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(54) **AN URBAN COMMUTER/MATERIAL CARRYING FACILITY WITH NON LINEAR AERIAL ROPEWAY**

STÄDTISCHE PENDLER-/MATERIALBEFÖRDERUNGSEINRICHTUNG MIT NICHTLINEARER DRAHTSEILBAHN

INSTALLATION DE NAVETTE DE TRANSPORTS URBAINS DE MATÉRIAUX PAR TRANSPORTEUR AÉRIEN NON LINÉAIRE

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(73) Proprietor: **Conveyor & Ropeway Services Private Limited**
Kolkata 700 016 West Bengal (IN)

(72) Inventor: **CHAKRAVARTY, Shekhar**
Kolkata 700 016 West Bengal (IN)

(74) Representative: **Prüfer & Partner mbB**
Patentanwälte · Rechtsanwälte
Sohnckestraße 12
81479 München (DE)

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GB-A- 180 781 **GB-A- 206 744**
GB-A- 873 921 **US-A- 5 197 390**

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Description

FIELD OF THE INVENTION

[0001] The present invention in general relates to a carrying facility drivable along a non-linear conveyor means in the form of Ropeway, and a manufacturing method therefor, and in particular, to an unique and improved carrying facility adapted to negotiate a horizontal curve at an online operating speed along a non-linear conveyor means, without the need for detaching and/or slowing down.

BACKGROUND OF THE INVENTION

[0002] It is traditionally known to persons skilled in the art that carrying facility for the purpose of carrying passengers and materials, along elevated cables are commonly known as "Ropeways". It is broadly of two types:

a) System with fixed carrying Ropes and moving haulage Ropes known as Bicable System.
b) System with moving carrying - cum - hauling Ropes known as Monocable System.

[0003] Ropeways generally follow point to point straight alignment. When angular deviations (horizontal curve) becomes essential, angle stations are provided, where the ropeway cars are detached from the moving haulage rope, negotiate the horizontal curve over a shunt rail and then attached to the rope again. This requires lot of space as also high capital expenditure.

[0004] Ropeways generally follow point to point straight alignment. When angular deviations (horizontal curve) becomes essential, angle Stations are provided.

[0005] For bicable system, carrying ropes of the two adjacent line Sections are terminated at the angle Station by anchorages or tension gears. The cars are detached from moving haulage rope and they travel over curved shunt rail to change direction. The haulage rope direction is changed over a Sheave or Battery Rollers. The cars then are attached again.

[0006] For monocable system, the cars are detached from the Carrying - Hauling Rope, the rope negotiates the horizontal diversion over sheaves while the cars over curved shunt rail, and then the cars are coupled again with the rope.

[0007] Thus provisions of a horizontal deviation in ropeways, conventionally, call for elaborate arrangement with good number of moving parts, structures, and foundation thereof. They occupy large space and involve huge expenses and maintenances along with cost thereon too, and become extremely difficult, if not impossible to implement them in urban areas, which are congested.

[0008] Because of these factors, ropeways got restricted to limited areas, like Winter Sports, Tourism and Pilgrimage having short length linear installations only. Longer installations with angular deviations have special angle stations to negotiable deviation.

[0009] Because of the aforesaid limitation, ropeways have not gained much popularity as a means of public transport system for the commuter in cities and metropolis. Whatever few Ropeways were built for such purpose all are on straight alignments.

[0010] Roads in the cities, in particular, and the congested areas in general are laid as a net work crisscrossing each other. So reaching from one point to the other, one has to take many turns and bends. It is easily negotiable by surface transport like bus, trams and other vehicles but not possible by existing conventional Ropeways of different types. With the growing population, numbers of vehicular traffic on roads have been multiplying day by day. But with limited road surface available, it often leads to congestions deterrent to fast movement.

[0011] Moreover, the emission from the fuming vehicles raises the air pollution beyond control and hazard level. Therefore, the Authorities / Planners, for long, have been looking for alternate means - Elevated or underground, like Metros, L R Ts and so on. But they are capital intensive and involve long gestation period also.

[0012] One of the essential components of a Ropeway installation is a group of Carriers / Cabins, each of which consists of (i) a Rope Gripping device, (ii) a Hanger, and (iii) a Cabin or Bucket container.

[0013] According to the method of attachment, Griping Devices are broadly classified as: -

: = > Fixed Type Grips
=> Resting Type Grips
=> Detachable Type Grips

[0014] None of the above type of Grips, presently used by the ropeway builders is able to negotiate a non-linear alignment having horizontal curves moving at the line speed and without requiring any detachment from the rope.

[0015] It was, therefore, a long felt need, to develop an improved facility in the ropeway system, which is adapted to negotiate bends over city roads, in particular, and on congested locations and all other locations in general with ease, and follow the existing road route in an overhead manner without interfering with the road space, the traffic movement, vehicular traffic and the pedestrian movement as well on the kerbs. In pursuance to such need there was also a need for a carrying facility which is safe, sound and pollution free, both emission and noise, and fully accident free, having automatic Drive System, instead of multiple human control behind the wheels, as in case of vehicular transportation system. Thus, movement of carrying facility along a non-linear conveyor means has enormous potential in cities in particular and in congested places in particular to serve as a safe, pollution free and economic mode of mass transport.

[0016] The present invention meets the aforesaid long felt need.

[0017] All throughout the specification including the claims, the words "carrying facility", "ropeways", "cable", "passengers", "life", "cabin/bucket", "carriages", "non-linear", "load" and "grip" are to be interpreted in the broadest sense of the respective terms and includes all similar items in the field known by other terms, as may be clear to persons skilled in the art. Restriction/limitation, if any, referred to in the specification, is solely by way of example and understanding the present invention.

OBJECTS OF THE INVENTION

[0018] GB 873,921 discloses a generic carrying facility according to the preamble of claim 1. Another carrying facility is known from GB 206,744.

[0019] It is the principal object of the present invention to provide an improved carrying facility drivable along a non-linear ropeway / conveyor means for carrying passengers and/or load in all locations in general, which is capable of negotiating horizontal bends and deviations while moving at operating speed without the need for detaching and/or slowing down.

[0020] This object is achieved by the carrying facility having the features of claim 1, by the ropeway system having the features of claim 5, by the ropeway transportation facility having the features of claim 7 and by the method for manufacturing an improved carrying facility having the features of claim 8, respectively. Advantageous further developments of the present invention are defined in the dependent claims.

[0021] It is a further object of the present invention to provide an improved carrying facility through aerial ropeway drivable along a non-linear conveying means equipped with a specially designed vertical grip structure, which can follow nonlinear road routes, negotiating online bends at line speed, over arterial road routes and transport passengers at capacity as high as 2500 / 3000 Passengers Per Hour (PPH) each way, per track.

[0022] It is another object of the present invention to provide an improved carrying facility drivable along a non-linear aerial ropeway/conveyor means adapted to negotiate enroute bends deviations, thereby providing an alternate mode of transport system, avoiding accident prone vehicular transportation system.

[0023] It is a further object of the present invention to provide an improved carrying facility drivable along a non-linear aerial ropeway/conveying means, which involves simplified construction, minimum maintenance and low cost of production, which consequently render its availability at reasonable price.

[0024] It is a further object of the present invention to provide an improved carrying facility drivable along a non-linear aerial ropeway/conveying means, whereby smoothness is introduced during negotiation and noise level during negotiation, is substantially reduced.

[0025] It is a further object of the present invention to provide a method for manufacturing an improved carrying facility drivable along a non-linear aerial ropeway/conveying means, which is capable of negotiating horizontal bends and deviations while moving at online operating speed without the need for detaching and/or slowing down and simultaneously ensures / guarantees near cent percent technical soundness and safety to passengers and material, irrespective of the ambient condition, avoiding hazardous consequence resulting in loss of life and property.

[0026] It is a further object of the present invention to provide an unique improved ropeway system, drivable along a non-linear/serpentine ropeway route, capable of negotiating horizontal bends and deviations while moving at operating speed without the need for detaching and/or slowing down and simultaneously ensuring guaranteed rope gripping, even under most unfavourable conditions, during ropeway operation.

[0027] It is a further object of the present invention to provide an improved ropeway system, drivable along a non-linear/serpentine ropeway, which is operable in all locations including undulating non-flat regions as well as congested serpentine city/village roads, such that it is capable of negotiating horizontal bends and deviations while moving at operating speed without the need for detaching and/or slowing down and simultaneously provides guaranteed rope gripping, even under most unfavourable conditions, during ropeway operation.

[0028] It is a further object of the present invention to provide a new and improved ropeway transportation facility comprising a plurality of ropeway systems each drivable along a non-linear/serpentine overhead ropeway, each said ropeway system being adapted to negotiate horizontal bends and deviations while moving at operating speed without the need for detaching and/or slowing down.

[0029] It is yet another object of the present invention to provide an improved ropeway transportation system which is pollution free/environment friendly, comfortable, safe, and free of any congestion, experienced on road surface.

[0030] It is a further object of the present invention to provide a method for manufacturing a ropeway system drivable along a non-linear/serpentine ropeway which is capable of negotiating horizontal bends and deviations while moving at operating speed without the need for detaching and/or slowing down.

[0031] How the foregoing objects are achieved and the other aspects of the present invention will be clear from the following description which is purely by way of understanding and not by way of any sort of limitation.

SUMMARY OF THE INVENTION

[0032] Accordingly, the present invention provides an unique improved carrying facility drivable along a non-linear conveyor means having at least a hanger means operatively connected to at least a means for accommodating passengers and/or material and to at least a new design vertical body detachable gripping means adapted

firmly to cabin/container, said means for accommodating passengers and/or material via said hanger means. The gripping means includes a Vertical Grip structure adapted to shift the centroid of suspension to negotiate a horizontal deviation at operating speed along said non-linear conveyor means, without the need for detachment and/or slowing down along said conveyor means.

[0033] In accordance with preferred embodiments of the improved carrying facility according to the present invention:

- said Vertical Grip structure is equipped with a Horizontal Actuating means for locking and unlocking the said grip at Terminal and Intermediate stations, and at least an angular module operatively equipped with a guiding means to guide the suspension to a desired degree with respect to its vertical position, thereby facilitating free travel of said grip while negotiating a deviation, at its operating line speed.

- said gripping means has a movable jaw and a fixed jaw, said fixed jaw being connected to body of said gripping means, said movable jaw being operatively connected to a pair of draw bars having a spring mechanism mounted thereon.

- said draw bars are operatively connected with horizontal side roller mounted on a bracket.

- there exists a shaft mounted on body of said grip to accommodate articulated track wheel frames on either side.

- said track wheel frames have two pairs of track wheels operatively mounted thereon.

[0034] The present invention also provides a ropeway system drivable along a serpentine ropeway having at least a hanger operatively connected to a cabin/ bucket for carrying load and/or passengers and to at least a Detachable Grip adapted to firmly grip said cabin/ bucket along said ropeway, wherein said grip comprises a vertical grip structure equipped with horizontal actuating means for locking and unlocking said grip at Terminal and Intermediate passenger boarding/deboarding stations, and at least an angular module having guiding means to guide the suspension to a desired degree with respect to its vertical position, said grip also having a shaft mounted on body of said grip to accommodate articulated track wheel frames on either side, said track wheel frames having two pairs of track wheels operatively mounted thereon, whereby said grip is adapted to shift the centroid of suspension to negotiate a horizontal deviation at operating speed along said serpentine ropeway, making it fully free of the battery rollers, without the need for detachment and/or slowing down along said serpentine ropeway.

[0035] In accordance with a preferred embodiment of the ropeway system according to the present invention there exists a hanger shaft mounted on body of said grip for supporting the hanger, said hanger being suspended from the shaft and operatively connected to a cabin/ bucket for carrying passengers and/or load.

[0036] The present invention also provides a ropeway transportation facility comprising a plurality of ropeway carrier systems, each said system drivable along at least a non-linear/ serpentine overhead ropeway having at least a hanger operatively connected to a cabin/ bucket for carrying passenger and/or load and to at least a detachable grip adapted to firmly grip said cabin/ bucket while moving along said ropeway, wherein said grip comprises a Vertical Grip structure equipped with horizontal actuating means for locking and unlocking said grip at terminal intermediate stations, and at least, an angular module having guiding means to guide the suspension to a desired degree with respect to its vertical position, said grip also having a shaft mounted on body of said grip to accommodate articulated track wheel frames on either side, said track wheel frames having two pairs of track wheels operatively mounted thereon, whereby said grip is adapted to shift the centroid of suspension to negotiate a horizontal deviation at operating speed along said serpentine ropeway, without the need for detachment and/or slowing down along said serpentine ropeway and keeping it free of the battery rollers.

[0037] The present invention also provides a method for manufacturing an improved carrying facility drivable along a non-linear conveyor means in the form of ropeway including operatively connecting, at least, a hanger means to at least a means for accommodating passengers and/or material and to at least a detachable gripping means wherein said method further includes designing a gripping means having a Vertical Grip structure, equipping said gripping means with a horizontal actuating means for locking and unlocking gripping means of the rope at terminal and intermediate stations and equipping said gripping means of rope with an angular module having guiding means to guide the suspension to a desired degree with respect to its vertical position, thereby facilitating said grip structure to shift the centroid of suspension to negotiate a horizontal deviation at operating speed along said non-linear conveyor/ropeway means, without the need for detachment and/or slowing down along said conveyor means.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

[0038] The nature and scope of the present invention will be understood from the accompanying drawings, which are by way of illustration of some preferred embodiments and not by way of any sort of limitation. In the accompanying drawings:

Figure 1 illustrates a typical lay-out of the non-linear route of the improved carrying facility in the form of

aerial ropeway according to the present invention.

Figure 2 illustrates a schematic view of a Terminal Station of the improved carrying facility in the form of ropeway in accordance with the present invention.

Figure 3 illustrates an elevation view of a preferred embodiment of the detachable grip applied in the improved carrying facility in the form of ropeway according to the present invention.

Figure 4 a plan view of the improved carrying facility in the form of ropeway according to the present invention.

Figure 5 illustrates a cross-sectional view of the preferred embodiment illustrated in the accompanying figure 3, taken along the section A-A.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

[0039] The following describes some preferred embodiments of the present invention, which are purely for the sake of understanding the performance of the invention, and not by way of any sort of limitation.

[0040] As stated under the heading "Background of the Invention", the art of carrying facilities so far deployed along conveyor means in the form of aerial ropeway, had some limitation in respect of their ability to perform in a non linear ropeway tracks. They are unable to negotiate any horizontal bend/curve without requiring the detachment from the rope or slowing down the speed.

[0041] The present invention nullifies such limitations. In particular, the present invention provides an improved carrying facility such as a ropeway drivable along non-linear conveyor means such as a serpentine ropeway, having a specially equipped vertical body gripping means for gripping the rope carrier suspending cabins/buckets, meant for carrying passengers and/or material, along the conveyor means via the hanger. This is designed in such a manner so that the grip is able to negotiate horizontal deviations with absolute ease while traveling along the conveyor means in the form of aerial ropeway such as an overhead serpentine ropeway track, without the need for detaching and/or slowing down. This is exactly what the present invention aims at, that being its crux.

[0042] In the above context it is hereby clarified, that simply by way of example and for understanding the present invention and not by way of any limitation, the improved carrying facility drivable along a non-linear conveyor means, in accordance with the present invention, have been referred to as an aerial ropeway system along a non-linear/serpentine ropeway . It should be understood to persons skilled in the art that, the present invention is equally applicable to all other carrying facilities for passengers and material along suitable conveyor means in the form of aerial ropeway, and will be equally effective, in achieving the objects of the present invention.

[0043] Furthermore, the improved carrying facility in the form of aerial ropeway in accordance with the present invention is popularly applicable in respect of carrying passengers and/or load in cities and other congested locations involving criss-cross roads. However, this improved carrying facility is equally applicable in other locations/ambient conditions as well as in areas witnessing adversities of climate such as hilly regions. For that purpose the gripping facility is equipped with additional constructional facilities to that effect, so that near cent percent technical soundness and safety to passengers and material is ensured, irrespective of the ambient environment. For cities/locations not witnessing such adversities, such additional constructional features will not be required. The improved gripping means of the rope of the improved carrying facility in accordance with the present invention, although is detachable, is adaptable to be applied as fixed type grips, resting type grips and, of course detachable type grips (both spring type and gravity type and combination of both) as will be understood by persons skilled in the art.

[0044] The crux of the invention lies in designing the gripping means of the rope in the ropeway, such that it is able to negotiate horizontal deviations with absolute ease while traveling along the conveyor means such as an overhead serpentine ropeway track, without the need for detaching and/or slowing down. The construction of the carrying facility in general and that of the griping means of the rope, in particular, are simple and requires minimum and simple maintenance. This consequently, renders its availability at reasonable price.

[0045] The improved carrying facility according to the present invention drivable along a non-linear conveyor means in the form of aerial ropeway has, at least, a system driving unit, at least a system of tensioning unit, at least a means of automatic Locking/Unlocking of Carriers at the terminal and intermediate stations. There is also provided, at least, an angular module operatively equipped with, at least a means of guiding the suspension of a cabin to a desired degree, with respect to its vertical position. This aids free travel of the grip, in accordance with the present invention, while negotiating the deviation battery rollers, in conjunction with generation of relative differential profile of the twin rail tracks.

[0046] The gripping means in accordance with the present invention is adapted to detachably grip the means for accommodating passengers and / or material along the non-linear conveyor means in the form of aerial ropeway. Such means for accommodating passengers and/or load may be cabin/bucket. The conveyor means include, at least, a non-linear/serpentine ropeway alignment. It also includes, at least, a means of negotiating bends, at least a means of shifting the suspension from twin to a single one, and actuate conjugate force to the haul rope, and at least a means, whereby the position of the said haul rope along with the gripping means via the hanger system shift away from its position on the battery

with rollers, overcoming the inward force towards the battery rollers, whereby free passage of the gripping means via the hanger means, along with cabin become ensured.

[0047] The present invention also encompasses a ropeway transportation facility comprising a plurality of ropeway systems in accordance with present invention each such ropeway system being drivable along at least a non-linear/serpentine overhead ropeway.

[0048] The accompanying figure 1 illustrates a typical lay-out of the non-linear route of the improved carrying facility according to the present invention. It shows the improved ropeway system (4') and also normal vehicles (5') for transportation. The non-linear/serpentine route is illustrated at the bottom portion of the accompanying figure 1 showing the terminal stations (1') and the angular module (2').

[0049] Figure 2 illustrates a schematic view of a terminal station of the improved carrying facility in accordance with the present invention. It shows the ropeway system (4') in accordance with the present invention together with the normal vehicles (5').

[0050] The main technical feature of the present invention of the Detachable Grip is its vertical structure with respect to rope, which only makes it possible to shift the centroid of suspension and shift the rope away from the Battery Rollers. This shifting is essentially required to negotiate a Horizontal curve at line speed keeping the grip structure clear of the Battery Rollers. The Track Wheels on either side at the top of the grip, pass over a static graded rail structure, profied to a specific gradient on either side, which force it to shift its centroid along with the rope clamped to it, and thereby, the rope becomes free of any deviation rollers/sheaves provided over the curved portion of the alignment.

[0051] This particular shift of suspension introduces a horizontal force for the Grip with Rope to come under the changed suspension, away from the line of the rope, effecting relief of the rope from the Battery Rollers. This shift is further aided by a Horizontal Ramp operating on the Roller incorporated at a lower level on the Hanger, to take care of any residual force needed to make the Grip completely free from Battery Rollers and Cabin swinging tendency too.

[0052] The various features, which have been illustrated in the accompanying figures 3, 4 and 5, have been represented by reference numerals as follows :

Name of feature	Reference numeral
Carriage body	1
Drawbar	2
Fixed jaw	3
Moving jaw	4
Jaw pin	5
Compression Spring	6
Side Roller - 1	7
Side Roller - 2	8
Main Roller short alley	9
Roller	10
Pair Mount assembly	11
Hanger Shaft	12

[0053] The accompanying figures 3 and 5 illustrate the vertical detachable grip applied in the ropeway system in accordance with the present invention, the latter being a cross section along A-A shown in the accompanying figure 3.

[0054] The grip looks like a torque. One of the jaws of the grip is firmly connected to the body , that being the fixed jaw(3), while the other one, being the moving jaw(4) is operatively connected to a pair of drawbar(2) on which the springs(6) are mounted. The draw bars and spring assembly are shown in the accompanying figure 4, which illustrates a plan view of the ropeway system according to the present invention. The spring mechanism includes a pair of helical springs operatively connected to the fixed and moving jaws through the draw bars(2). The drawbars in turn are pivotally connected to a roller(10), which, when pushed inward with the help of ramp, compresses the springs(6) and the moving jaw(4) moves outward with respect to a pin(5) connecting both the jaws. When the ramp is drawn back and the roller is released, the spring stretches out and the jaw moves back to its previous position and exert pressure onto the rope with a magnitude proportionate to the strength of the spring forces. This enables the vertical grip to grip the rope suspending the cabin/bucket/carriage body(1) with near cent percent technically sound and safe manner, irrespective of ambient condition.

[0055] As shown in the accompanying figure 5, a hanger shaft (12) is mounted on the grip body for supporting the hanger. As illustrated in the accompanying figure 3, a main shaft (11) is also mounted on the grip body to adapt articulated track wheel frames on either side. At least two pairs of track wheels are operatively mounted on track wheel frames to the said main shaft for negotiating rail tracks in stations and also deviation frames. At deviation frames, the varied level of configuration of track wheel mounts.

[0056] So, as it will be understood by persons skilled in the art that unlike the rope gripping means presently being used by various builders, where the axis of the grip body, which is horizontal with vertical activating means, the present invention applies axially vertical body grip, with respect to rope and having horizontal actuating means. It has got a very special feature in the form of twin rail track suspension facility with articulated wheels, located above the rope gripping device, whereby automatic shifting of suspension is achieved. This feature permits the grip to free itself in a gripped condition from roller battery provided at the horizontal curve structure, and thereby, making it possible to negotiate the curve without

requiring any detachment from the rope and/or slowing down.

[0057] The particular feature of online non-Linear negotiation of deviation is, therefore, achieved through special design of vertical grip structure and horizontal actuation for locking and unlocking of grip relating to rope and creation of a very special feature, generating a configuration, whereby automatic shifting of the suspension takes place. This permits the carrier gripped rope to become free of the battery rollers, during the travel at the grip location. Thus the grip, which suspends the cabin also, with load or without load, becomes free from the battery rollers automatically during its travel.

[0058] Modular Batteries generating special configuration with rollers and track Rails, deviate the direction of travel of rope, and render it possible for the cabins to negotiate it comfortably also. This technical advancement was hitherto unachieved and not conceived by persons skilled in the art from the knowledge of existing art. That apart the present invention has tremendous economic significance in as much as it involves simple machinery and minimum maintenance.

[0059] The rope grip with all integral components like vertical grip body, overhead hanger suspension and twin track wheel assembly incorporated, ensures that while negotiating, the grip becomes automatically free of the battery rollers. Under normal condition, the grip profile would have interference with the Battery Rollers and make the Grip negotiation not feasible.

[0060] On straight route, this special grip with overhead provision for hanger suspension and wheel assemblies to negotiate rails, travel with the rope with suspended hanger and cabin, as in any other gondola ropeway system, negotiate the line rollers mounted on intermediate towers spaced suitably.

[0061] At the bends, along with deviation battery modules, it will also provide the line roller mount supports at each end. On mounting on twin track at the approach, track roller assemblies, take over the vertical load from the grip Hanger and cabin. On negotiating transition rails, also a part of the total curve, the carrier completes its travel over the angular deviation Batteries, emerging from an exit transition curve, and still gripped with the haul rope.

[0062] Before approaching the battery, locational characteristics of the roller tracks ensure that the entire vertical load, from the rope, get transferred to twin rollers tracks first, and then gradually, the inner rail track gets relieved and the entire load gets transferred to track roller assembly on the outer radius track, thus shifting the suspension from two track to one.

[0063] This particular shift of suspension introduces a horizontal force on the grip with rope to come under the changed suspension, away from the line of the rope, effecting relief of the rope from the battery rollers. This shift is further aided by a horizontal ramp operating on the roller incorporated at a lower level on the hanger, to take care of any residual force needed to make the grip completely free from battery rollers and cabin swinging tendency too.

[0064] All online deviation structures will have an approach module of approx. 3.8M length each side. On the other side, there will be an exit module once the negotiation over all the battery rollers become over. The deviation batteries are incorporated with transition curve rails before taking up the radial routes.

[0065] The improved carrying facility drivable along a non-linear conveyor means in the form of aerial ropeway in accordance with the present invention is adaptable to follow nonlinear road routes, negotiating online bends at line speed, over arterial road routes and transport passengers at capacity as high as 2500 / 3000 Passengers Per Hour (PPH) each way, per track.

[0066] The method for manufacturing an improved carrying facility drivable along a non-linear conveyor means in the form of aerial ropeway, according to the present invention includes operatively connecting, at least, a hanger means, and to, at least, a means for accommodating passengers and/or material and to, at least, a detachable rope gripping means. The method further includes designing a rope gripping means having a vertical grip structure, equipping said gripping means with a horizontal actuating means for locking and unlocking gripping means at terminal and intermediate stations. The method further includes equipping the rope gripping means with an Angular Module having guiding means to guide the suspension to a desired degree with respect to its vertical position. This facilitates the Grip Structure to shift the centroid of suspension, to negotiate a horizontal deviation at operating speed along said non-linear conveyor means, without the need for detachment and/or slowing down along the non-linear conveyor means.

[0067] The present invention thus achieves all its objects, as narrated under the heading **"OBJECTS OF THE INVENTION".**

[0068] The present invention has been described with reference to some drawings and preferred embodiments, purely for the sake of understanding and not by way of any limitation and the present invention includes all legitimate developments within the scope of what has been described hereinbefore and claimed in the appended claims.

Claims

1. Carrying facility drivable along a non-linear conveyor means in the form of aerial ropeway, having, at least, a hanger means, operatively connected to, at least, a means for accommodating passengers and/or material and to at least a monocable detachable rope gripping means adapted to firmly grip said means for accommodating passengers and/or material via said hanger means, wherein said rope gripping means includes a vertical grip structure adapted to shift the centroid of suspension to negotiate a hori-

zontal deviation at operating speed along said non-linear conveyor in the form of aerial ropeway means, without the need for detachment and/or slowing down along said conveyor means,
characterized in that

said vertical rope gripping structure is equipped with a horizontal actuating means (2, 3, 4, 6) for locking and unlocking said rope gripping means at terminal and intermediate stations;
wherein said rope gripping means has a movable jaw (4) and a fixed jaw (3), said fixed jaw (3) being connected to body of said rope gripping means, said movable jaw (4) being operatively connected to pair of draw bars (2) having a spring mechanism (6) mounted thereon;
wherein said draw bars (2) are operatively connected with horizontal side rollers (7, 8) mounted on a bracket, wherein, when said horizontal side rollers (7, 8) are , in operation, pushed inward to each other with the help of a ramp of the terminal or intermediate station, the spring mechanism (6) is compressed and the movable jaw (4) pivots with respect to a pin (5) connecting both the fixed and movable jaws (3, 4) outward from the fixed jaw (3).

2. The carrying facility as claimed in claims 1 to 4, wherein there exists a shaft mounted on body of said rope grip Structure to accommodate articulated track wheel frames on either side.

3. The carrying facility as claimed in claim 2, wherein the said track wheel frames have two pairs of track wheels operatively mounted thereon.

4. The carrying facility as claimed in claim 1, further comprising at least an angular module operatively equipped with a guiding means to guide the suspension to a desired extent with respect to its vertical position, thereby facilitating free travel without interference of said rope gripping means while negotiating a deviation with respect to its direction of travel to achieve the non-linear travel feature of the ropeway system.

5. A ropeway system drivable along a serpentine ropeway route, having at least, a hanger operatively connected to a cabin/ bucket for carrying passenger and/or load and to at least, a monocable detachable rope grip adapted to firmly grip and support said cabin/ bucket along said ropeway route, **characterized in that**
said rope gripping means comprises a vertical rope grip structure equipped with horizontal actuating means for locking and unlocking said rope grip at terminal and intermediate stations, and at least, an angular module having guiding means to guide the suspension to a desired extent with respect to its vertical position, thereby facilitating free travel with interference of said rope gripping means while negotiating a deviation with respect to its director of travel to achieve the non-linear travel feature of the ropeway system, and the said grip also having a shaft mounted on said rope gripping means to accommodate articulated track wheel frames on either side, said track wheel frames having two pairs of track wheels (10), operatively mounted thereon, whereby said rope grip is adapted to shift the centroid of suspension to negotiate a horizontal deviation at operating speed along said serpentine ropeway route, without the need for detachment and/or slowing down along said serpentine ropeway,
wherein said rope gripping means has a movable jaw (4) and a fixed jaw (3), said fixed jaw (3) being connected to body of said rope gripping means, said movable jaw being operatively connected to pair of draw bars (2) having a spring mechanism (6) mounted thereon;
wherein said draw bars (2) are operatively connected with horizontal side rollers (7, 8) mounted on a bracket wherein, when said horizontal side rollers (7, 8), in operation, are pushed inward to each other with the help of a ramp of the terminal or intermediate station, the spring mechanism (6) is compressed and the movable jaw (4) pivots with respect to a pin (5) connecting both the fixed and movable jaws (3, 4) outward from the fixed jaw (3).

6. The ropeway system as claimed in claim 5, wherein there exists a hanger shaft (12) mounted on body of said rope grip for supporting the hanger, said hanger being suspended from the shaft, and operatively, connected to a cabin/bucket for carrying passengers and/or load.

7. A ropeway transportation facility comprising a plurality of ropeway carrier systems, each said system drivable along at least a non-linear/ serpentine overhead ropeway route, having at least, a hanger operatively connected to a cabin/ bucket for carrying passengers and/or load, and to, at least, a monocable detachable rope gripping means adapted to firmly grip and support said cabin/bucket along said ropeway route, **characterized in that**
said rope gripping means comprises a vertical rope grip structure equipped with horizontal actuating means for locking and unlocking said rope grip at terminal and intermediate stations, and at least, an angular module having guiding means to guide the suspension to a desired extent with respect to its vertical position, said rope grip also having a shaft mounted on body of said rope gripping means to accommodate articulated track wheel frames on either side, said track wheel frames having two pairs of track wheels, operatively, mounted thereon,

whereby said rope gripping means is adapted to shift the centroid of suspension to negotiate a horizontal deviation at operating speed along said non-linear/serpentine ropeway route, without the need for detachment and/or slowing down along said serpentine ropeway,
wherein said rope gripping means has a movable jaw (4) and a fixed jaw (3), said fixed jaw (3) being connected to body of said gripping means, said movable jaw being operatively connected to pair of draw bars (2) having a spring mechanism (6) mounted thereon;
wherein said draw bars (2) are operatively connected with horizontal side rollers (7, 8) mounted on a bracket, wherein, when said horizontal side rollers (7, 8), in operation, are pushed inward to each other with the help of a ramp of the terminal or intermediate station, the spring mechanism (6) is compressed and the movable jaw (4) pivots with respect to a pin (5) connecting both the fixed and movable jaws (3, 4) outward from the fixed jaw (3).

8. A method for manufacturing an carrying facility drivable along a non-linear conveyor means in the form of aerial ropeway including, operatively, connecting, at least, a hanger means to, at least, a means for accommodating passengers and/or material and to, at least, a monocable detachable rope gripping means,
characterized in that

said method further includes designing a gripping means having a vertical grip structure, equipping said gripping means with a horizontal actuating means for locking and unlocking gripping means at terminal and intermediate stations and equipping said rope gripping means with an angular module having guiding means to guide the suspension to a desired extent with respect to its vertical position, thereby facilitating said rope grip structure to shift the centroid of suspension to negotiate a horizontal deviation at operating speed along said non-linear/serpentine Ropeway route, without the need for detachment and/or slowing down along said conveyor means,
wherein said rope gripping means has a movable jaw (4) and a fixed jaw (3), said fixed jaw (3) being connected to body of said gripping means, said movable jaw being operatively connected to pair of draw bars (2) having a spring mechanism (6) mounted thereon;
wherein said draw bars (2) are operatively connected with horizontal side rollers (7, 8) mounted on a bracket, wherein, when said horizontal side rollers (7, 8) are pushed inward with the help of a ramp of the terminal or intermediate station, the spring mechanism (6) is compressed and the movable jaw (4) pivots with respect to a pin (5) connecting both the fixed and movable jaws (3, 4) outward from the fixed jaw (3).

Patentansprüche

1. Beförderungsmittel, das entlang einer nicht-linearen Vorschubeinrichtung in Gestalt einer oberirdischen Seilbahn antreibbar ist, die zumindest eine Hängereinrichtung hat, die mit zumindest einer Einrichtung zum Aufnehmen von Passagieren und/oder Material und zumindest einer lösbaren Monokabel-Seilgreifeinrichtung wirksam verbunden ist, die daran angepasst ist, die Einrichtung zum Aufnehmen der Passagiere und/oder des Materials über die Hängereinrichtung fest zu greifen, wobei die Seilgreifeinrichtung eine vertikale Greifstruktur aufweist, die daran angepasst ist, den Aufhängungsschwerpunkt zu versetzen, um eine horizontale Abweichung bei einer Betriebsgeschwindigkeit entlang des nicht-linearen Förderers in Gestalt einer oberirdischen Seilbahneinrichtung einzustellen, ohne dass die Vorschubeinrichtung gelöst und/oder verlangsamt werden muss,
dadurch gekennzeichnet, dass

die vertikale Seilgreifstruktur mit einer horizontalen Betätigungseinrichtung (2, 3, 4, 6) zum Verriegeln und Entriegeln der Seilgreifeinrichtung an einer Endhaltestelle und an Zwischenstationen ausgestattet ist;
wobei die Seilgreifeinrichtung eine bewegbare Klaue (4) und eine feste Klaue (3) hat, wobei die feste Klaue (3) mit einem Körper der Seilgreifeinrichtung verbunden ist, wobei die bewegbare Klaue (4) mit einem Paar Zugstäben (2) wirksam verbunden ist, die einen daran angebrachten Federmechanismus (6) haben;
wobei die Zugstäbe (2) mit horizontalen Seitenrollen (7, 8) wirksam verbunden sind, die an einem Halter angebracht sind, wobei, wenn die horizontalen Seitenrollen (7, 8) in Betrieb mit Unterstützung einer Rampe der Endhaltestelle oder der Zwischenstation zueinander nach innen gedrückt werden, der Federmechanismus (6) komprimiert wird und die bewegbare Klaue (4) hinsichtlich eines Stiftes (5), der die feste und die bewegbare Klaue (3, 4) miteinander verbindet, von der festen Klaue (3) nach außen geschwenkt wird.

2. Beförderungsmittel gemäß Ansprüchen 1 bis 4, wobei eine Welle vorhanden ist, die an einem Körper der Seilgreifstruktur angebracht ist, um gelenkige Spurradrahmen an jeder Seite aufzunehmen.

3. Beförderungsmittel gemäß Anspruch 2,

wobei die Spurradrahmen zwei Paare Spurräder haben, die wirksam daran angebracht sind.

4. Beförderungsmittel gemäß Anspruch 1, des Weiteren mit zumindest einem Winkelmodul, das wirksam mit einer Führungseinrichtung zum Führen der Aufhängung in einem gewünschten Maß hinsichtlich seiner vertikalen Position ausgestattet ist, wodurch eine freie Fahrt ohne Störung der Seilgreifeinrichtung erleichtert wird, während eine Abweichung hinsichtlich seiner Fahrtrichtung eingestellt wird, um ein nicht-lineares Fahrtmerkmal des Seilbahnsystems zu erzielen.

5. Seilbahnsystem, das entlang einer Serpentinen-Seilbahnroute antreibbar ist, mit zumindest einem Hänger, der mit einer Kabine/einem Korb zum Befördern von Passagieren und/oder einer Last und zumindest einem lösbaren Monokabelseilgreifer wirksam verbunden ist, der daran angepasst ist, die Kabine/den Korb entlang der Seilbahnroute fest zu greifen und zu stützen,
dadurch gekennzeichnet, dass

die Seilgreifeinrichtung eine vertikale Seilgreifstruktur aufweist, die mit einer horizontalen Betätigungseinrichtung zum Verriegeln und Entriegeln des Seilgreifers an einer Endstation und Zwischenstationen und zumindest einem Winkelmodul ausgestattet ist, das eine Führungseinrichtung zum Führen der Aufhängung in einem gewünschten Maß hinsichtlich seiner vertikalen Position hat, wodurch eine freie Fahrt mit einer Interferenz der Seilgreifeinrichtung erleichtert wird, während eine Abweichung hinsichtlich seiner Fahrtrichtung eingestellt wird, um das nicht-lineare Fahrtmerkmal des Seilbahnsystems zu erreichen, und wobei der Greifer außerdem eine Welle hat, die an der Seilgreifeinrichtung angebracht ist, um gelenkige Spurradrahmen an jeder Seite aufzunehmen, wobei die Spurradrahmen zwei Paare Spurräder (10) haben, die wirksam daran angebracht sind, wodurch der Seilgreifer daran angepasst ist, den Aufhängungsschwerpunkt zu verschieben, um eine horizontale Abweichung bei einer Betriebsgeschwindigkeit entlang der Serpentinenseilbahnroute einzustellen, ohne dass er entlang der Serpentinenseilbahn gelöst und/oder verlangsamt werden muss,
wobei die Seilgreifeinrichtung eine bewegbare Klaue (4) und eine feste Klaue (3) hat, wobei die feste Klaue (3) mit einem Körper der Seilgreifeinrichtung verbunden ist, wobei die bewegbare Klaue mit einem Paar Zugstäben (2) wirksam verbunden ist, die einen daran angebrachten Federmechanismus (6) haben;
wobei die Zugstäbe (2) mit horizontalen Seitenrollen (7, 8) wirksam verbunden sind, die an einem Halter angebracht sind, wobei, wenn die horizontalen Seitenrollen (7, 8) im Betrieb mit Unterstützung einer Rampe der Endhaltestelle oder der Zwischenstation zueinander nach innen gedrückt werden, der Federmechanismus (6) komprimiert wird und die bewegbare Klaue (4) hinsichtlich eines Stiftes (5), der die feste und die bewegbare Klaue (3, 4) miteinander verbindet, von der festen Klaue (3) nach außen geschwenkt wird.

6. Seilbahnsystem gemäß Anspruch 5, wobei eine Hängerwelle (12) vorhanden ist, die an einem Körper des Seilgreifers zum Stützen des Hängers angebracht ist, wobei der Hänger an der Welle aufgehängt ist und mit einer Kabine/einem Korb zum Befördern von Passagieren und/oder einer Last wirksam verbunden ist.

7. Seilbahntransportmittel mit vielen Seilbahnfördersystemen, wobei jedes System entlang zumindest einer nicht-linearen/Serpentinen-Hängeförderseilbahnroute antreibbar ist, das zumindest einen Hänger, der mit einer Kabine/einem Korb zum Befördern von Passagieren und/oder einer Last und zumindest einer lösbaren Monokabel-Seilgreifeinrichtung wirksam verbunden ist, die daran angepasst ist, die Kabine/den Korb entlang der Seilbahnroute fest zu greifen und zu stützen, **dadurch gekennzeichnet, dass**

die Seilgreifeinrichtung eine vertikale Seilgreifstruktur aufweist, die mit einer horizontalen Betätigungseinrichtung zum Verriegeln und Entriegeln des Seilgreifers an einer Endhaltestelle und Zwischenstationen und zumindest einem Winkelmodul ausgestattet ist, das eine Führungseinrichtung zum Führen der Aufhängung zu einem gewünschten Maß hinsichtlich seiner vertikalen Position hat, wobei der Seilgreifer außerdem eine Welle hat, die an einem Körper der Seilgreifeinrichtung angebracht ist, um gelenkige Spurradrahmen an jeder Seite aufzunehmen, wobei die Spurradrahmen zwei Paare Spurräder haben, die wirksam daran angebracht sind, wodurch die Seilgreifeinrichtung daran angepasst ist, den Aufhängungsschwerpunkt zu verschieben, um eine horizontale Abweichung bei einer Betriebsgeschwindigkeit entlang der nicht-linearen/Serpentinen-Hängeförderseilbahnroute einzustellen, ohne dass sie entlang der Serpentinenseilbahn gelöst und/oder verlangsamt werden muss,
wobei die Seilgreifeinrichtung eine bewegbare Klaue (4) und eine feste Klaue (3) hat, wobei die feste Klaue (3) mit einem Körper der Greifeinrichtung verbunden ist, wobei die bewegbare Klaue mit einem Paar Zugstäben (2) wirksam

verbunden ist, die einen daran angebrachten Federmechanismus (6) haben;
wobei die Zugstäbe (2) mit horizontalen Seitenrollen (7, 8) wirksam verbunden sind, die an einem Halter abgebracht sind, wobei, wenn die horizontalen Seitenrollen (7, 8) in Betrieb mit Unterstützung einer Rampe der Endhaltestelle oder der Zwischenstation zueinander nach innen gedrückt werden, der Federmechanismus (6) komprimiert wird und die bewegbare Klaue (4) hinsichtlich eines Stiftes (5), der die feste und die bewegbare Klaue (3, 4) miteinander verbindet, von der festen Klaue (3) nach außen geschwenkt wird.

8. Verfahren zum Herstellen eines Beförderungsmittels, das entlang einer nicht-linearen Vorschubeinrichtung in Gestalt einer oberirdischen Seilbahn antreibbar ist, die zumindest eine Hängereinrichtung aufweist, die zumindest mit einer Einrichtung zum Aufnehmen von Passagieren und/oder Material und zumindest mit einer lösbaren Monokabel-Seilgreifeinrichtung wirksam verbunden ist,
dadurch gekennzeichnet, dass

das Verfahren des Weiteren beinhaltet: Gestalten einer Greifeinrichtung mit einer vertikalen Greifstruktur, Ausstatten der Greifeinrichtung mit einer horizontalen Betätigungseinrichtung zum Verriegeln und Entriegeln der Greifeinrichtung an einer Endhaltestelle und an Zwischenstationen, und Ausstatten der Seilgreifeinrichtung mit einem Winkelmodul, das eine Führungseinrichtung hat, um die Aufhängung in einem gewünschten Maß hinsichtlich seiner vertikalen Position zu führen, wodurch erleichtert wird, dass die Seilgreifstruktur den Aufhängungsschwerpunkt verschiebt, um eine horizontale Abweichung bei einer Betriebsgeschwindigkeit entlang der nicht-linearen/Serpentinen-Seilbahnroute einzustellen, ohne dass sie entlang der Vorschubeinrichtung gelöst und/oder verlangsamt werden muss,
wobei die Seilgreifeinrichtung eine bewegbare Klaue (4) und eine feste Klaue (3) hat, wobei die feste Klaue (3) mit einem Körper der Greifeinrichtung verbunden ist, wobei die bewegbare Klaue mit einem Paar Zugstäben (2) wirksam verbunden ist, die einen daran angebrachten Federmechanismus (6) haben;
wobei die Zugstäbe (2) mit horizontalen Seitenrollen (7, 8) wirksam verbunden sind, die an einem Halter angebracht sind, wobei, wenn die horizontalen Seitenrollen (7, 8) mit Unterstützung einer Rampe der Endhaltestelle oder der Zwischenstation nach innen gedrückt werden, der Federmechanismus (6) komprimiert und die bewegbare Klaue (4) hinsichtlich eines Stiftes (5), der die feste und die bewegbare Klaue (3, 4) miteinander verbindet, von der feste Klaue (3) nach außen geschwenkt wird.

Revendications

1. Installation de transport pouvant être entraînée le long d'un moyen de transport non-linéaire se présentant sous la forme d'un chemin de câbles aérien ayant, au moins, un moyen de suspension, raccordé de manière opérationnelle à au moins un moyen pour recevoir des passagers et/ou des matériaux et à au moins un moyen de préhension de câble détachable monocâble adapté pour saisir fermement ledit moyen pour recevoir des passagers et/ou des matériaux via ledit moyen de suspension, dans lequel ledit moyen de préhension de câble comprend une structure de préhension verticale adaptée pour déplacer le centroïde de suspension afin de négocier une déviation horizontale, à la vitesse de fonctionnement, le long dudit transporteur non-linéaire se présentant sous la forme d'un moyen de chemin de câbles aérien, sans avoir besoin de détacher et/ou de ralentir le long dudit moyen de transport,
caractérisée en ce que
ladite structure de préhension de câble verticale est équipée avec un moyen d'actionnement horizontal (2, 3, 4, 6) pour bloquer et débloquer ledit moyen de préhension de câble au terminus et aux stations intermédiaires ;
dans lequel ledit moyen de préhension de câble a une mâchoire mobile (4) et une mâchoire fixe (3), ladite mâchoire fixe (3) étant raccordée au corps dudit moyen de préhension de câble, ladite mâchoire mobile (4) étant raccordée de manière opérationnelle à une paire de barres de traction (2) ayant un mécanisme à ressort (6) monté sur ces dernières ;
dans laquelle lesdites barres de traction (2) sont raccordées de manière opérationnelle avec des rouleaux latéraux horizontaux (7, 8) montés sur un support, dans laquelle, lorsque lesdits rouleaux latéraux horizontaux (7, 8) sont, en fonctionnement, poussés vers l'intérieur l'un de l'autre à l'aide d'une rampe du terminus ou de la station intermédiaire, le mécanisme à ressort (6) est comprimé et la mâchoire mobile (4) pivote par rapport à une broche (5) raccordant à la fois les mâchoires fixe et mobile (3, 4) vers l'extérieur par rapport à la mâchoire fixe (3).

2. Installation de transport selon la revendication 1, dans laquelle il existe un arbre monté sur le corps de ladite structure de préhension de câble pour recevoir des bâtis de galet articulés de chaque côté.

3. Installation de transport selon la revendication 2, dans laquelle lesdits bâtis de galet ont deux paires de galets montées de manière opérationnelle sur ces

derniers.

4. Installation de transport selon la revendication 1, comprenant en outre un module angulaire équipé, de manière opérationnelle, avec un moyen de guidage pour guider la suspension sur une étendue souhaitée par rapport à sa position verticale, facilitant ainsi le libre déplacement sans interférence dudit moyen de préhension de câble tout en négociant une déviation par rapport à sa direction de déplacement pour obtenir la caractéristique de déplacement non-linéaire du système de chemin de câbles.

5. Système de chemin de câbles pouvant être entraîné le long d'une voie de câbles en serpentin, ayant au moins, un crochet de suspension raccordé de manière opérationnelle à une cabine/benne pour transporter des passagers et/ou une charge et à au moins un moyen de préhension de câble détachable monocâble adapté pour saisir fermement et supporter ladite cabine/benne le long de ladite voie de câbles, **caractérisé en ce que**
ledit moyen de préhension de câble comprend une structure de préhension de câble verticale équipée avec un moyen d'actionnement vertical pour bloquer et débloquer ledit moyen de préhension de câble au terminus et aux stations intermédiaires, et au moins, un module angulaire ayant un moyen de guidage pour guider la suspension sur une étendue souhaitée par rapport à sa position verticale, facilitant ainsi le libre déplacement sans interférence dudit moyen de préhension de câble, tout en négociant une déviation par rapport à sa directrice de déplacement pour obtenir la caractéristique de déplacement non-linéaire du système de chemin de câbles, et ladite pince ayant également un arbre monté sur ledit moyen de préhension de câble pour loger des bâtis de galet articulés de chaque côté, lesdits bâtis de galet ayant deux paires de galets (10) montées de manière opérationnelle sur ces derniers, moyennant quoi ladite pince de câble est adaptée pour déplacer le centroïde de suspension afin de négocier une déviation horizontale, à la vitesse de fonctionnement, le long de ladite voie de câbles en serpentin, sans avoir besoin de détacher et/ou ralentir le long dudit chemin de câbles en serpentin,
dans lequel ledit moyen de préhension de câble a une mâchoire mobile (4) et une mâchoire fixe (3), ladite mâchoire fixe (3) étant raccordée au corps dudit moyen de préhension de câble, ladite mâchoire mobile étant raccordée de manière opérationnelle à la paire de barres de traction (2) ayant un mécanisme à ressort (6) monté sur ces dernières ;
dans lequel lesdites barres de traction (2) sont raccordées de manière opérationnelle avec des rouleaux latéraux horizontaux (7, 8) montés sur un support, dans lequel, lorsque lesdits rouleaux latéraux horizontaux (7, 8), en fonctionnement, sont poussés vers l'intérieur l'un de l'autre à l'aide d'une rampe de la station de terminus ou d'une station intermédiaire, le mécanisme à ressort (6) est comprimé et la mâchoire mobile (4) pivote par rapport à une broche (5) raccordant à la fois les mâchoires fixe et mobile (3, 4) vers l'extérieur par rapport à la mâchoire fixe (3).

6. Système de chemin de câbles selon la revendication 5, dans lequel il existe un arbre de suspension (12) monté sur le corps de ladite pince de câble pour supporter le crochet de suspension, ledit crochet de suspension étant suspendu à l'arbre, et raccordé de manière opérationnelle à une cabine/benne pour transporter des passagers et/ou une charge.

7. Installation de transport par câble comprenant une pluralité de systèmes de support de chemin de câbles, chacun desdits systèmes pouvant être entraîné le long d'au moins une voie de câbles aérienne non-linéaire/en serpentin, ayant au moins un crochet de suspension raccordé de manière opérationnelle à une cabine/benne pour transporter des passagers et/ou une charge, et à au moins un moyen de préhension de câble détachable monocâble adapté pour saisir fermement et supporter ladite cabine/benne le long de ladite voie de câbles, **caractérisée en ce que**
ledit moyen de préhension de câble comprend une structure de préhension de câble verticale équipée avec un moyen d'actionnement horizontal pour bloquer et débloquer ladite pince de câble au niveau au terminus et aux stations intermédiaires, et au moins un module angulaire ayant un moyen de guidage pour guider la suspension sur une étendue souhaitée par rapport à sa position verticale, ladite pince de câble ayant également un arbre monté sur le corps dudit moyen de préhension de câble pour loger des bâtis de galet articulés de chaque côté, lesdits bâtis de galet ayant deux paires de galets, montées de manière opérationnelle sur ces derniers, moyennant quoi ledit moyen de préhension de câble est adapté pour déplacer le centroïde de suspension afin de négocier une déviation horizontale, à la vitesse de fonctionnement, le long de ladite voie de câbles non-linéaire/en serpentin, sans avoir besoin de détacher et/ou de ralentir le long dudit chemin de câbles en serpentin,
dans laquelle ledit moyen de préhension de câble a une mâchoire mobile (4) et une mâchoire fixe (3), ladite mâchoire fixe (3) étant raccordée au corps dudit moyen de préhension, ladite mâchoire mobile étant raccordée de manière opérationnelle à une paire de barres de traction (2) ayant un mécanisme à ressort (6) monté sur ces dernières ;
dans laquelle lesdites barres de traction (2) sont raccordées de manière opérationnelle avec des rouleaux latéraux horizontaux (7, 8) montés sur un support, dans laquelle, lorsque lesdits rouleaux latéraux

horizontaux (7, 8), en fonctionnement, sont poussés vers l'intérieur l'un de l'autre à l'aide d'une rampe du terminus ou des stations intermédiaires, le mécanisme à ressort (6) est comprimé et la mâchoire mobile (4) pivote par rapport à une broche (5) raccordant à la fois les mâchoires fixe et mobile (3, 4) vers l'extérieur par rapport à la mâchoire fixe (3).

8. Procédé pour fabriquer une installation de transport pouvant être entraînée le long d'un moyen de transport non-linéaire se présentant sous la forme d'un chemin de câbles aérien comprenant, de manière opérationnelle, l'étape consistant à raccorder au moins un moyen de crochet de suspension à au moins un moyen pour loger des passagers et/ou des matériaux et à au moins un moyen de préhension de câble détachable monocâble,
caractérisé en ce que
ledit procédé comprend en outre les étapes consistant à concevoir un moyen de préhension ayant une structure de préhension verticale, équiper ledit moyen de préhension avec un moyen d'actionnement horizontal pour bloquer et débloquer le moyen de préhension au terminus et aux stations intermédiaires et équiper ledit moyen de préhension de câble avec un module angulaire ayant un moyen de guidage pour guider la suspension sur une étendue souhaitée par rapport à sa position verticale, aidant ainsi ladite structure de préhension de câble pour déplacer le centroïde de suspension afin de négocier une déviation horizontale, à la vitesse de fonctionnement, le long de ladite voie de câbles non-linéaire/en serpentin, sans avoir besoin de détacher et/ou de ralentir le long dudit moyen de transport,
dans lequel ledit moyen de préhension de câble a une mâchoire mobile (4) et une mâchoire fixe (3), ladite mâchoire fixe (3) étant raccordée au corps dudit moyen de préhension, ladite mâchoire mobile étant raccordée de manière opérationnelle à une paire de barres de traction (2) ayant un mécanisme à ressort (6) monté sur ces dernières ;
dans lequel lesdites barres de traction (2) sont raccordées de manière opérationnelle avec des rouleaux latéraux horizontaux (7, 8) montés sur un support, dans lequel, lorsque lesdits rouleaux latéraux horizontaux (7, 8) sont poussés vers l'intérieur à l'aide d'une rampe du terminus ou des stations intermédiaires, le mécanisme à ressort (6) est comprimé et la mâchoire mobile (4) pivote par rapport à une broche (5) raccordant à la fois les mâchoires fixe et mobile (3, 4) vers l'extérieur par rapport à la mâchoire fixe (3).

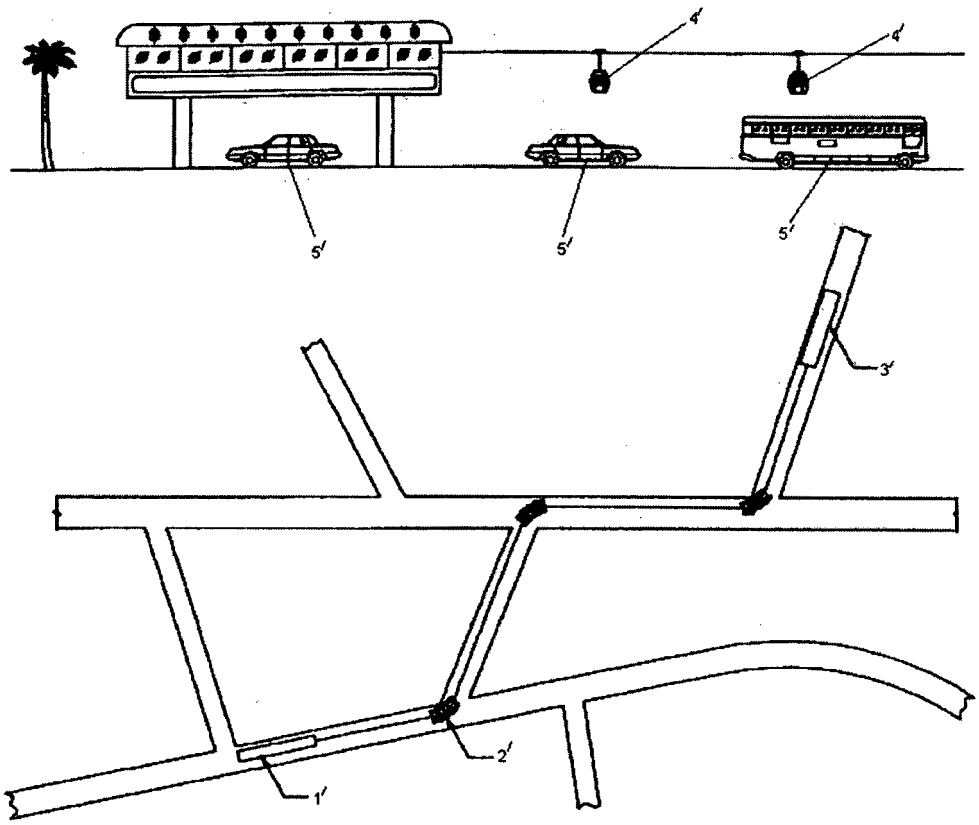

FIG 1

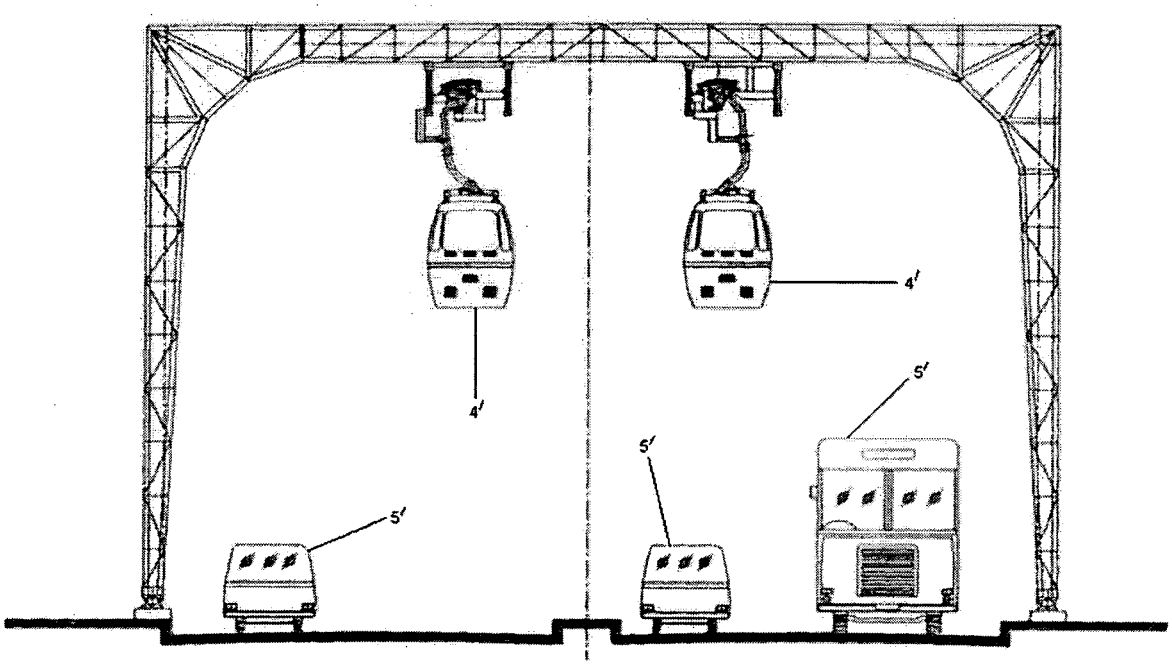

FIG 2

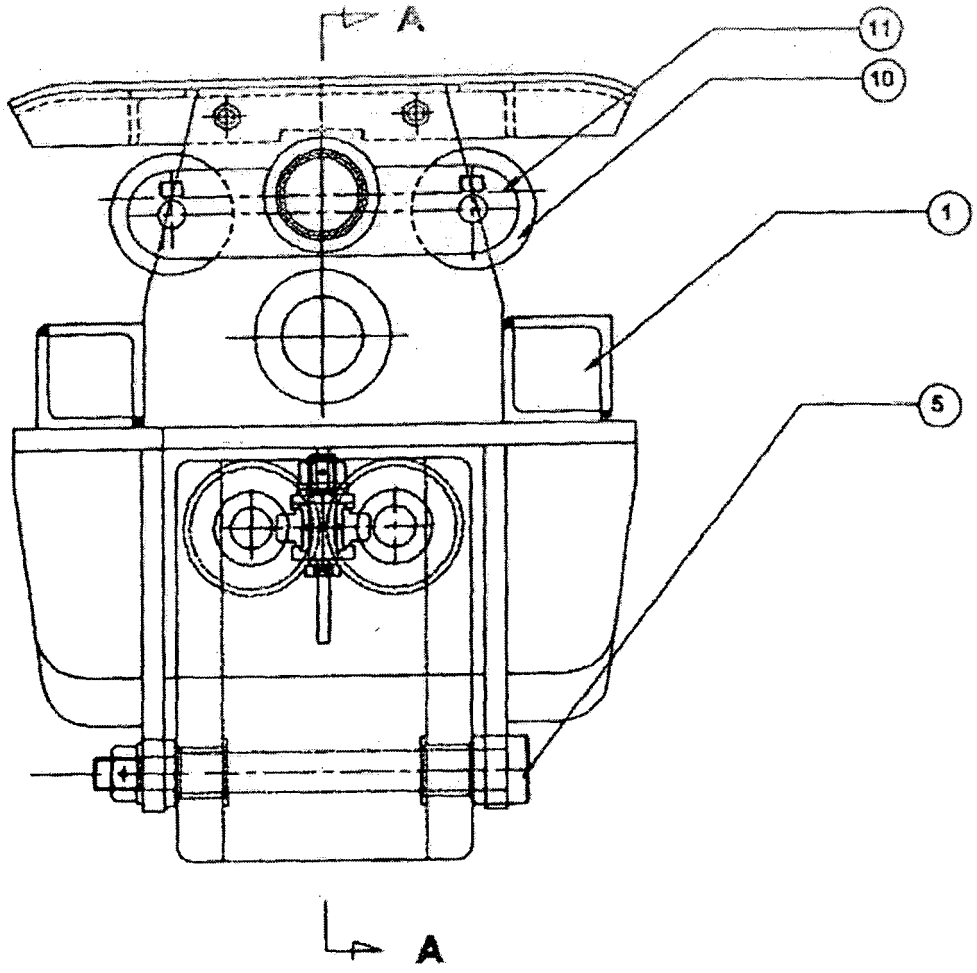

FIG 3

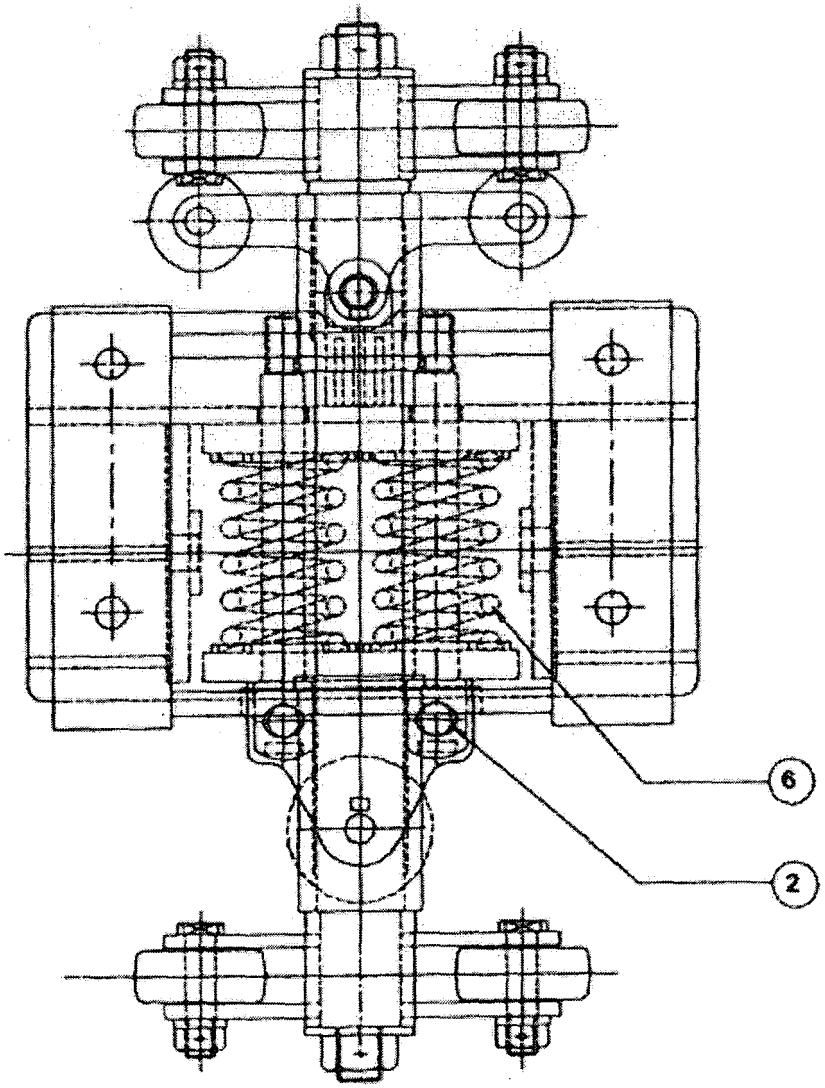

FIG 4

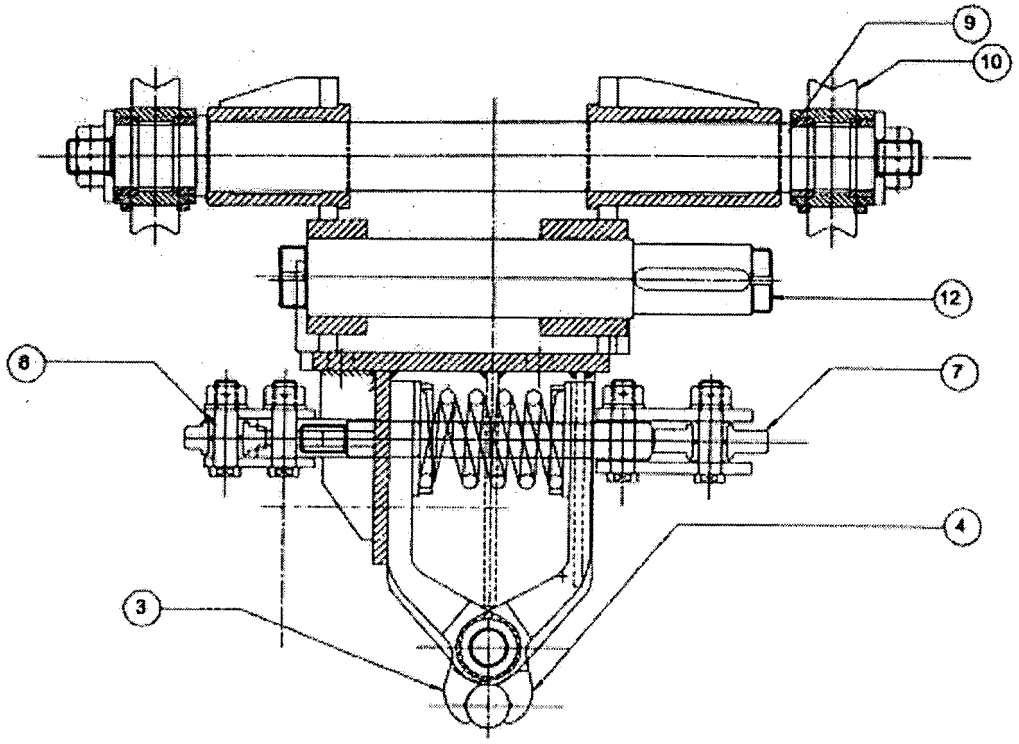

FIG 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- GB 873921 A **[0018]**
- GB 206744 A **[0018]**