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(54) **Transportation vehicle elevated to allow other vehicles to pass under it**

(57) The present invention relates to a mass transportation vehicle containing a passenger compartment (4) and rolling on a pair of rails (11,12) along a first edge of an existing road. This mass transportation vehicles

can proceed above other vehicles thanks to its carrier legs (8), a rail (12) laid specially for the vehicle on a second edge of the road and a rig way (14), so that it can roll without being affected from the existing traffic and without interfering to other vehicles around it.

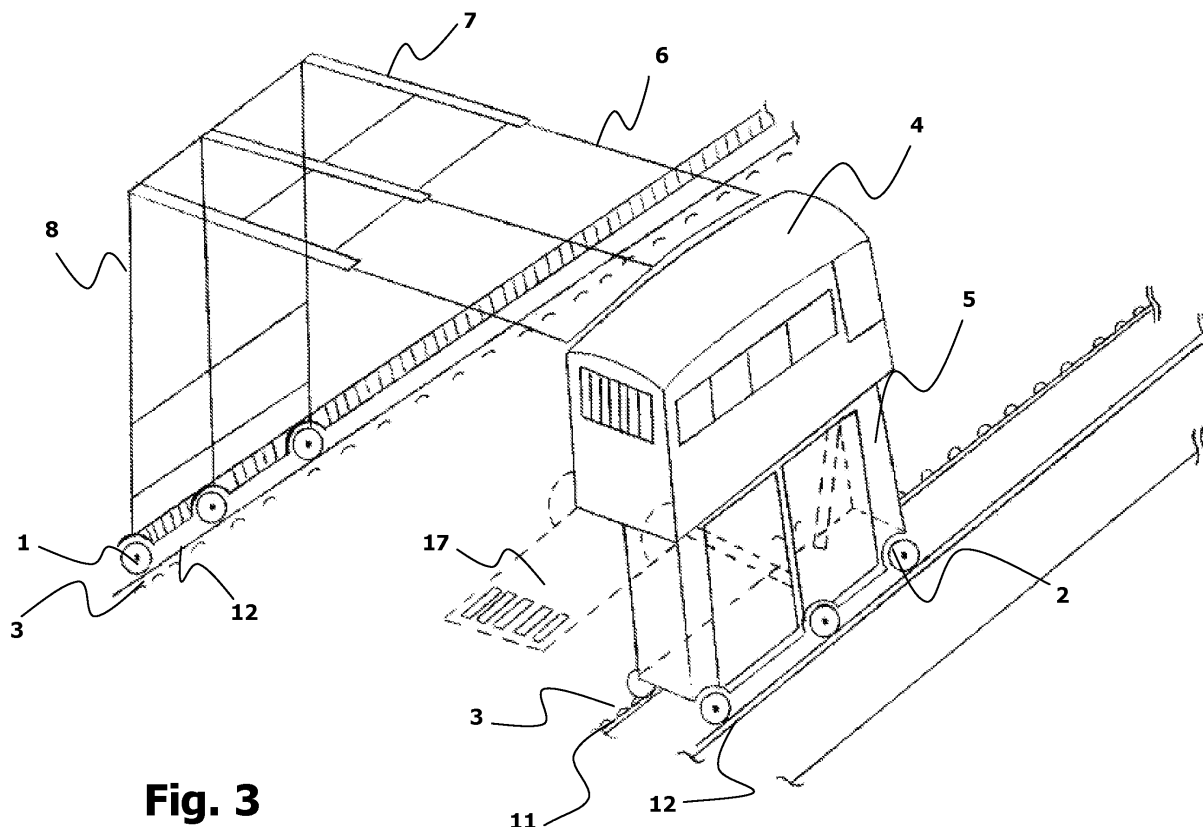


Fig. 3

Description

Technical field of the invention

[0001] This invention relates to mass transportation vehicles and more particularly to such vehicles used as streetcars.

Background of the invention

[0002] Special rail systems and different systems designed to meet special needs have been in use for railroad transportation as a mass transportation system. A basic example of prior art is semi-rail suspended systems between different heights.

[0003] Many studies and developments were conducted in the field of the present invention. For example, US 3,861,315 relates to a mass transportation system consisting of a railroad trackway designed in the form of an inverted U and high enough to allow vehicles to pass under it, which rolls by means of a device installed on said trackway. Although said system provides the advantage of space saving, it is far from being a preference as it is difficult and expensive to be built. Furthermore, it is difficult to ensure said system to be safe for operating purposes in addition to the complexity thereof.

[0004] Another similar invention is described in US 3,890,904, which relates to a mass transportation vehicle rolling on an overhead trackway elevated by means of columns and occupying no space on the ground level. However, said system is also not preferred as it is also difficult and expensive to be built. Further, the additional difficulties described for the first prior art above are valid for this reference too.

[0005] The mass transportation vehicle presented in this invention provides a new system, which advances on an overhead plane elevated from the ground by means of support legs in such a manner to move by or above other vehicles without causing any traffic congestion. Furthermore, the present invention can be put in service without having to make considerable investment and to spend considerable time for building, unlike the underground and streetcar transportation systems described in prior art and being used in the present.

Objects of the invention

[0006] The general object of this invention is to provide a mass transportation vehicle which can proceed without being affected from the existing traffic, especially in areas where traffic is heavy and congested.

[0007] Another object of the present invention is to provide a vehicle which can provide mass transportation services without interfering to the existing traffic of other vehicles thanks to the relatively small space it occupies.

[0008] Another object of the present invention is to provide a mass transportation vehicle which costs less and which is easier to be installed compared to alternatives.

Summary of the invention

[0009] This invention relates to a mass transportation vehicle which advances on an overhead plane elevated from the ground by means of support legs and rigs in such a manner to proceed above the other vehicles without being affected from the existing traffic and without interfering to the other vehicles around it.

Brief description of the figures

[0010] The figures briefly described below are given to help the description given here to be understood better. Embodiments of this invention should not be considered limited to the figures given here.

[0011] Figure 1 is a side view of the mass transportation vehicle described herein.

[0012] Figure 2 is a top view of view of the mass transportation vehicle described herein.

[0013] Figure 3 is a perspective view of the mass transportation vehicle described herein.

[0014] Figure 4 is a side view of the compartment of the mass transportation vehicle described herein.

[0015] Figure 5 is a cross-section of the compartment of the mass transportation vehicle described herein.

[0016] Figure 6 is a top view of the trackway, sleepers and rig of the mass transportation vehicle described herein.

[0017] Figure 7 is a cross-section of the trackway, sleepers and rig of the mass transportation vehicle described herein.

Detailed description of the invention

[0018] Embodiment and operating principle of the mass transportation vehicle related to this invention is described in detail below with reference to the figures described in brief above.

[0019] The mass transportation vehicle the present invention relates comprises, as shown in detail in Figure 3, an upper passenger compartment (4) and a second compartment (5) used for climbing to and descending from the upper passenger compartment (4), said second compartment being located under said upper passenger compartment (4). The second compartment (5), occupying a smaller space than the upper passenger compartment (4), might conventionally contain staircases, the engine and the driver division. Wheels moving the vehicle (2) are located under the compartments (4, 5). A balancing and carrier piston rod (6) extending to the other side of the road so as to allow other vehicles to pass under the mass transportation vehicle, is attached to the upper passenger compartment (4) in order for balancing and carrying the same. A lubricated piston (7) where the piston rod enters and exits and which ensures the mass transportation vehicle to adapt to the road in a balanced way when the road gets narrower or wider, is provided according to the present invention. Further, carrier legs

(8) being attached to the pistons (7) at a straight angle ensure the whole compartment unit (4 and 5) to be balanced. Carrier wheels (1) are provided for ensuring said carrier legs (8) to reach the ground, the rails (11, 12) being located under the primary wheels (2) as shown in detail in figures 6 and 7 and under the carrier wheels (1). A rig housing (15) being located at a certain distance under the ground level in order to prevent the mass transportation vehicle from derailing, is also provided. The rails on either side of sleepers (13) are conventionally adapted to provide a fitting connection with the wheels. Rig wheels (16) positioned inside the rig housing (15) together with a rig arm (9) connecting said rig wheels (16) to the whole compartment unit facilitate the mass transportation vehicle to roll and prevent it from derailing.

[0020] In order to adapt to narrowing and widening parts of the road, this mass transportation vehicle is equipped with a piston (7) and a piston rod (6) as shown in Figure 2. Thus it can be installed on existing roads without additional construction expenses.

[0021] Considering the mass transportation vehicle is operated on relatively wide roads, the distance between its compartment unit (4 and 5) and the carrier legs (8) located on the other side of the road will be long; at least one rig arm (9) attached to a rig way (14) designed in a special configuration is used for ensuring the piston (7) and the piston rods (6) to operate safely. In other words, even if the vehicle's balance is upset due to any reason, the rig arm (9) and the rig way (14) restore the balance.

[0022] The vehicle can be used as a train in order to increase its passenger capacity. For this purpose, the hatches (17) shown in Figure 3 are opened to provide access between an additional upper passenger compartment and the main upper passenger compartment (4). Thus the main upper compartments (4) and the second compartment (5), main compartments (4) being connected with each other through the hatches (17), can be used for climbing to and descending from the additional compartment. Passengers can either use an exit door in the second compartment (5) or the entry and exit doors can be provided on said upper compartments (4).

[0023] As shown in Figure 3, barriers (3) are installed at the right side of the carrier wheels (1) and left side of the second compartment (5) along the rails (12, 11) at approximately the same height as a sidewalk. Thus other vehicles are prevented from gaining access to the road used by the mass transportation vehicle. Said barriers can be made of round iron bars laid at intervals or of curved steel plates.

[0024] The engine of the mass transportation vehicle can be either installed in the second compartment (5) or in the upper compartment (4), so that the driving force thereof can be transferred to the front or rear set of wheels.

[0025] The left-hand row of the wheels (2) driving the mass transportation vehicle as shown in Figure 5 might be wheels rolling on a rail (11) or directly on the paved surface of a road.

[0026] Thanks to its carrier leg (8) and rail system, the mass transportation vehicle according to the present invention is able to carry passengers by a solution in which a relatively small space of existing roads is occupied by a relatively small investment program. Thus it provides an intermediary solution for critical road connections where heavy traffic is present.

[0027] The mass transportation vehicle which the present invention relates consists of two compartments built on top of each other. The upper compartment (4) is wider than the second compartment (5). Thus this vehicle occupies a minimum surface area on the road on the one hand, and can carry a considerable number of passengers as well in its much wider upper compartment. Since the upper compartment's (4) protrusion towards the road is higher than other vehicles such as automobiles, pickup trucks and minibuses, said vehicles will be able to pass under this mass transportation vehicle. Thus it will not have a negative impact on traffic.

[0028] Provision of balance bears a special importance for the system presented in this embodiment. Balance is provided by both the lateral piston system (7) and the rig arm (9) moving on an additional rail positioned along a linear room (15) lowered at a certain alignment from the standard ground height. Said structure is of vital importance in terms of stabilization of the center of gravity and to balance lateral forces arising due to the asymmetrical structure of the car. Rail systems to be used for this embodiment can be equipped with rig ends moving on a groove of the rail as in traditional railroad systems.

Claims

1. A mass transportation vehicle containing a base compartment (5) moving on at least one rail (12) laid along a first edge of a road for vehicle traffic **characterized in that** said mass transportation vehicle comprises:

an upper compartment (4) larger than said base compartment (5) in volume and integrated thereto,

at least one carrier leg (8) moving simultaneously with said base compartment (5) on a rail (12) laid along a second road edge and connected to said upper compartment (4),

and at least one rig arm (9) moving along an underground groove (15) on said at least one rail system (12).

2. A mass transportation vehicle as defined in Claim 1 wherein it comprises at least one piston (7) where a piston rod (6) enter and exit.

3. A mass transportation vehicle as defined in Claim 1 wherein it comprises at least one rig wheel (16) located under a rig arm (9).

4. A mass transportation vehicle as defined in Claim 1 wherein it comprises a sleeper (13) in which said rig wheel (16) move.
5. A mass transportation vehicle as defined in Claim 1 wherein it comprises at least one connection arrangement between an additional upper passenger compartment and the main upper passenger compartment (4) by way of opening the covers (17) for operation in the form of a train.
6. A mass transportation vehicle as defined in Claim 1 wherein it comprises barriers (3) installed around said rails in order to prevent other vehicles from proceeding in alignment with the rail system of this mass transportation vehicle.
7. A mass transportation vehicle as defined in Claim 6 wherein said barriers (3) are made of round iron bars laid at intervals or curved steel plates.
8. A mass transportation vehicle as defined in Claim 1 wherein it comprises wheels (2) providing movement and connected to the passenger compartment (5).
9. A mass transportation vehicle as defined in Claim 8 wherein said wheels (2) are designed to roll on a rail or directly on the paved surface of a road.
10. A mass transportation vehicle as defined in Claim 1 wherein it contains at least one piston (7) connecting said upper compartment (4) with said carrier leg (8) in order to ensure the vehicle to adapt to widening or narrowing roads, and a piston rod (6) providing balance.
11. A mass transportation vehicle as defined in Claim 1 wherein the second compartment (5) or the upper compartment (4) houses an engine providing driving force for this mass transportation vehicle and transferring its driving force to the front or rear set of wheels.

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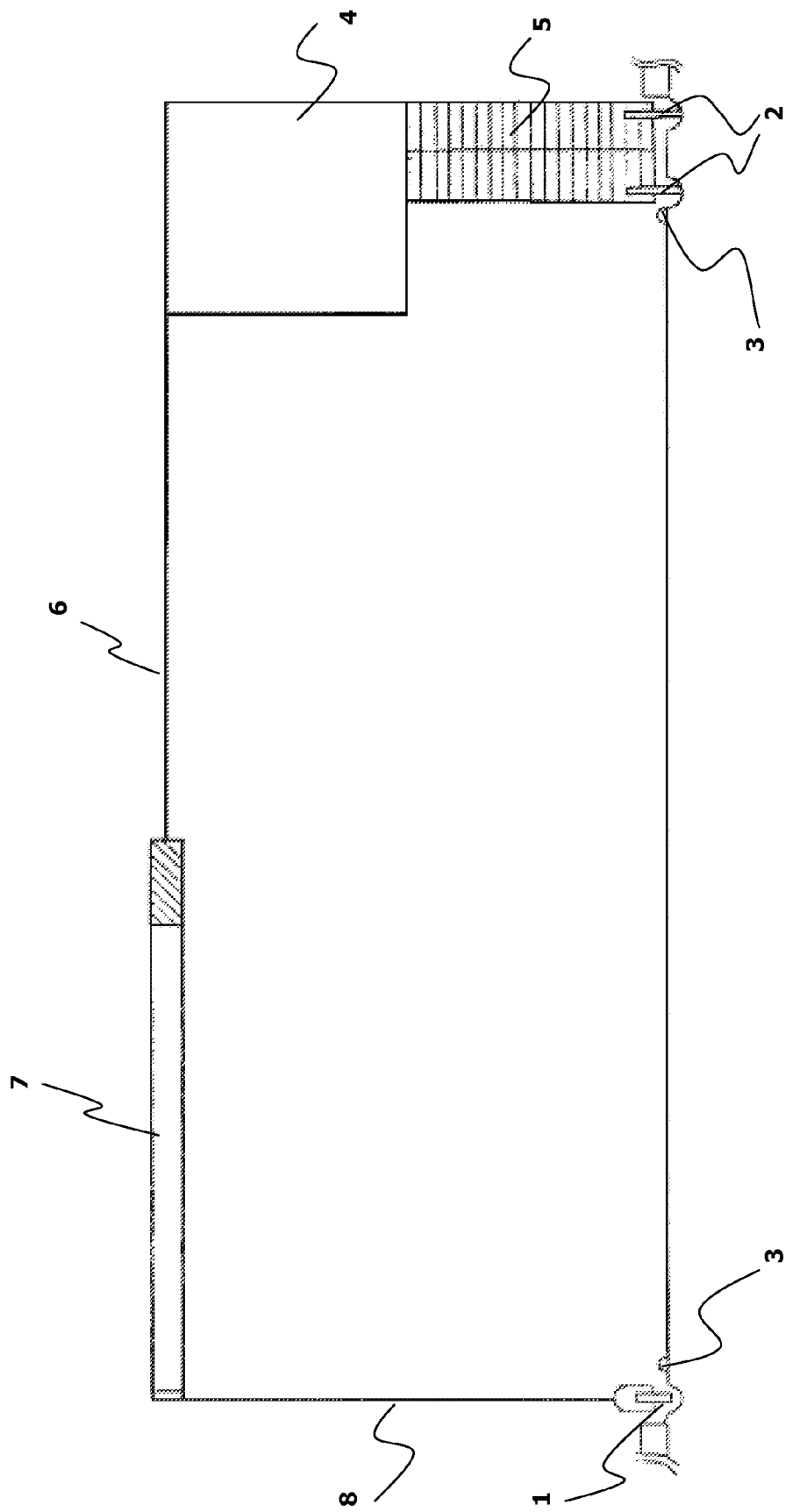


Fig. 1

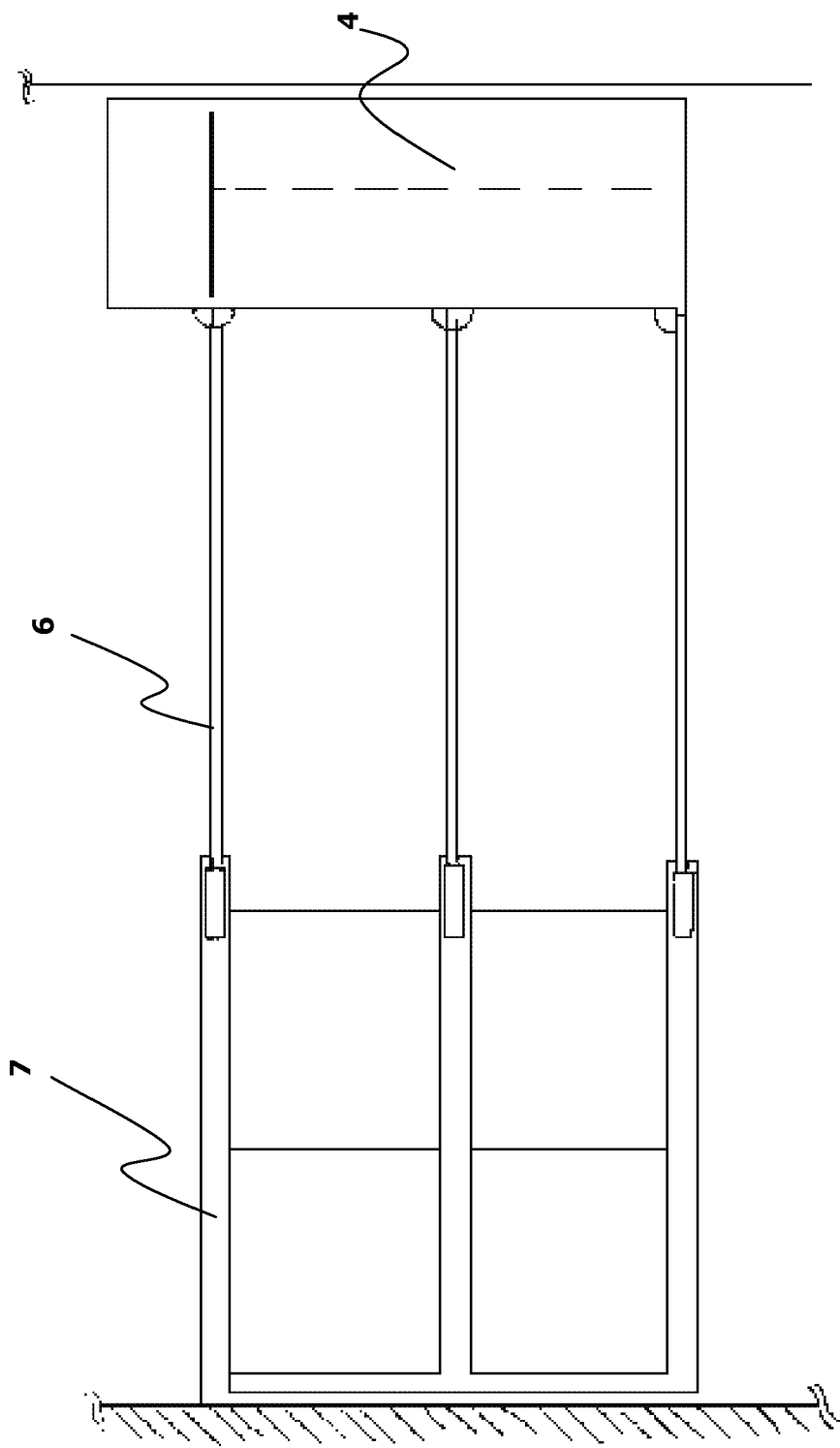


Fig. 2

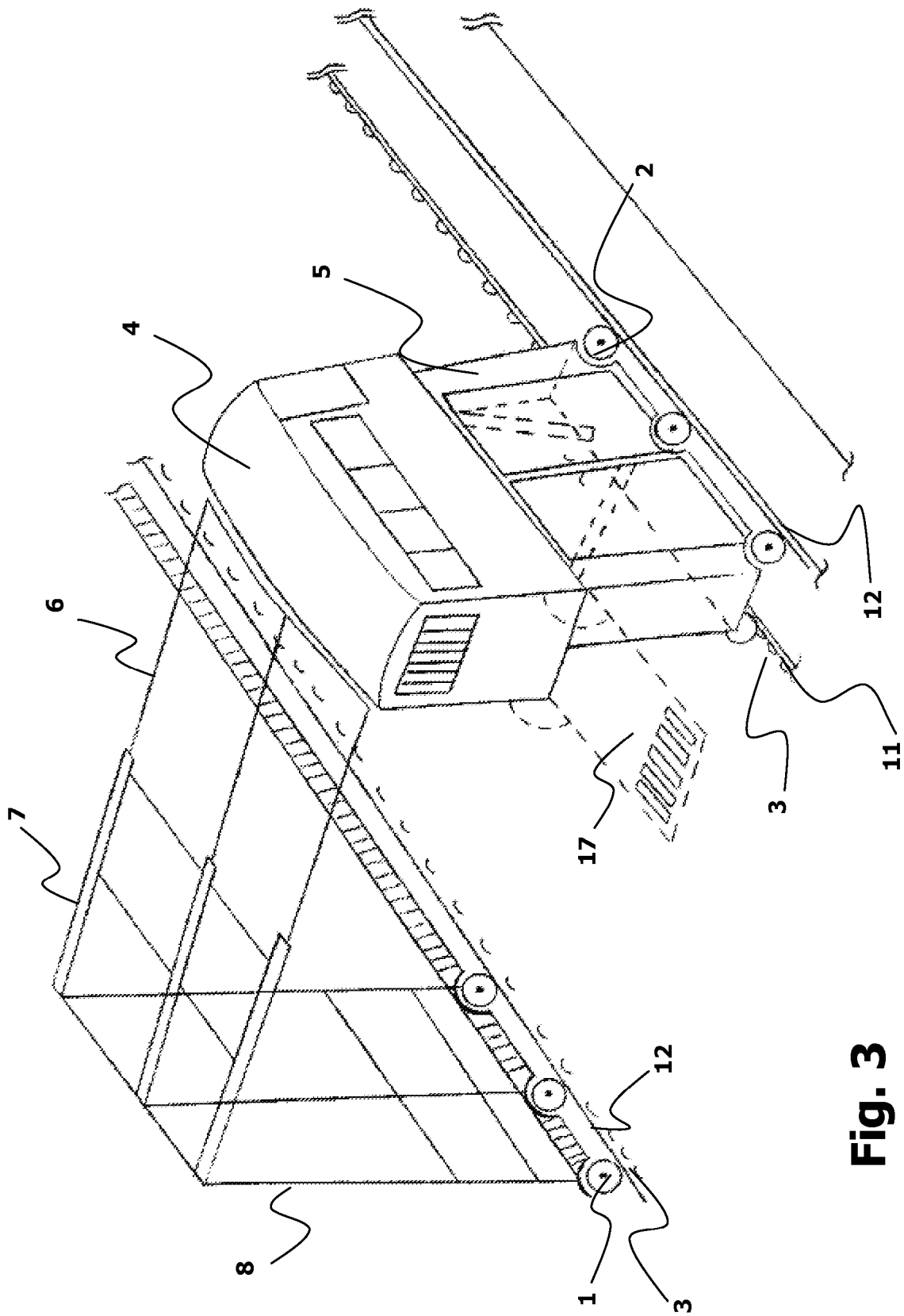


Fig. 3

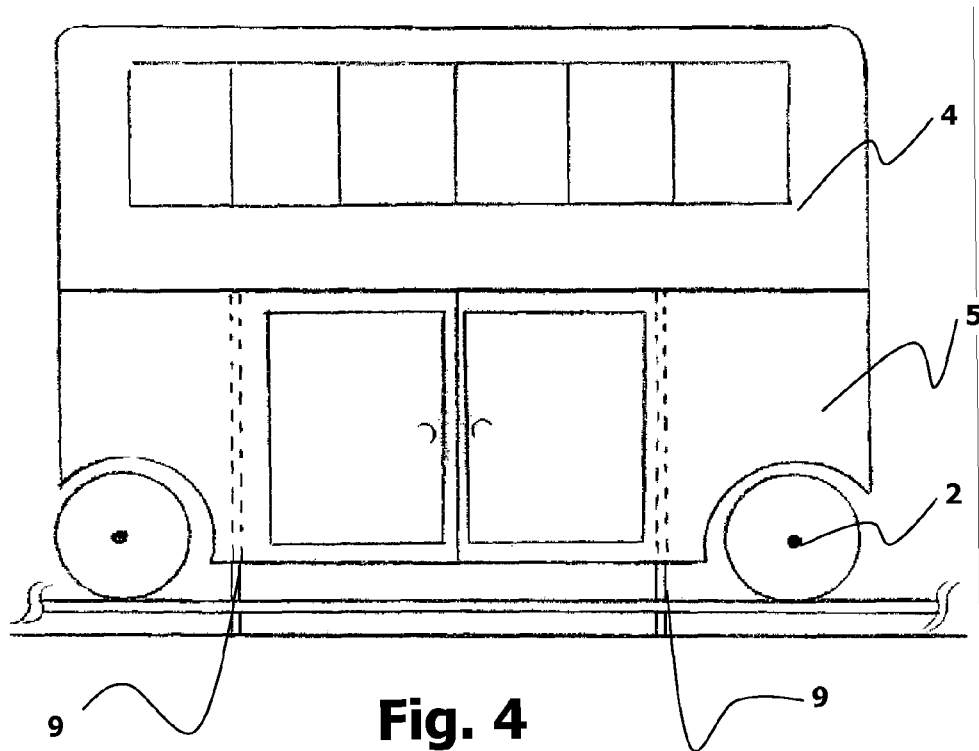


Fig. 4

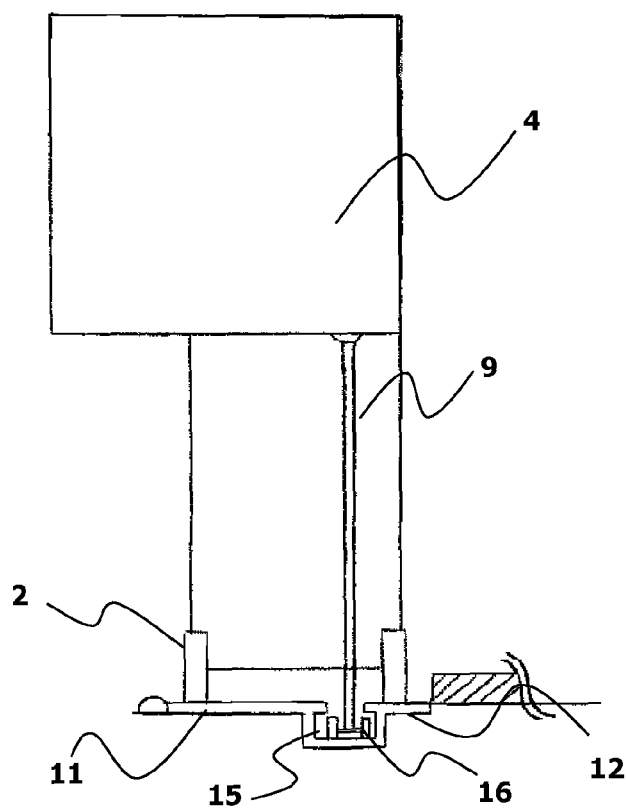


Fig. 5

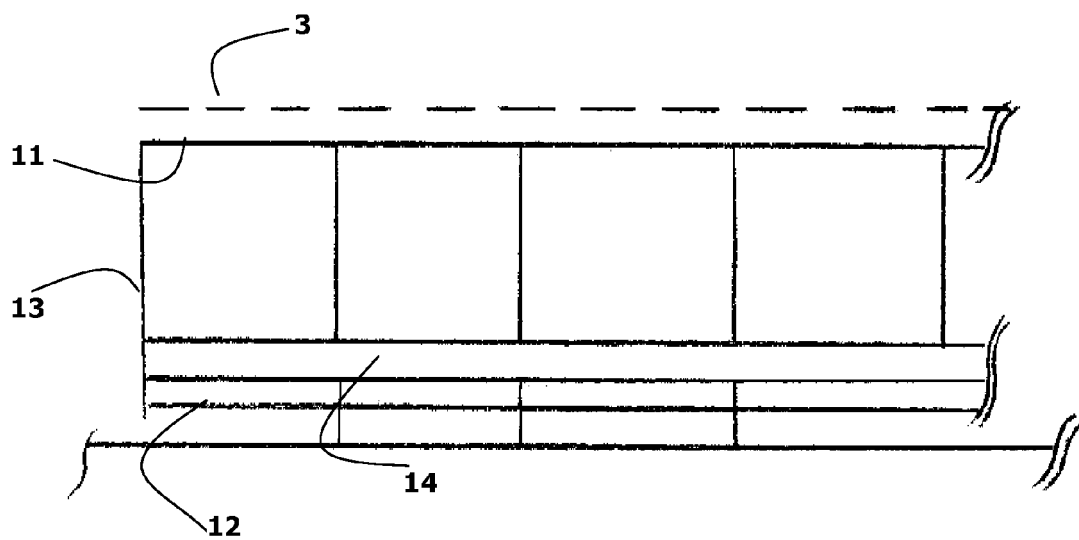


Fig. 6

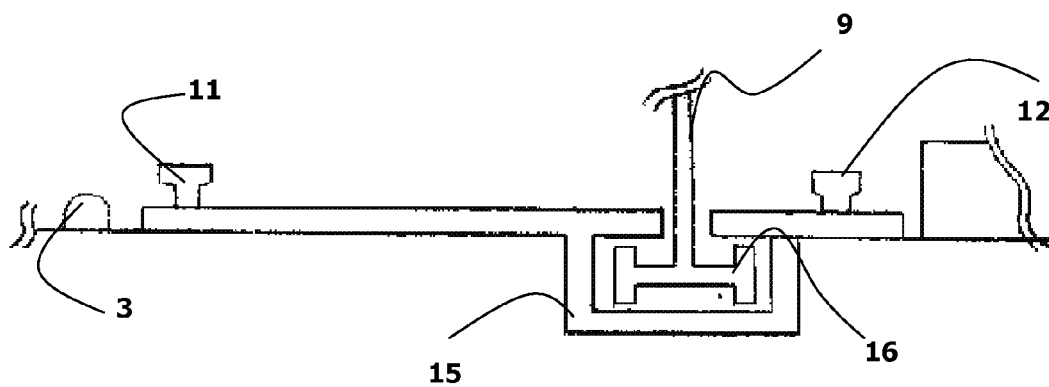


Fig. 7



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 08 10 0451

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	AT 209 949 B (GRUBER HANS) 11 July 1960 (1960-07-11) * the whole document * -----	1,8,9,11	INV. B61B13/00 B61B5/02
A	US 6 539 877 B1 (SAUNDERS STANLEY S [US]) 1 April 2003 (2003-04-01) * column 4, line 2 - column 5, line 20; figures 1-3 * -----	1,6,8,9,11	
A	FR 2 825 081 A (GESTRA GROUPE D ETUDES SPECIFI [FR]) 29 November 2002 (2002-11-29) * page 3, line 33 - page 4, line 48; figures 1-3 * -----	2,10	
			TECHNICAL FIELDS SEARCHED (IPC)
			B61B B61C B61D B66C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 22 April 2008	Examiner Chlosta, Peter
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 10 0451

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22-04-2008

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US 6539877	B1	01-04-2003	NONE	

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REFERENCES CITED IN THE DESCRIPTION

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