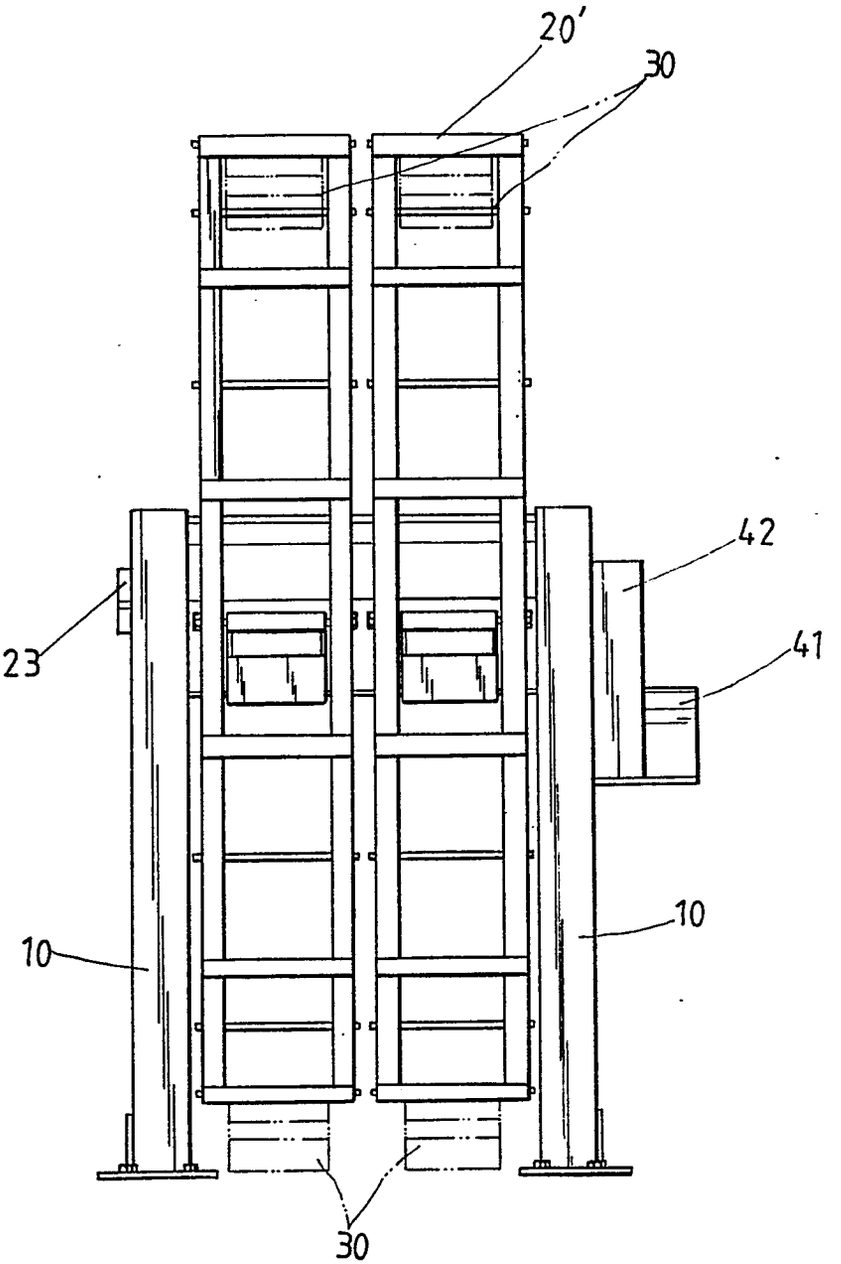

FIG.5

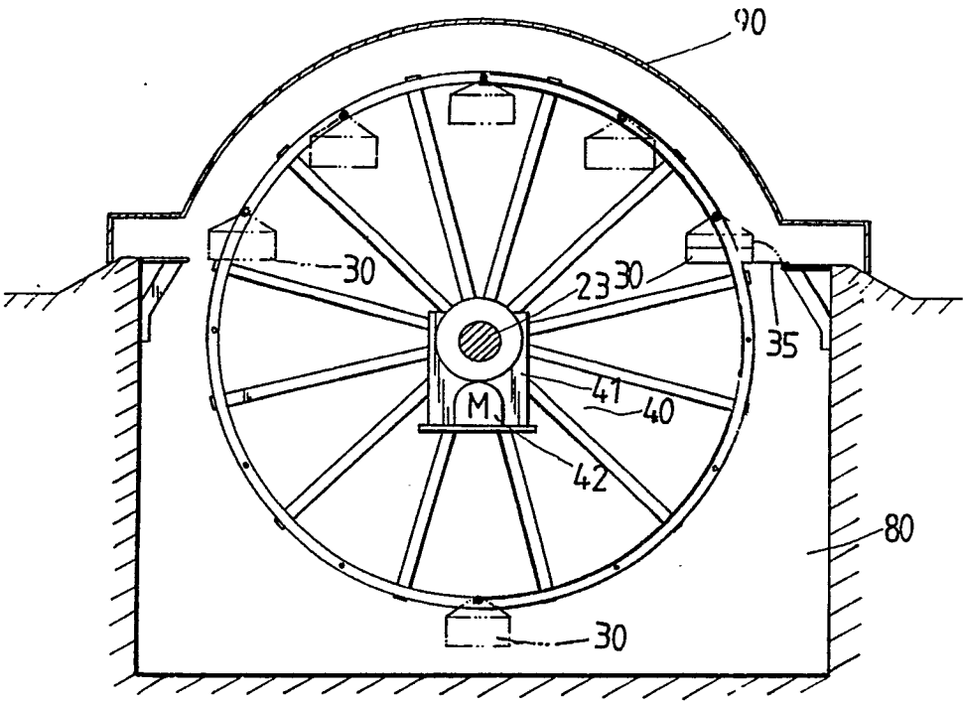

FIG.6

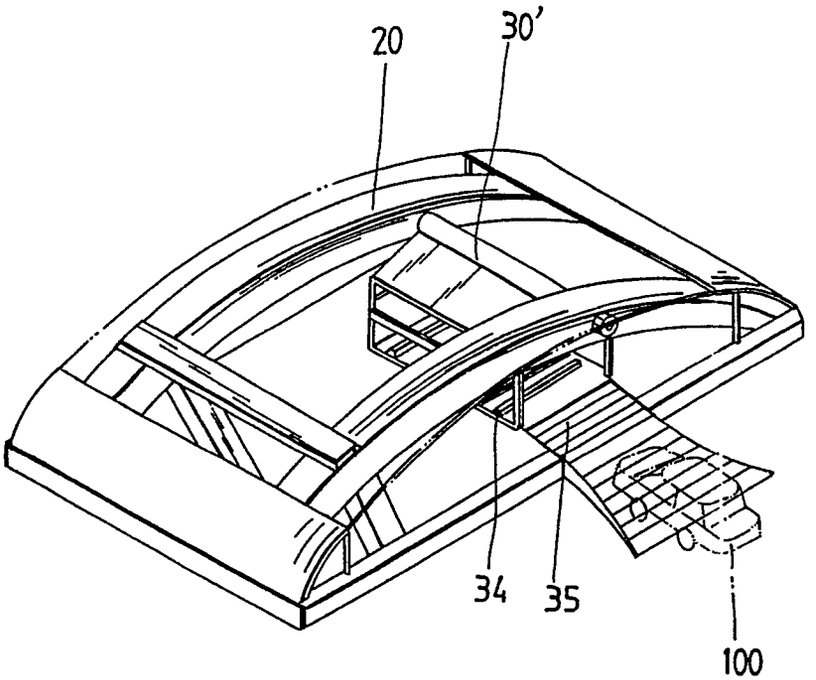

FIG.7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 89 30 6440

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	FR-A-2 539 791 (CH.-J. MAURIN) * page 3, line 16 - page 9; figures 1-4 * ---	1,3,5	E 04 H 6/16
X	DE-U-7 913 647 (GUTMANN) * pages 10-17; figures 1-7 * ---	1,5	
A	DE-U-1 893 718 (PERSCH et al.) * complete document * -----	1,2,4	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

E 04 H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	07-02-1990	PAETZEL H-J

CATEGORY OF CITED DOCUMENTS

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