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(54) **PARKING DEVICE**

PARKVORRICHTUNG

DISPOSITIF DE STATIONNEMENT

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Description

[0001] The present invention refers to a parking device of the type suitable for transporting vehicles in a guided fashion into and out from defined spaces, such as lock-ups, parking spaces, garages, car parks, car workshop areas and the like, without the driver having to be present inside the vehicle.

[0002] Parking devices of the type specified above are known that comprise chain or belt-operated mechanisms or mobile platforms on which the vehicle can be positioned and through which the vehicle can be transported into a parking space after the driver has got out from the vehicle itself and, similarly, it can be taken out from the parking space with nobody inside. The actuation of known parking devices usually occurs through a user interface, for example a push-button panel that can be easily accessed from outside of the parking space and connected with one or more electric actuation motors to move the vehicle into and out from the parking space.

[0003] Known parking devices, whilst satisfactory from the point of view of operation and reliability, have some drawbacks resulting from difficult, expensive and invasive installation that often requires major work on the masonry of the garage and on the floor of the parking area, as well as from a limited versatility with reference to the shape and size of the garage, often requiring specially-made adaptations and manufacturing in short series of parking devices that are often different according to their place of installation. WO 91/10794 A1 describe a parking device having features of the preamble of claim 1.

[0004] The purpose of the present invention is therefore to provide a parking device having characteristics such as to avoid the quoted drawbacks with reference to the prior art.

[0005] In the main purpose, a particular purpose of the present invention is to propose a parking device that reconciles the requirements of remote controlled transportation of a vehicle in narrow parking spaces with the requirements of simple, cost-effective and non-invasive installation and of easy adaptation to shapes and sizes of different garages.

[0006] These and other purposes are accomplished through a parking device for remote controlled transportation of a vehicle into a parking space and out from the parking space, comprising:

- a trolley with a support platform configured to receive and support a part of the vehicle and a plurality of wheels for moving the trolley into and out from the parking space,
- guiding means able to be mounted at the parking space and configured to collaborate with the trolley to ensure its guided movement,
- an electric motor mounted directly at the trolley and connected through transmission means with at least one part of the wheels to actuate them,

- a user control member to control the parking device,
- a control unit in signal connection with the user control member and with the electric motor and configured to drive the electric motor as a function of signals received from the user control member.

[0007] Thanks to this particular configuration of the parking device, in particular to the guide of the trolley able to be mounted in the parking space and to the electric motor on-board the trolley itself assembly is simple and not very invasive and the structure is strong and reliable, easily adapting to various shapes and sizes of parking spaces.

[0008] In accordance with an aspect of the present invention, the trolley rests through its wheels directly on a pre-existing floor of the parking space and the guiding means comprise two guide rails that laterally engage the trolley, in particular the wheels themselves.

[0009] This allows space to be saved in height and allows the pre-existing floor to be used for the function of supporting and moving the vehicle.

[0010] In accordance with a further aspect of the invention, the trolley comprises two half-platforms spaced apart and configured to respectively receive a right wheel and a left wheel of the same axle of the vehicle, in which the two half-platforms are structurally connected together through only one or more axles that carry the wheels of the trolley.

[0011] This facilitates the installation of the parking device in small spaces, sensibly reduces the weight of the trolley and allows easy access to the floor, to the axles, to the wheels and to the electric motor.

[0012] In accordance with a further aspect of the invention, the electric motor and a reducing transmission are pre-assembled to form a gearmotor block screwed to the trolley and having an output shaft directly connected with a driving axle of the axles that carry the wheels.

[0013] In accordance with a further aspect of the present invention, the device comprises end stops both going in and out configured so as to interrupt the movement of the trolley when one or more predetermined end stop positions are reached. The end stops can comprise stop blocks configured to interfere with the trajectory of motion of the trolley or optical, magnetic or mechanical sensors (switches) configured to generate and send an end stop signal to the control unit, which interrupts the power supply to the motor.

[0014] These and other aspects and advantages of the present invention will emerge from the following detailed description of an embodiment given as a non-limiting example, with reference to the attached figures, in which:

Figure 1 is a view from above of a parking device according to an embodiment of the invention;
 Figure 2A is a side view of the device in figure 1;
 Figure 2B is a side view of the device in figure 1 with the wheels removed;
 Figure 3A is a side view of the parking device ac-

cording to a further embodiment;

Figure 3B is a side view of the device in figure 3A with the wheels removed;

Figure 4 is a front view of the parking device according to an embodiment;

Figure 5 is a schematised side view of the parking device according to a further embodiment;

Figures 6 and 7 are front and rear perspective views of the parking device according to an embodiment of the invention.

Figure 8 is a rear perspective view of the parking device according to a further embodiment of the invention;

Figure 9 is a perspective view of a manual switching system of the device according to an embodiment.

[0015] With reference to the figures, a parking device is wholly indicated with reference numeral 1. The device 1 is configured for remote controlled transportation of a vehicle into a parking space 2 and out from the parking space 2 and comprises a trolley 3 with a support platform 4 configured to receive and support a part of the vehicle and a plurality of wheels 5, 6 for moving the trolley 3 into and out from the parking space 2, guiding means, for example two elongated guiding profiles 7, able to be mounted at the parking space 2, in particular on its floor, and configured to collaborate with the trolley 3 to ensure its guided movement, as well as an electric motor 8 mounted directly on the trolley 3 and connected through transmission means 13, for example a reduction gear, with at least one or more driving wheels 6 of the aforementioned wheels 5, 6 to actuate them.

[0016] There is also a user control member 9 to control the parking device 1 and a control unit 10 in signal connection with the user control member 9 and with the electric motor 8 and configured to drive the electric motor 8 as a function of signals received from the user control member 9.

[0017] Thanks to the guide 7 able to be mounted in the parking space 2 and to the electric motor 8 on-board the trolley 3 itself, assembly is simple and not very invasive and the structure is strong and reliable, easily adapting to various shapes and sizes of parking spaces.

[0018] Advantageously, the trolley 3 rests through its wheels directly on a pre-existing floor of the parking space 2 and the guides 7 laterally engage the trolley 3 and in particular its wheels 5, 6 and/or determine their path of motion.

[0019] This allows space to be saved in height and allows the pre-existing floor to be used for the function of supporting and moving the vehicle.

[0020] In accordance with an embodiment, the trolley 3 comprises two half-platforms 4A, 4B spaced apart and configured to receive a right wheel and a left wheel, respectively, of the same axle of the vehicle, in which the two half-platforms 4A, 4B are structurally connected to one another just through one or more axles 11, 12 that carry the wheels 5, 6 of the trolley 3.

[0021] This makes it easier to install the parking device in small spaces, substantially reduces the weight of the trolley and allows easy access to the floor, to the axles, to the wheels and to the electric motor.

[0022] In accordance with a further embodiment, the electric motor 8 and a reducing transmission 13 are pre-assembled to form a gearmotor block 14 screwed to the trolley 3 and having an output shaft directly connected with a driving axle 12 of the axles 11, 12.

[0023] The gearmotor block 14 can be connected in different areas of the trolley 3 and it preferably directly engages the driving axle 12.

[0024] There can also be end stop devices 15 both going in and out, configured so as to interrupt the movement of the trolley 3 when one or more predetermined end stop positions are reached. The end stop devices 15 can comprise mechanical stop blocks 15A configured to interfere with the trajectory of motion of the trolley 3 or optical, magnetic or mechanical sensors 15B (for example switches) configured to generate an end stop signal when the trolley 3 reaches an end stop position and to send such an end stop signal to the control unit 10, which interrupts the electrical power supply to the motor 8.

[0025] In accordance with an embodiment, the stop sensors 15B can comprise an actuation block suitable for actuating a tumbler switch, in which such an actuation block comprises a magnet and it is directly connected to the guides through gluing, so that the magnet provides the compression force during the setting of the glue. In this way, there is no need to perforate the guides and fix the actuation blocks through screws.

[0026] In accordance with a further embodiment (figure 8), at least the mechanical stop block 15a that determines the mechanical end stop at the exit of the parking space comprises at least one seat 23 formed at one of the guides 7 and suitable for receiving or engaging an engagement portion 24 connected to the platform 4 or to one of the supporting half-platforms 4A, 4B so as to prevent the engagement portion 24 and, therefore, the platform 4 or half-platforms 4A, 4B from lifting up while the wheels of the vehicle go up and/or down.

[0027] Advantageously, the seat 23 is formed from a tubular profile welded or screwed to the guide 7 and the engagement portion 24 comprises a bar or pin extending in the direction of motion of the device and connected to a tab projecting from the platform or half-platform 4, 4A, 4B.

[0028] In accordance with a further embodiment, the guides 7 are arranged at the inner wheels 5, 6 of the device 1 so as not to obstruct the parking of a vehicle without the help of the device itself and to leave the space at the two side of the vehicle free.

[0029] Advantageously, but not necessarily, the guides 7 comprise a U-shaped profile 25 the cavity of which receives the wheels 5, 6 so as to guide them on both sides (figure 8).

[0030] In accordance with an embodiment, the device 1 comprises one or more reference rods 26 positioned

at the outer sides of the platform 4 or of the half-platforms 4A, 4B in order to make it easier for the vehicle to correctly go up onto the platform.

[0031] In accordance with embodiments, the support platform 4, i.e. the support half-platforms 4A, 4B can have dimensions such as to receive just a pair of wheels of the vehicle, dragging the other pair of (idle) wheels or, in particular for vehicles with four wheel drive and automatic gearshift, the support platform 4 or the support half-platforms 4A, 4B can have dimensions such as to receive all of the wheels. In this way, the device works well with the "parking" mode of vehicles with automatic gearshift.

[0032] Advantageously, the support platform 4, or else the support half-platforms 4A, 4B comprise one or more ramps 16 defining an inclined plane that makes it easier for the wheels of a vehicle to go up onto and down from the platform itself.

[0033] The ramps 16 can advantageously be hinged to an elevated portion 17 of the platform 4 and further supported by one or more support rollers 18 arranged in a front area on the lower side of the ramps 16.

[0034] Alternatively, the front end of the ramps 16 can be elastically supported, for example through a spring 19 that acts between the structure of the trolley 3 and the ramp 16.

[0035] In accordance with a further embodiment, the elevated portion(s) 17 of the support platform 4 comprise holding barriers 20, for example configured as depressions or low holding walls, suitable for preventing the wheels of the vehicle from rolling when there are slight differences in level or in response to the movement of the trolley 3.

[0036] There can also be indication means to make it easier to position the vehicle on the platform 4, for example two rods with flags as visual aid (not illustrated in the figures).

[0037] In accordance with an embodiment, the user control member 9 comprises a remote control in data connection with a receiver of the control unit 10 (arranged in the parking space or on-board the trolley, preferably integrated in the gearmotor block).

[0038] The user control member 9 can have three buttons: a first button to actuate the entry into the parking space 2, a second button to actuate the exit from the parking space 2 and a third button that stops the trolley 3 from moving at any time.

[0039] The electrical connection of the motor 8 can be made through an electric power supply cable 22 able to be tightened through a cable-winder 21 that can be fixed to the parking space 2.

[0040] Hereafter the operation of the parking device 1 according to the invention will be described.

[0041] In order to make the vehicle enter into the parking space 2, the trolley 3 must be positioned at the entry to such a space, in order to allow the vehicle to go up with the front or rear wheels and with the help of the ramps 16, onto the platforms 4A, 4B, by inserting just the front or rear end of the vehicle inside the parking space.

[0042] Then, once the motor is turned off and in neutral gear, without applying the hand brake, the driver comfortably gets out from the vehicle that is still outside of the parking space 2 and, through the user control member 9, activates the "forward" function. The vehicle will thus be driven inside the parking space 2, and its travel will be automatically stopped by the end stop device 15.

[0043] The wheels 5, 6 of the trolley 3 will be correctly directed by the guides 7 arranged flush with wheels and fixed with simple anchors to the floor of the parking space 2.

[0044] Similarly to the entry step, to make the vehicle come out from the parking space 2, it is sufficient to actuate the user control member 9, selecting the "back" function and the motor 8 begins a reverse rotation, with respect to that of entry, and the trolley 3 with the vehicle is automatically brought back out from the parking space 2. Also in this case, the travel will be automatically stopped by the end stop sensors 15.

[0045] Once the trolley 3 has finished its travel and once the vehicle has exited the parking space 2, the driver can get in, start the engine and take it to the ground along the suitable ramps 16.

[0046] In accordance with a further embodiment manual switching means 27, 28 are foreseen that are suitable for coupling and decoupling the movement of the driving wheels 6 from the motor 8, so as to allow idle movement of the device 1 in the case of an interruption to the electrical power supply. This would allow the device 1 to be pushed together with the vehicle resting on it manually into and out from the parking space.

[0047] The manual switching means 27, 28 can comprise a coupling key 27 able to be removably inserted into a coupling seat 28 formed in part in a drive shaft 29 of the motor 8 and in part in a transmission shaft 30 of the transmission means 13, in which such a transmission shaft 30 is preferably formed directly by the driving axle 12. The coupling key 27 and the coupling seat 28 are formed so as to jointly make a shape coupling of the drive shaft 29 and of the transmission shaft 30; 12 rotating as a unit, and the coupling key 27 itself comprises a manual gripping portion 31 arranged outside of the motor 8 so as to make it easier to be accessed manually by the user.

[0048] The parking device 1 has numerous advantages.

[0049] It is very simple to install, without any construction work or wall demolition being necessary, being able to be installed even in pre-existing spaces, without having to obtain administrative authorisation or permits (like, for example, from the owners of the adjacent areas), with obvious advantageous consequences, both in terms of cost and in terms of installation time. It is clear that, thanks to the characteristics of the parking device described up to now, it contributes to a possible overall reduction in size of equipped parking bays or (more generally) spaces, for the same size of vehicle and, therefore, to the possibility of making a greater number of parking spaces for the same space available.

[0050] Moreover, the device 1 is very compact, allowing free access to the car parking space, like, for example, for storing various goods (often, indeed, particularly deep lockups make it possible to put up shelves on which various objects and material can be placed), without taking up excessive bulk, without creating dangers and obstacles and without occupying precious space.

[0051] The device 1 is simple to make a strong with few components, which makes both installation and maintenance easier.

[0052] The simplicity of construction of the device 1 has the correlated benefit of being able to adapt the device 1 to various types of vehicle and parking space/lock-up, by simply using longer or shorter axles and lengthening or shortening the travel of the device itself.

[0053] Of course, a man skilled in the art can bring further modifications and variants to the parking device 1 according to the present invention, in order to satisfy contingent and specific requirements, all of which are covered by the scope of protection of the invention, as defined by the following claims.

Claims

1. Parking device (1) for remote controlled transportation of a vehicle into a parking space (2) and out from the parking space (2), comprising:

- a trolley (3) with a support platform (4) configured to support a part of the vehicle and a plurality of wheels (5, 6) for moving the trolley (3) into and out from the parking space (2),
- guiding means (7) able to be mounted at the parking space (2) and configured to collaborate with the trolley (3) to determine its path of motion,
- a motor (8) mounted directly on the trolley (3) and connected through transmission means (13), with one or more driving wheels (6) of said wheels (5, 6) to actuate them,
- a user control member (9) to control the parking device (1),
- a control unit (10) in signal connection with the user control member (9) and with the electric motor (8) and configured to drive the electric motor (8) as a function of signals received from the user control member (9), **characterized in that** said trolley (3) comprises two half-platforms (4A, 4B) spaced apart and configured to receive a right wheel and a left wheel, respectively, of the same axle of the vehicle, wherein the two half-platforms (4A, 4B) are structurally connected together just through one or more axles (11, 12) that carry the wheels (5, 6).

2. Parking device (1) according to claim 1, comprising said parking space (2), wherein the trolley (3) rests through said wheels (5, 6) directly on the floor of the

parking space (2) and the guides (7) laterally engage its wheels (5, 6) to determine their path of motion.

3. Parking device (1) according to any one of the previous claims, wherein said electric motor (8) and a reducing transmission (13) are preassembled to form a gearmotor block (14) screwed to the trolley (3) and having an output shaft directly connected with a driving axle (12) of the axles (11, 12).

4. Parking device (1) according to any one of the previous claims, comprising end stop devices (15), configured so as to interrupt the movement of the trolley (3) when one or more predetermined end stop positions are reached.

5. Parking device (1) according to claim 4, wherein said end stop devices (15) comprise mechanical stop blocks (15°) configured to interfere with the trajectory of movement of the trolley (3).

6. Parking device (1) according to claim 4, wherein said end stop devices (15) comprise magnetic or mechanical optical sensors (15B), configured to generate an end stop signal when the trolley (3) reaches an end stop position and to send such an end stop signal to the control unit (10), which, in response to the end stop signal, interrupts the electrical power supply to the motor (8).

7. Parking device (1) according to any one of the previous claims, wherein the support platform (4, 4A, 4B) comprises one or more ramps (16) defining an inclined plane to make it easier for the wheels of an automobile to go up and down.

8. Parking device (1) according to claim 7, wherein said ramps (16) are hinged to an elevated portion (17) of the platform (4) and also supported by one or more support rollers (18) arranged on the lower side of the ramps (16) or through a spring (19) that acts between the structure of the trolley (3) and the ramp (16).

9. Parking device (1) according to any one of the previous claims, wherein the support platform (4) comprises holding barriers (20) suitable for preventing the wheels of the vehicle from rolling.

10. Parking device (1) according to any one of the previous claims, comprising end stop sensors (15B) with an actuation block suitable for actuating a tumbler switch, wherein said actuation block comprises a magnet and is connected to the guides through gluing.

11. Parking device (1) according to any one of the previous claims, comprising a mechanical stop block (15A) that determines a mechanical end stop at the

exit of the parking space, said mechanical stop block (15A) having at least one seat (23) formed at one of the guides (7) and suitable for engaging an engagement portion (24) connected to the platform (4) so as to prevent the platform (4) from lifting while the wheels of the vehicle go up and/or down.

12. Parking device (1) according to any one of the previous claims, wherein said guides (7) are arranged at the inner wheels (5, 6) of the device (1) so as to leave the space at the two sides of the vehicle free.

13. Parking device (1) according to any one of the previous claims, wherein said guides (7) comprise a U-shaped profile (25) the cavity of which receives the wheels (5, 6) so as to guide them on both sides.

14. Parking device (1) according to any one of the previous claims, comprising one or more reference rods (26) positioned at the outer sides of the platform (4) in order to make it easier for the vehicle to go up correctly onto the platform.

15. Parking device (1) according to any one of the previous claims, comprising manual switching means (27, 28) suitable for coupling and decoupling the movement of the driving wheels (6) from the motor (8), so as to allow the device (1) to move idly in the case of loss of power supply.

16. Parking device (1) according to the previous claim, wherein said manual switching means (27, 28) comprise a coupling key (27) able to be removably inserted in a coupling seat (28) formed in part in a drive shaft (29) of the motor (8) and in part in a transmission shaft (30; 12) of the transmission means (13), wherein said coupling key (27) and said coupling seat (28) are formed so as to jointly make a shape coupling of the drive shaft (29) and of the transmission shaft (30; 12) rotating as a unit, said coupling key (27) having a manual gripping portion (31) arranged outside of the motor (8).

Patentansprüche

1. Parkvorrichtung (1) für die ferngesteuerte Beförderung eines Fahrzeugs in einen Parkplatz (2) und aus diesem heraus, die Folgendes umfasst:

einen Spurwagen (3) mit einer Trageplattform (4), die darauf ausgelegt ist, einen Teil des Fahrzeugs zu tragen und mehrere Räder (5, 6) zum Bewegen des Spurwagens (3) in und aus dem Parkplatz (2) heraus, Führungselemente (7), die am Parkplatz (2) montiert und so konfiguriert werden können, dass sie mit dem Spurwagen (3) zusammenwir-

ken, um seinen Bewegungspfad zu bestimmen, einen Motor (8), der direkt auf den Spurwagen (3) montiert und mittels Getriebevorrichtungen (13) mit einem oder mehreren Antriebsrädern (6) der genannten Räder (5, 6) verbunden ist, um diese zu betätigen, ein Benutzer-Steuerelement (9) zur Steuerung der Parkvorrichtung (1), eine Steuereinheit (10) in Signalverbindung mit dem Benutzer-Steuerelement (9) und dem Elektromotor (8), die darauf ausgelegt ist, den Elektromotor (8) als eine Funktion von Signalen anzutreiben, die von dem Benutzer-Steuerelement (9) empfangen werden, **dadurch gekennzeichnet, dass** der genannte Spurwagen (3) zwei Halbplattformen (4A, 4B) umfasst, die im Abstand zueinander liegen und darauf ausgelegt sind, jeweils ein rechtes und ein linkes Rad derselben Achse des Fahrzeugs zu empfangen, wobei die beiden Halbplattformen (4A, 4B) strukturell nur über eine oder mehrere weitere Achsen (11, 12) miteinander verbunden sind, die die Räder (5, 6) tragen.

2. Parkvorrichtung (1) nach Anspruch 1, die den genannten Parkplatz (2) umfasst, in der der Spurwagen (3) durch die genannten Räder (5, 6) direkt auf dem Boden des Parkplatzes (2) ruht und die Führungen (7) seitlich seine Räder (5, 6) ankuppeln, um ihren Bewegungspfad zu bestimmen.

3. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, bei der der genannte Elektromotor (8) und ein Untersetzungsgetriebe (13) vormontiert sind, um einen Getriebemotorblock (14) zu bilden, der auf dem Spurwagen (3) verschraubt ist und dessen Abtriebswelle direkt mit einer Antriebsachse (12) der Achsen (11, 12) verbunden ist.

4. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, die Endanschlagvorrichtungen (15) umfasst und so ausgelegt ist, dass die Bewegung des Spurwagens (3) unterbrochen wird, wenn eine oder mehrere zuvor festgelegte Endanschlagpositionen erreicht werden.

5. Parkvorrichtung (1) nach Anspruch 4, bei der die genannten Endanschlagvorrichtungen (15) mechanische Stoppblöcke (15^a) umfassen, die darauf ausgelegt sind, die Bewegungsbahn des Wagens (3) zu schneiden.

6. Parkvorrichtung (1) nach Anspruch 4, bei der die genannten Endanschlagvorrichtungen (15) magnetische oder mechanische optische Sensoren (15B) umfassen, die darauf ausgelegt sind, ein Endanschlagsignal zu erzeugen, wenn der Wagen (3) eine Endanschlagposition erreicht und ein solches End-

anschlagsignal an die Steuereinheit (10) zu senden, die als Antwort auf das Endanschlagsignal die elektrische Stromversorgung zum Motor (8) unterbricht.

7. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, bei der die Trageplattform (4, 4A, 4B) eine oder mehrere Rampen (16) umfasst, die eine geneigte Ebene bilden, um den Rädern eines Automobils das Herauf- und Herunterfahren zu erleichtern. 5
8. Parkvorrichtung (1) nach Anspruch 7, bei der die genannten Rampen (16) mit Scharnieren an einem erhöhten Teil (17) der Plattform (4) befestigt und außerdem von einer oder mehreren Stützrollen (18) getragen werden, die an der unteren Seite der Rampen (16) angeordnet sind oder von einer Feder (19), die zwischen den Strukturen des Spurwagens (3) und der Rampe (16) wirkt. 10
9. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, bei der die Trageplattform (4) Haltebarrieren (20) umfasst, die geeignet sind, das Rollen der Fahrzeugräder zu unterbinden. 15
10. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, die Endanschlagsensoren (15B) mit einem Antriebsblock umfasst, der zum Betätigen eines Kippschalters geeignet ist, bei der der genannte Antriebsblock einen Magneten umfasst und durch Verkleben mit den Führungen verbunden ist. 20
11. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, die einen mechanischen Stoppblock (15A) umfasst, der einen mechanischen Endanschlag am Ausgang der Parkvorrichtung bildet, wobei der genannte mechanische Stoppblock (15A) über mindestens einen Sitz (23) verfügt, der an einer der Führungen (7) ausgeformt und geeignet ist, einen Kupplungsteil (24) anzukuppeln, der mit der Plattform (4) verbunden ist, um dem Anheben der Plattform (4) vorzubeugen, während die Räder des Fahrzeugs sich nach oben und/oder unten bewegen. 25
12. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, bei der die genannten Führungen (7) an den Innenrädern (5, 6) der Vorrichtung (1) angeordnet sind, so dass der Raum an den beiden Seiten des Fahrzeugs frei bleibt. 30
13. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, bei der die genannten Führungen (7) ein U-förmiges Profil (25) umfassen, dessen Kavität die Räder (5, 6) aufnimmt, um sie auf beiden Seiten zu führen. 35

14. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, die eine oder mehrere Bezugsstangen (26) umfasst, die an den Außenseiten der Plattform (4) positioniert sind, um es dem Fahrzeug zu erleichtern, sich korrekt auf die Plattform zu bewegen.

15. Parkvorrichtung (1) nach einem beliebigen der vorstehenden Ansprüche, die manuelle Schaltvorrichtungen (27, 28) umfassen, die sich zum Ein- und Auskuppeln der Bewegung der Antriebsräder (6) vom Motor (8) eignen, so dass sich die Vorrichtung (1) im Fall der Unterbrechung der Stromversorgung im Leerlauf bewegen kann.

16. Parkvorrichtung (1) nach dem vorstehenden Anspruch, bei der die genannten Schaltvorrichtungen (27, 28) eine Kupplungspassfeder umfassen, die entferntbar in einen Kupplungssitz (28) eingesetzt werden kann, der zum Teil in einer Antriebswelle (29) des Motors (8) und zum Teil in einer Getriebewelle (30, 12) der Getriebeelemente (13) gebildet wird, bei der die genannte Kupplungspassfeder (27) und der genannte Kupplungssitz (28) so geformt sind, dass sie zusammen eine Formkupplung der Antriebswelle (29) und der Getriebewelle (30, 12) bilden, die als eine Einheit dreht, wobei die Kupplungspassfeder (27) einen manuellen Eingriffteil (31) aufweist, der außerhalb des Motors (8) angeordnet ist.

Revendications

1. Dispositif de stationnement (1) pour le transport télécommandé d'un véhicule dans un emplacement de stationnement (2) et hors d'un emplacement de stationnement (2) comprenant :
 - un chariot (3) avec une plate-forme de support (4) configurée de façon à soutenir une partie du véhicule et une pluralité de roues (5, 6) pour le mouvement du chariot (3) dans et hors de l'emplacement de stationnement (2),
 - des moyens de guidage (7) aptes à être installés dans l'emplacement de stationnement (2) et configurés de façon à travailler avec le chariot (3) pour en déterminer le parcours de mouvement,
 - un moteur (8) monté directement sur le chariot (3) et relié à travers des moyens de transmission (13), à une ou plusieurs roues motrices (6) des dites roues (5, 6) pour les actionner,
 - un élément de circuit utilisateur (9) pour commander le dispositif de stationnement (1),
 - une unité de commande (10) reliée via des signaux avec l'élément de circuit utilisateur (9) et avec le moteur électrique (8) et configurée pour commander le moteur électrique (8) en

fonction des signaux reçus de l'élément de circuit utilisateur (9),

- caractérisé en ce que** ledit chariot (3) comprend deux demi plate-formes (4A, 4B) séparées et configurées pour recevoir une roue droite et une roue gauche, respectivement, du même essieu du véhicule, dans lequel les deux demi plate-formes (4A, 4B) sont reliées ensemble, du point de vue de la structure, seulement à travers un ou plusieurs essieux (11, 12) portant les roues (5, 6).
2. Dispositif de stationnement (1) selon la revendication 1, comprenant ledit emplacement de stationnement (2) dans lequel le chariot (3) repose à travers lesdites roues (5, 6) directement au sol de l'emplacement de stationnement (2) et les guides (7) engagent latéralement ses roues (5, 6) pour déterminer leurs parcours de mouvement.
 3. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, dans lequel ledit moteur électrique (8) et une transmission réductrice (13) sont préassemblés pour former un bloc motoréducteur (14) vissé sur le chariot (13) et ayant un arbre de sortie directement relié à un essieu moteur (12) des essieux (11, 12).
 4. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, comprenant des dispositifs d'arrêt (15), configurés de façon à interrompre le mouvement du chariot (3) lorsqu'une ou plusieurs positions d'arrêt sont atteintes.
 5. Dispositif de stationnement (1) selon la revendication 4, dans lequel lesdits dispositifs d'arrêt (15) comprennent des blocs d'arrêt mécanique (15°) configurés de façon à interférer avec la trajectoire de mouvement du chariot (3).
 6. Dispositif de stationnement (1) selon la revendication 4, dans lequel lesdits dispositifs d'arrêt (15) comprennent des capteurs magnétiques ou mécaniques (15B) configurés de façon à générer un signal d'arrêt lorsque le chariot (3) atteint une position d'arrêt et transmettre ledit signal d'arrêt à l'unité de commande (10), laquelle, en réponse au signal d'arrêt, coupe l'alimentation électrique au moteur (8).
 7. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, dans lequel la plate-forme de support (4, 4A, 4B) comprend une ou plusieurs rampes (16) définissant un plan incliné pour rendre plus facile la montée et la descente aux roues d'une voiture.
 8. Dispositif de stationnement (1), selon la revendication 7, dans lequel lesdites rampes (16) sont articulées sur une partie haute (17) de la plate-forme (4) et soutenues aussi par un ou plusieurs rouleaux de support (18) disposés sur la partie inférieure des rampes (16) ou à travers un ressort (19) agissant entre la structure du chariot (3) et la rampe (16).
 9. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, dans lequel la plate-forme de support (4) comprend des barrières de maintien (20) aptes à éviter que les roues du véhicule ne roulent.
 10. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, comprenant des capteurs d'arrêt (15B) avec un bloc actionneur apte à actionner un interrupteur basculant, dans lequel ledit bloc actionneur comprend un aimant et est relié aux guides par collage.
 11. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, comprenant un bloc d'arrêt mécanique (15A) qui détermine un arrêt mécanique à la sortie de l'emplacement de stationnement, ledit bloc d'arrêt mécanique (15A) ayant au moins un logement (23) réalisé dans un des guides (17) et apte à enclencher une partie d'enclenchement (24) reliée à la plate-forme (4) de sorte à éviter que la plate-forme (4) ne se soulève pendant que les roues du véhicules montent et/ou descendent.
 12. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, dans lequel lesdits guides (7) sont disposés dans les roues internes (5, 6) du dispositif (1) de sorte à laisser libre l'espace des deux côtés du véhicule.
 13. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, dans lequel lesdits guides (7) comprennent un profil en U (25) dont la cavité reçoit les roues (5, 6) de façon à les guider des deux côtés.
 14. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, comprenant une ou plusieurs tiges (26) positionnées sur les côtés extérieurs de la plate-forme (4) afin de rendre plus facile au véhicule la montée correcte sur la plate-forme.
 15. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, comprenant des moyens manuels de commutation (27, 28) aptes à accoupler et désaccoupler le mouvement des roues motrices (6) du moteur (8), de sorte à permettre au dispositif (1) de se déplacer sans courant en cas de coupure de l'alimentation électrique.

16. Dispositif de stationnement (1) selon une quelconque des revendications précédentes, dans lequel lesdits moyens manuels de commutation (27, 28) comprennent une clavette d'accouplement (27) apte à être insérée de façon amovible dans un logement d'accouplement (28) réalisé en partie dans un arbre moteur (29) du moteur (8) et en partie dans un arbre de transmission (30 ; 12) des moyens de transmission (13), dans lequel ladite clavette d'accouplement (27) et ledit logement d'accouplement (28) sont réalisés de sorte à former ensemble une forme d'accouplement de l'arbre moteur (29) et de l'arbre de transmission (30 ; 12) tournant comme une unité, ladite clavette d'accouplement (27) ayant un élément de serrage manuel (31) situé à l'extérieur du moteur (8).

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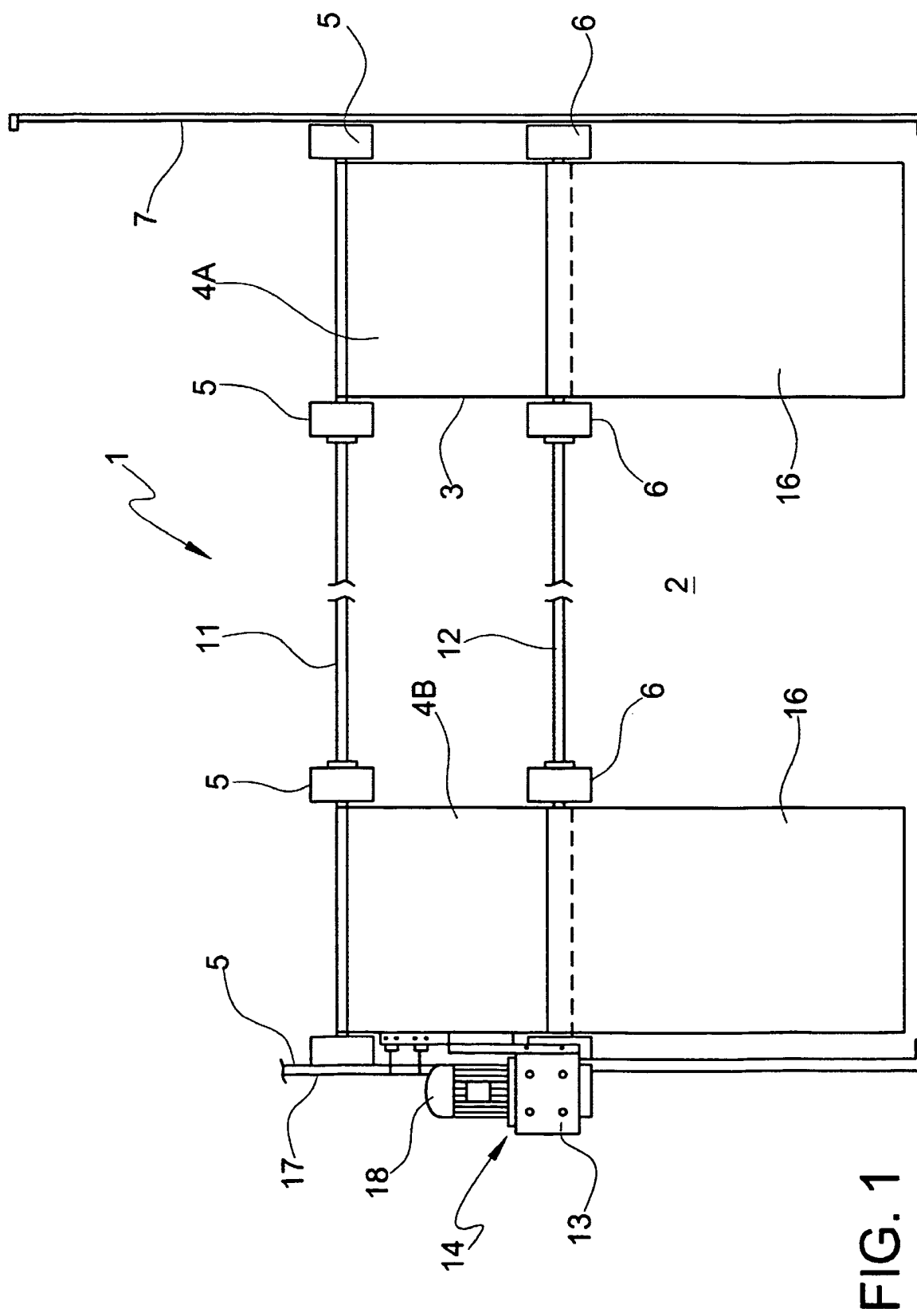
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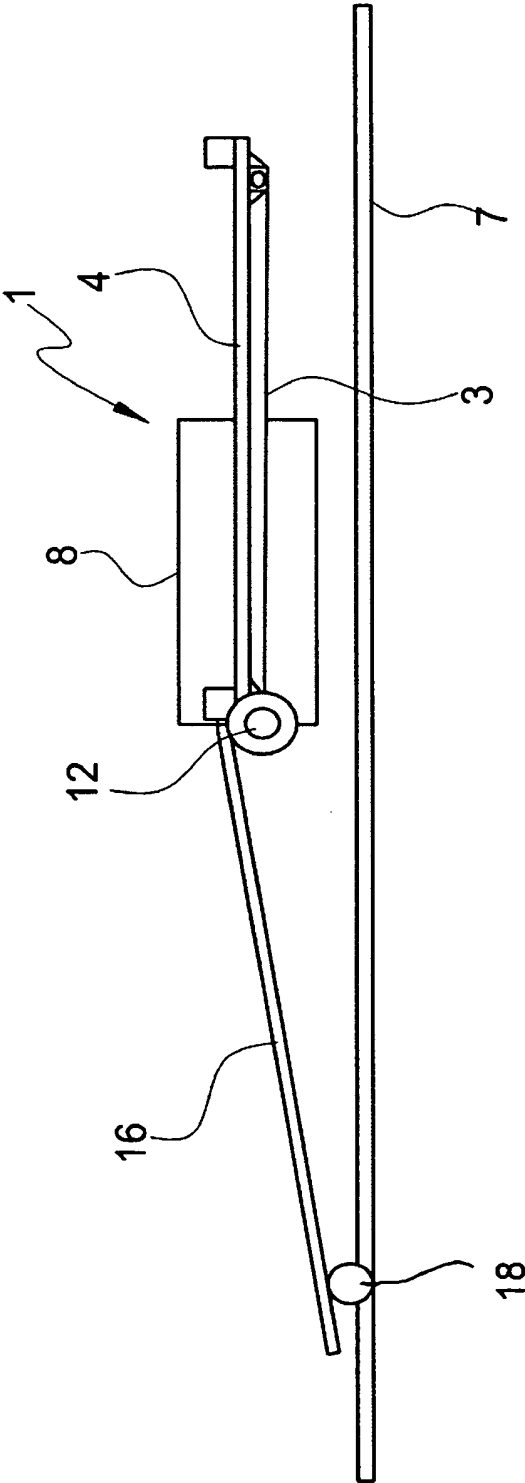


FIG. 2B

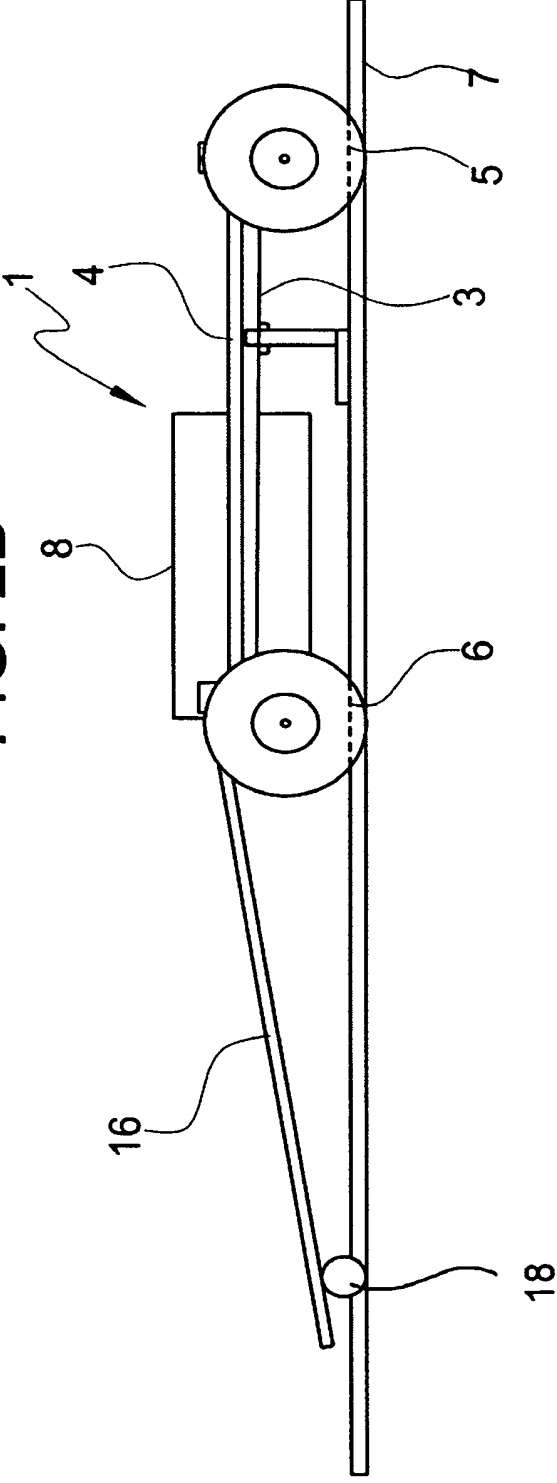
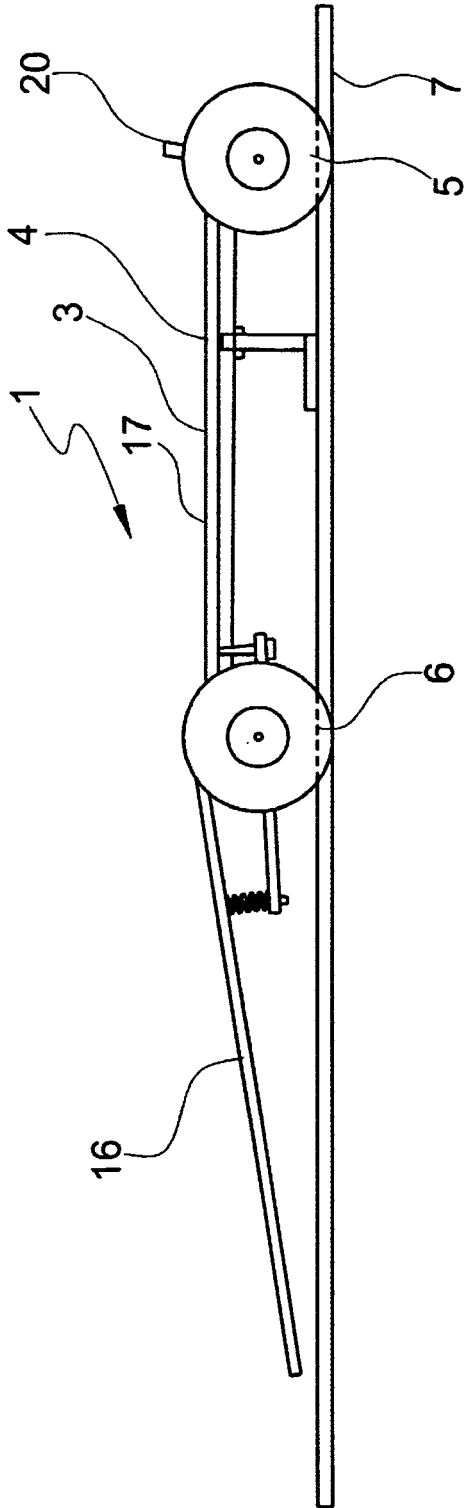
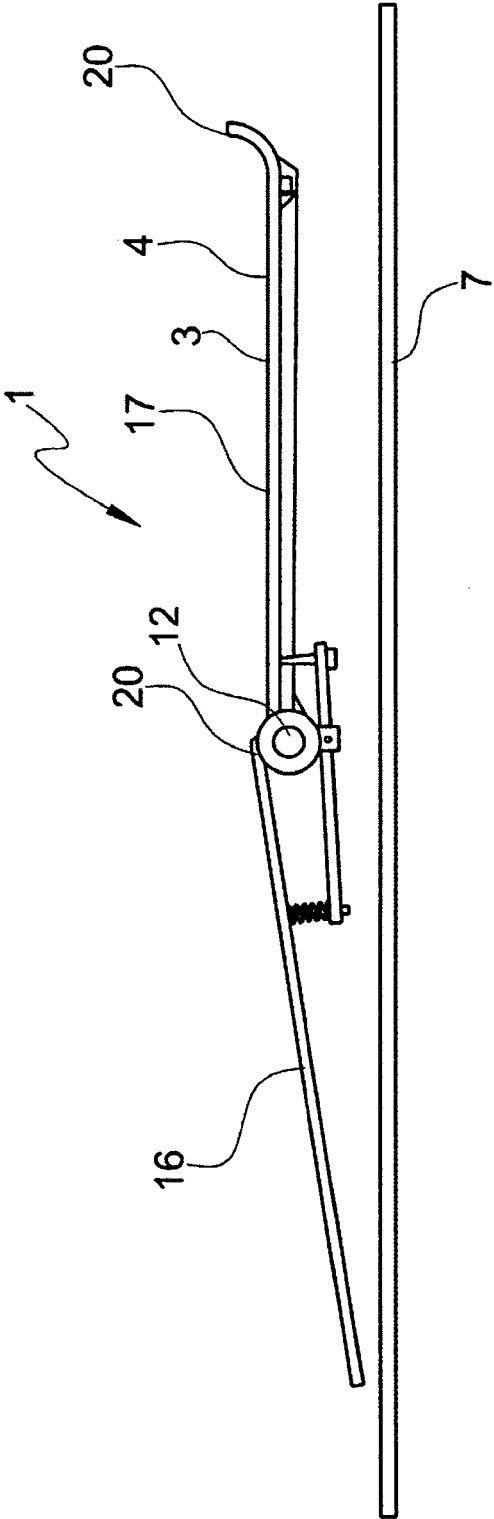


FIG. 2A



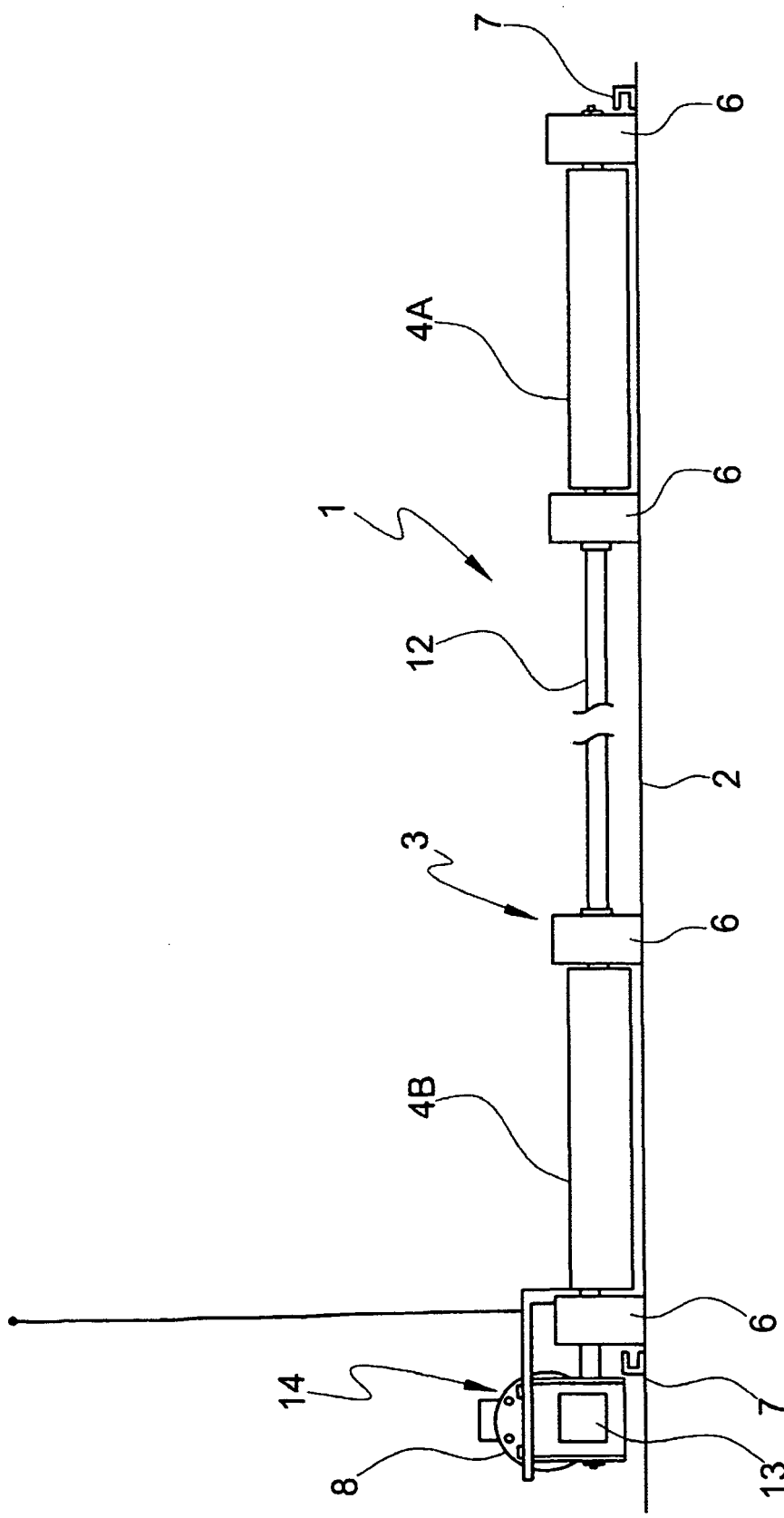


FIG. 4

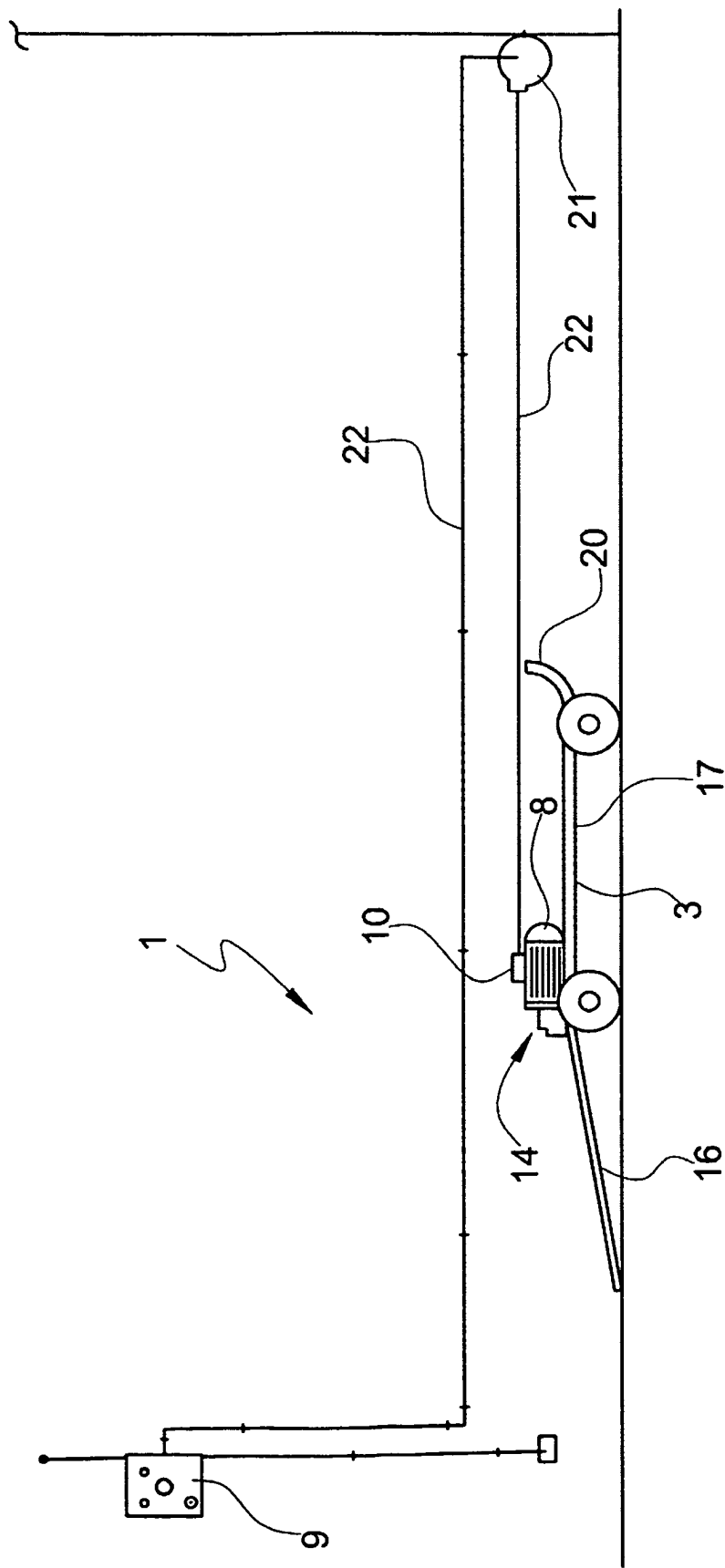


FIG. 5

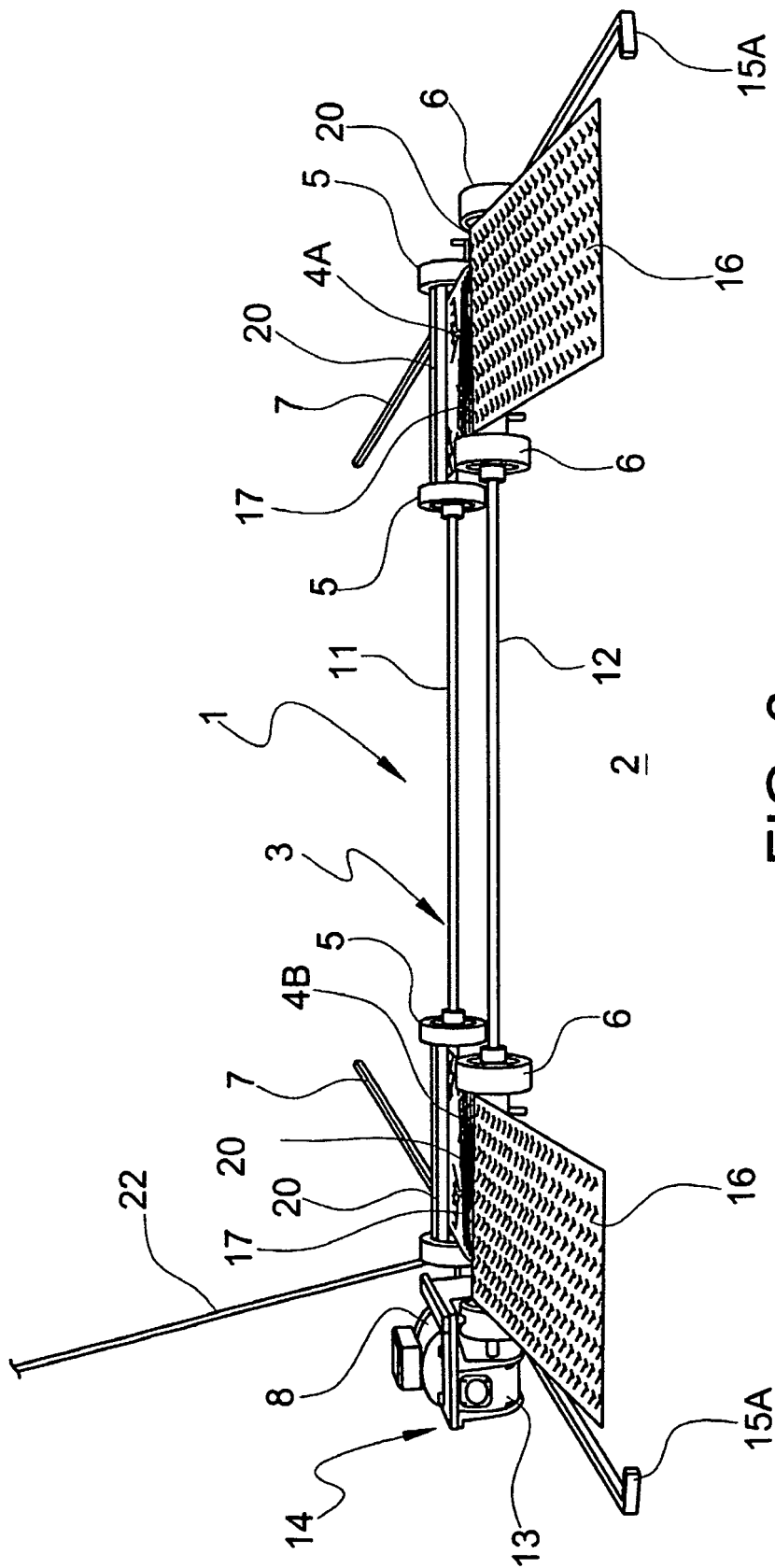


FIG. 6

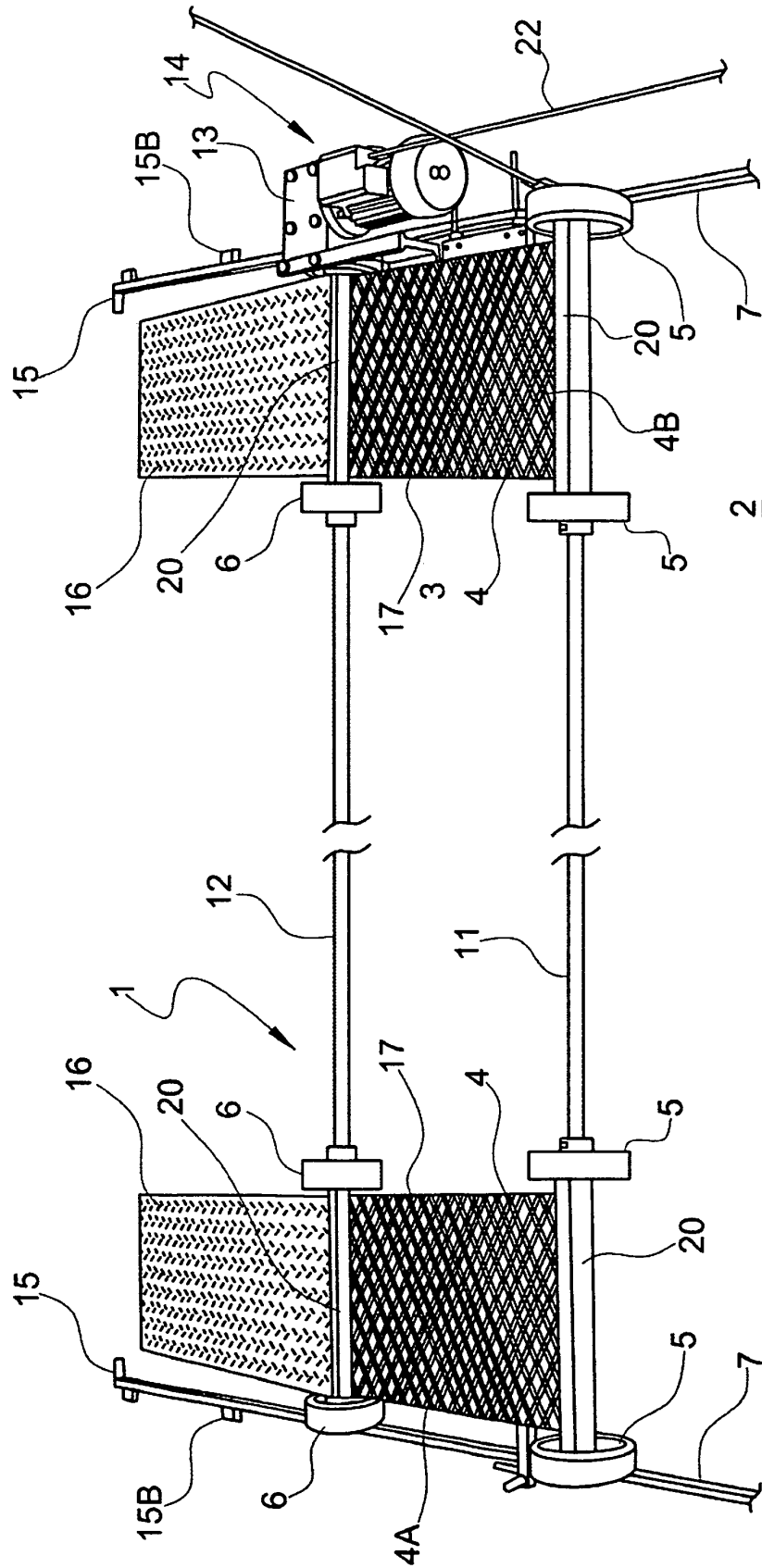


FIG. 7

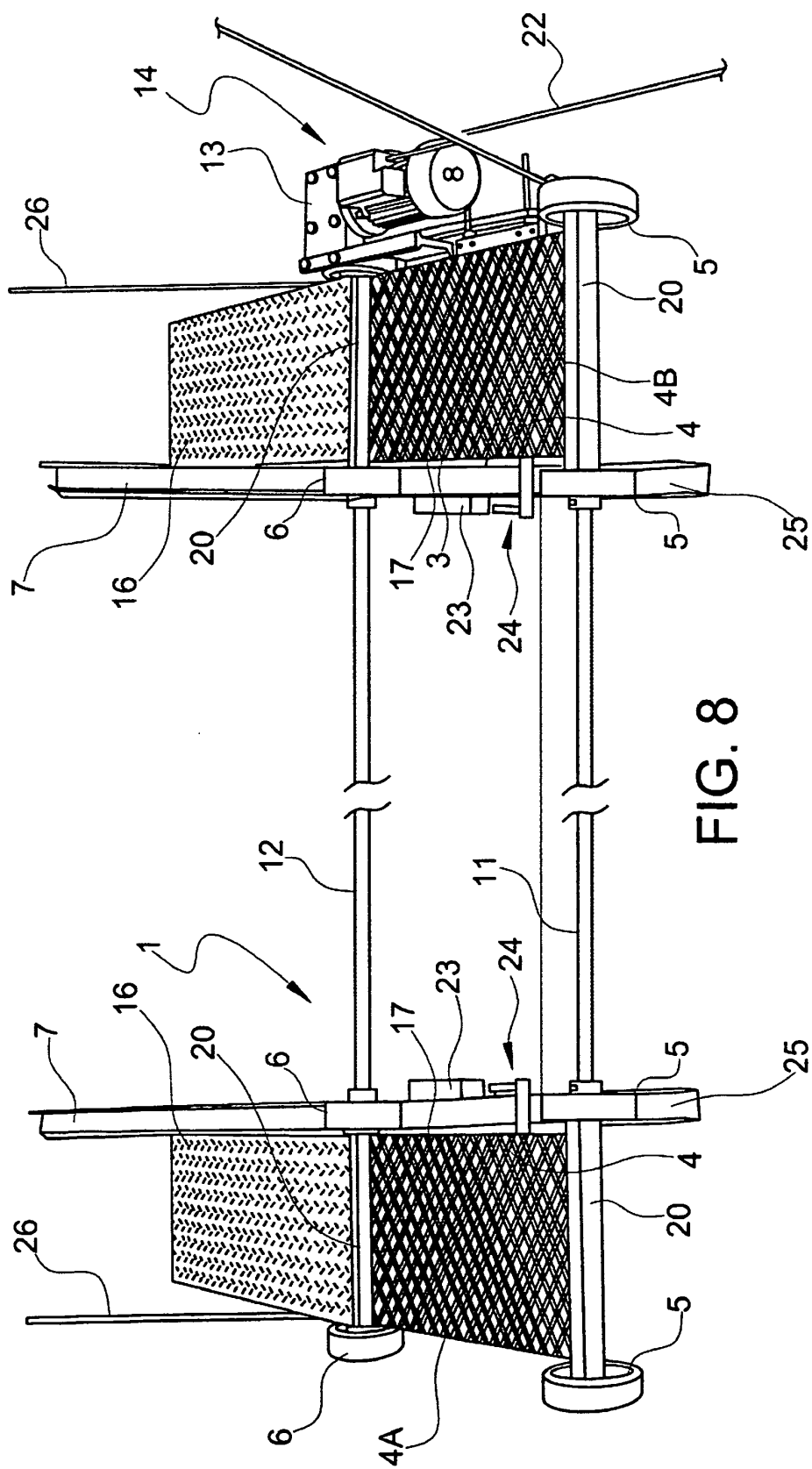


FIG. 8

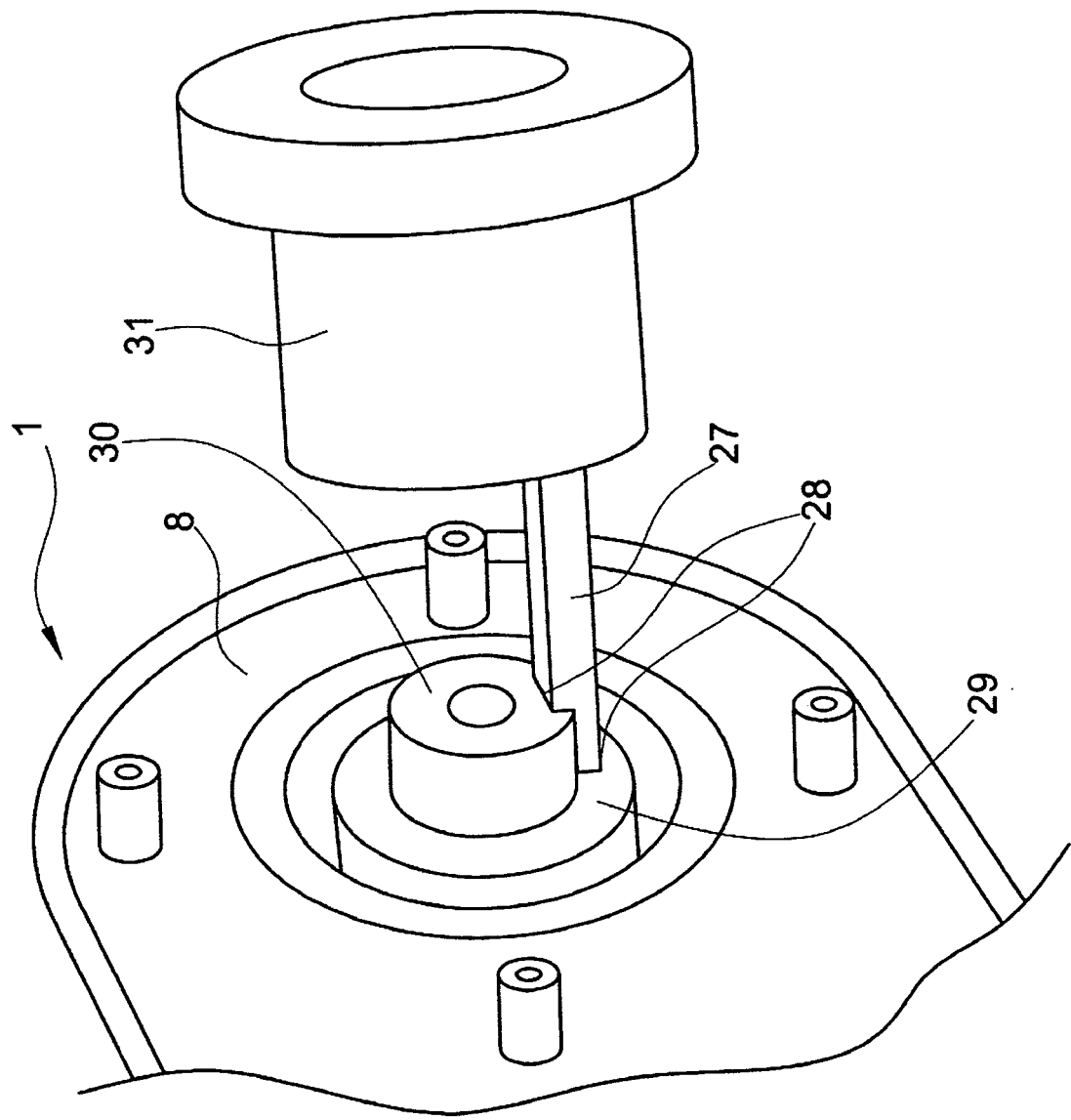


FIG. 9

REFERENCES CITED IN THE DESCRIPTION

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