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(54) Title: INDUSTRIAL VEHICLE EQUIPPED WITH A STORAGE DEVICE

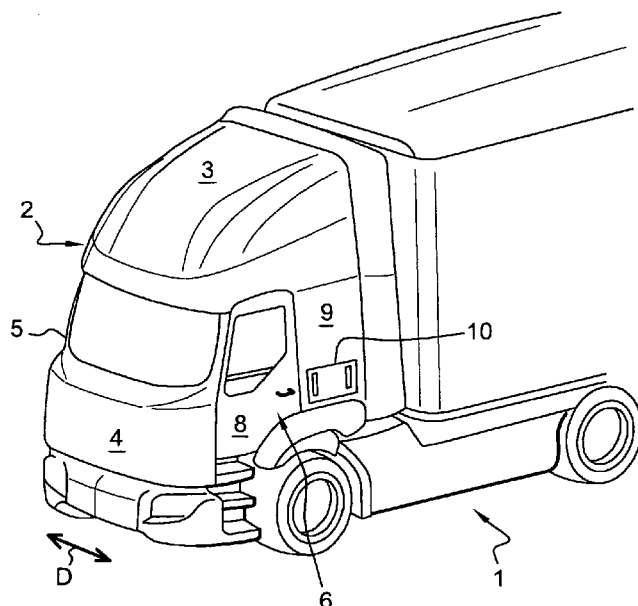


Fig. 1

(57) Abstract: The industrial vehicle, for example a truck (1), comprises a cabin (2) including at least one seat and a storage space located behind the seat. The vehicle also includes a storage device comprising a tray on which objects can be put down, said tray being slidably mounted on the cabin between: an open position, where said tray is at least partially located outside the cabin and passes through an opening (10) arranged in one wall (6) of the cabin, said tray being accessible from the exterior of the cabin; and a closed position, where said tray is located inside the cabin, within the storage space, and objects laying on said tray are accessible from the interior of the cabin, the opening (10) being closed by a closing panel (18).

INDUSTRIAL VEHICLE EQUIPPED WITH A STORAGE DEVICE

Field of the invention

5 The present invention relates to an industrial vehicle, such as a truck, and more particularly to an industrial vehicle equipped with a storage device.

Technological background

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Industrial vehicles are generally equipped with bunks located behind the driver and passenger seats. The space between the cabin floor and the bunk is most often used as a storing compartment for the driver's belongings or other objects.

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Such a configuration has several drawbacks.

First of all, with conventional truck cabins, the loading of objects in the storage compartment can be complicated and tiring. Indeed, it is first necessary to carry the objects inside the cabin, through the main cabin door which is located high with respect to the ground. Then, the objects must be
20 moved rearwardly towards the storage compartment, which implies that the driver has to make them move over the gear lever, or even over the seats. Finally, if there are several objects, for example several bags, the object that has been stored first has to be moved towards a less accessible place of the storage compartment in order to free accessible space for the next object to be
25 stored. These operations are even more complicated if the bunk is in the sleeping configuration. In other words, loading objects is nearly impossible if the bunk has not been removed or moved to its storage configuration. This is an additional drawback for the driver.

Moreover, it may be difficult to access the stored objects from the
30 interior of the cabin, unless the bunk is removed. Thus, when the bunk is in the sleeping configuration, particularly during the night, the driver cannot easily reach his/her belonging's.

Another drawback is that, when the driver is outside the cabin, he/she cannot quickly take an object located in the storage compartment. On
35 the contrary, he/she has to enter the cabin and access this compartment, which is may be difficult as described above.

It therefore appears that, from several standpoints, there is room for improvement in storage compartments in the cabin of industrial vehicles.

Summary of the invention

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It is an object of the present invention to provide an improved industrial vehicle, such as a truck, which can offer the driver a quick and easy access to the storage compartment, for example located under the bunk, both from the exterior and from the interior of the cabin.

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According to the invention such a vehicle comprises a cabin, said cabin having a front wall, two side walls, a rear wall and a floor and including at least one seat and at least one storage space located behind the seat. Said vehicle also includes a storage device comprising a tray on which objects such as bags can be put down, said tray being slidably mounted on the cabin

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between:

- an open position, where said tray is at least partially located outside the cabin and passes through an opening arranged in one wall of the cabin, said tray being accessible from the exterior of the cabin;

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- and a closed position, where said tray is located inside the cabin, within the storage space, and possible objects laying on said tray are accessible from the interior of the cabin, the opening being closed by a closing panel.

Thus, in a vehicle according to the invention, the driver can pull the storage device out of the cabin and put the objects to be stored onto the tray – or take the object(s) he/she needs. Then, the storage device is sled into the cabin, for example under the bunk. The working of said storage device is similar to that of a drawer. This loading method is far much convenient as the conventional method used until now, and requires less efforts.

With the invention, the objects stored within the storage space do not lay directly on the cabin floor, but on the tray, which is also advantageous for hygiene reasons. These objects can be accessed by the driver from the interior of the cabin when the storage device is in the closed position.

According to a preferred implementation of the invention, the tray sliding direction can be substantially transverse, the opening being arranged in one of the cabin side walls, rearward from a cabin main door. This arrangement is particularly practical for the driver.

The storage device can be open at its top end. This makes it easy for the driver to access objects from the exterior of the cabin, but also from the interior, particularly if there is a bunk which is not in the sleeping configuration (for example raised, folded or removed).

5 In an advantageous way, the storage device has at least one side panel of small height. Therefore, even if the storage space is located under a bunk, a gap is defined between the upper rim of said side panels and the bunk, to enable the driver to access the objects laying on the tray even if the bunk is in the sleeping configuration. According to another embodiment, the storage
10 device can have at least one side with no side panel(at least on the side from which the driver can take objects from the interior of the cabin, i.e. for example just behind the seats). With side panels of small height or no side panels, loading objects on the tray in the open position, from the exterior, is made easier for the driver.

15 For example, the industrial vehicle can comprise at least one sliding track mounted on the cabin floor, designed to cooperate with a sliding mechanism arranged under the tray, so that, when the storage device is in the closed position, the sliding track is not visible. Another advantage of these features is that the sliding track and sliding mechanism do not hamper the
20 driver's movements inside the cabin.

Preferably, the storage device can be locked in at least one of the following positions: the open position, the closed position, at least one intermediate position.

It is envisaged that, in the closed position of the storage device, the
25 closing panel is substantially level with the cabin wall in which it is arranged. As a consequence, the storage device does not create a projecting part that could be dangerous for a person or provoke additional turbulence that could be harmful to the vehicle aerodynamics.

According to a first embodiment, the panel is fastened on the tray.
30 The driver only has to pull the panel to also pull the tray out of the cabin.

According to a second embodiment, the panel is hingedly mounted onto a cabin wall, said panel and said tray being separate parts. Here, the driver first has to open the panel and then to pull the tray out of the cabin.

The vehicle cabin may further include at least one bunk located
35 behind the seat, above the floor, the storage space being defined under said

bunk, the tray being located under the bunk when the tray is in the closed position.

These and other advantages will become apparent upon reading the following description in view of the drawing attached hereto representing,
5 as non-limiting examples, embodiments of a vehicle according to the invention.

Brief description of the drawing

The following detailed description of several embodiments of the
10 invention is better understood when read in conjunction with the appended drawing being understood, however, that the invention is not limited to the specific embodiments disclosed. In the drawings,

Figure 1 is a perspective view of a truck having a cabin and comprising a storage device according to the invention,

15 Figure 2 is a detailed exterior perspective view of a cabin wall, with the storage device in the closed position,

Figure 3 is a view similar to Figure 2, according to a first embodiment of the invention, with the storage device in the open position,

Figure 4 is a view similar to Figure 2, according to a second
20 embodiment of the invention, with the storage device in the open position,

Figure 5 is a perspective view of the cabin, showing a bunk and the storage device in the closed position, under the bunk.

Detailed description of the invention

25 As this is illustrated in figure 1, an industrial vehicle such as a truck 1 comprises a cabin 2 which has a roof 3, a front wall 4, two side walls 5, 6 and a rear wall 7. Each side wall 5, 6 comprises a front section including a door 8 and a rear section 9. At least one side wall 6 has an opening 10
30 arranged on rear section 9, preferably on the bottom part thereof.

The cabin 2 also comprise a floor 11 as can be seen on Figure 5. Inside the cabin 2 is defined a driver compartment which includes two seats 12. A storage space 14 is defined inside the cabin 2, behind the seats 12. The storage space can be an open space in the cabin. The cabin 2 may also
35 comprise a bunk 13, located above the floor 11 behind the seats 12. In figure 5, the bunk 13 is in the sleeping configuration, but it can be removed, raised or

folded in order to free the space located behind the seats 12, for example during the day.

In this embodiment, the storage space 14 is located under said bunk 13 (when it is in the sleeping configuration), and it can be either a forwardly open space under the bunk, or in the form of a box like compartment for which the bunk acts as a lid.

According to the invention, the cabin 2 also includes a storage device 15 which provides easy access to the objects stored in the storage space 14, onto the storage device 15, both from the exterior and from the interior of the cabin 2.

Said storage device 15 has a tray 16, generally of rectangular shape, and may comprise side panels 17 of small height. On the other hand, the storage device 15 has preferably no top panel (in other words, it is open at its top end). For example, the storage device can be made of moulded plastic material.

Said storage device 15 is slidably mounted on the cabin 2. To this end, at least one sliding track mounted on the cabin 2 is designed to cooperate with a sliding mechanism arranged on the tray 16. As a consequence, the storage device 14 can slide, with respect to the cabin 2, along a transverse direction D, between:

- an open position, where said tray 16 is at least partially located outside the cabin 2 and passes through the opening 10 arranged in a side wall 6 of the cabin 2. In said open position, the tray 16, and objects laying on it, are accessible from the exterior of the cabin 2. The driver can load these objects without getting in the cabin 2. The loading is easier if the overhang of the storage device 15 is great;

- and a closed position (Figures 2 and 5), where said tray 16 is located inside the cabin 2, under the bunk 13, in the storage space 14. In said closed position, the stored objects are laying on the tray 16, and not on the cabin floor 11. In said closed position, moreover, the opening 10 in the side wall 6 of cabin 2 is closed by a closing panel 18, which is preferably locked.

In the closed position, these objects are accessible from the interior of the cabin 2. If the storage space is open towards the front, the objects will be all the more easily accessible as the side panels 17 of the tray 16 are of small height. According to a variant, the tray 16 can have no side panels at all. According to the variant where the storage space 14 is in the form of a box like

compartment closed by the bunk 13, acting as a lid, these objects are not accessible from the sides of the tray 16, but remain accessible from the interior of the cabin by lifting the bunk.

Figure 2 shows the side wall 6 of the cabin 2 with the storage device 15 in the closed position. The closing panel 18 is then substantially level with the cabin side wall 6. Furthermore, preferably, the closing panel 18 blends in perfectly with exterior cabin styling. The closing panel 18 is equipped with an opening mechanism such as a handle 19, so that a user can open the closing panel 18 and pull the tray 16 out of the cabin 2. Advantageously, the closing panel 18 is locked in its closed position, so that it cannot open when the truck runs.

A first embodiment of the invention is depicted on figure 3. According to this first embodiment, the closing panel 18 is fastened on the tray 16, and constitutes the front panel of the storage device 15. A single manipulation is required for the user in order to access the objects on the tray 16, namely to pull the tray 16 by the handles 19. For example, the sliding track can be mounted on the cabin floor 11 and the sliding mechanism can be arranged under the tray 16, in order to be invisible.

A second embodiment of the invention is depicted on figure 4. According to this second embodiment, the closing panel 18 is mounted onto the side wall 6 of the cabin 2 by means of hinges 20, said closing panel 18 and said tray 16 being separate parts. In order to access the objects stored in the storage device 15, the driver first has to open the closing panel 18 and then to pull the tray 16. Advantageously, the storage device 15 can include a front panel 21 equipped with a handle 22. The sliding tracks 23 can be arranged laterally or alternatively, under the tray 16 on the cabin floor 11.

Thanks to the invention, the storage of objects and access to these objects, included heavy and/or cumbersome items, is greatly improved, both from the exterior and from the interior of the cabin. The loading of many objects at the same time is also easier. Furthermore, the storage space volume is nearly unchanged.

The storage device can also be used as a transfer area for loading items that will be later on transferred to another location in the cabin 2.

It is also envisaged that various objects can be fastened permanently on the tray 16, such as kitchen utensils which could be used

outside the vehicle when the tray is pulled out, for the driver to cook a meal, to avoid smells or soiling in the cabin.

Of course, the invention is not restricted to the embodiment described above by way of non-limiting example, but on the contrary it
5 encompasses all embodiments thereof.

CLAIMS

1. An industrial vehicle, such as a truck (1), comprising a cabin (2), said cabin having a front wall (4), two side walls (5, 6), a rear wall (7) and a floor (11) and including at least one seat (12) and at least one storage space (14) located behind the seat (12), characterized in that it also includes a storage device (15) comprising a tray (16) on which objects such as bags can be put down, said tray (16) being slidably mounted on the cabin (2) between:

- an open position, where said tray (16) is at least partially located outside the cabin (2) and passes through an opening (10) arranged in one wall (6) of the cabin (2), said tray (16) being accessible from the exterior of the cabin (2);

- and a closed position, where said tray (16) is located inside the cabin (2), within the storage space (14), and possible objects laying on said tray (16) are accessible from the interior of the cabin (2), the opening (10) being closed by a closing panel (18).

2. The industrial vehicle according to claim 1, characterized in that the tray (16) sliding direction (D) is substantially transverse, the opening (10) being arranged in one of the cabin side walls (6), rearward from a cabin main door (8).

3. The industrial vehicle according to claim 1 or claim 2, characterized in that the storage device (15) is open at its top end.

4. The industrial vehicle according to any one of claims 1 to 3, characterized in that the storage device (15) has at least one side panel (17) of small height, or at least one side with no side panel.

5. The industrial vehicle according to any one of claims 1 to 4, characterized in that it comprises at least one sliding track mounted on the cabin floor (11), designed to cooperate with a sliding mechanism arranged under the tray (16), so that, when the storage device (15) is in the closed position, the sliding track is not visible.

6. The industrial vehicle according to any one of claims 1 to 5, characterized in that the storage device (15) can be locked in at least one of the following positions: the open position, the closed position, at least one intermediate position.

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7. The industrial vehicle according to any one of claims 1 to 6, characterized in that, in the closed position of the storage device (15), the closing panel (18) is substantially level with the cabin wall (6) in which it is arranged.

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8. The industrial vehicle according to any one of claims 1 to 7, characterized in that the panel (18) is fastened on the tray (16).

9. The industrial vehicle according to any one of claims 1 to 7, characterized in that the panel (18) is hingedly mounted onto a cabin wall (6), said panel (18) and said tray (16) being separate parts.

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10. The industrial vehicle according to any one of claims 1 to 9, characterized in that the cabin (2) further includes at least one bunk (13) located behind the seat (12), above the floor (11), the storage space (14) being defined under said bunk (13), the tray (16) being located under the bunk (13) when the tray (16) is in the closed position.

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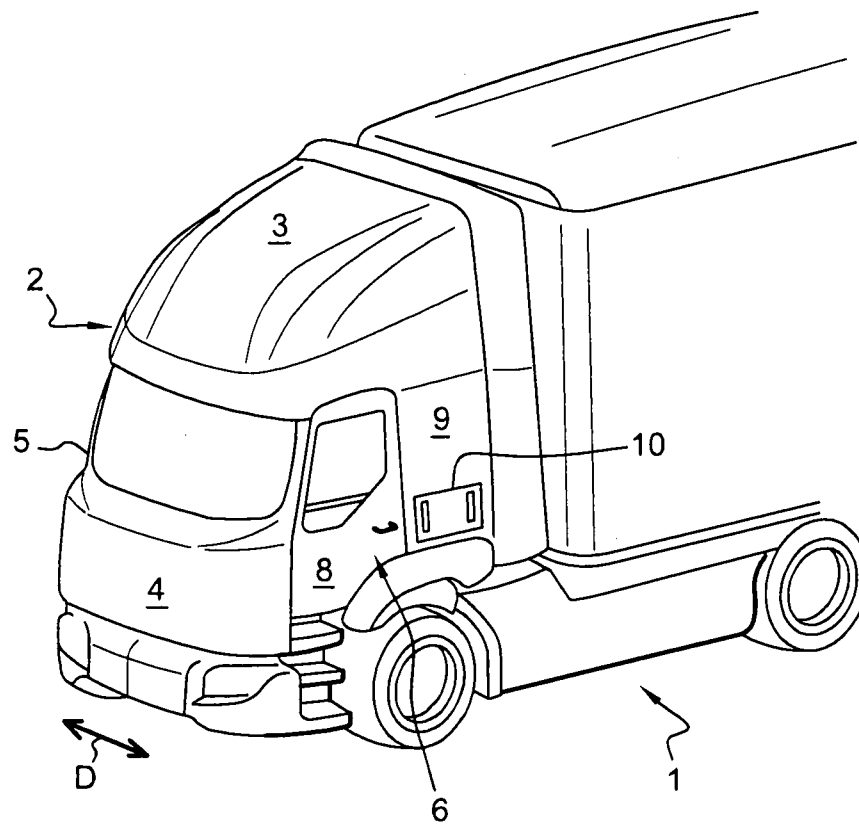


Fig. 1

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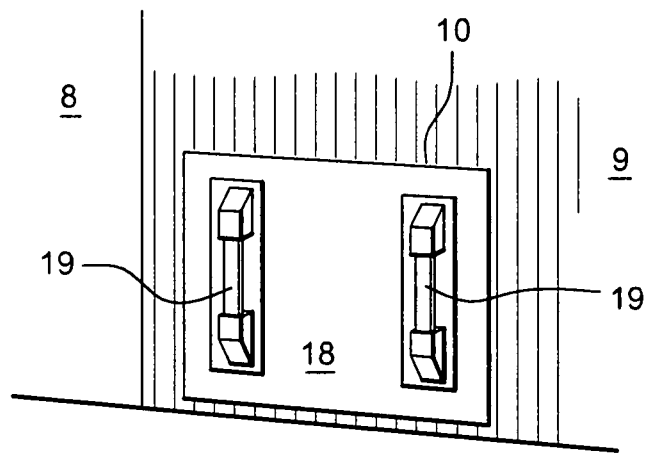


Fig. 2

Fig. 3

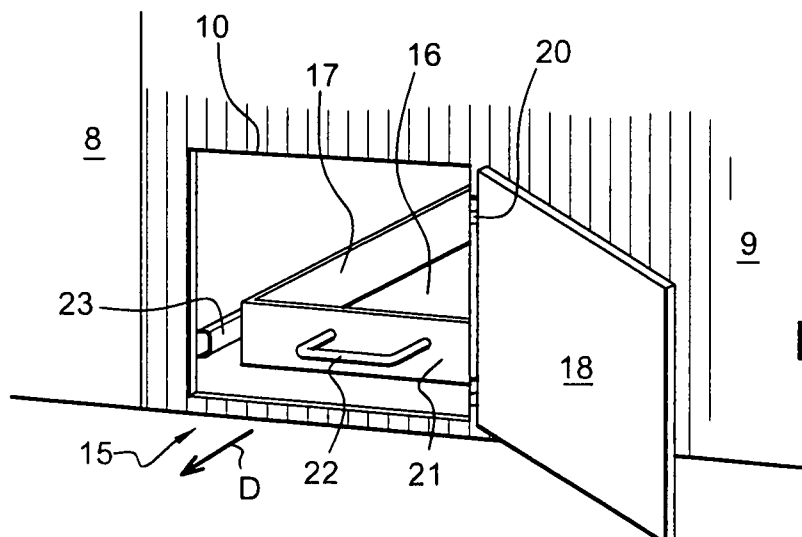
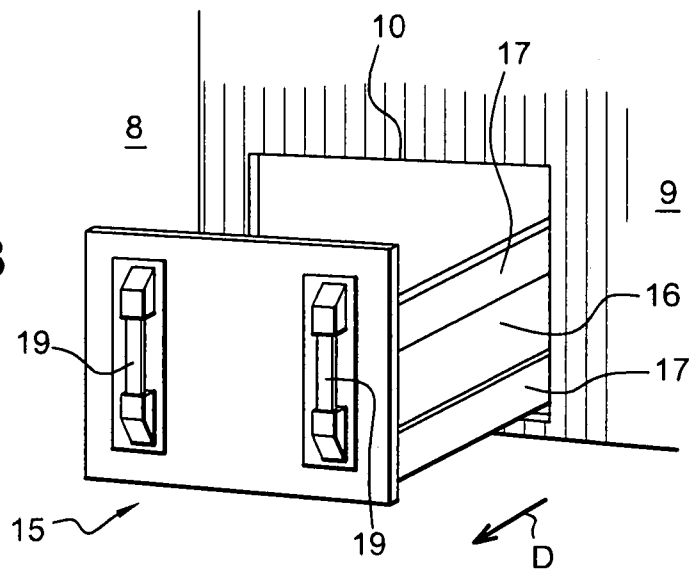


Fig. 4

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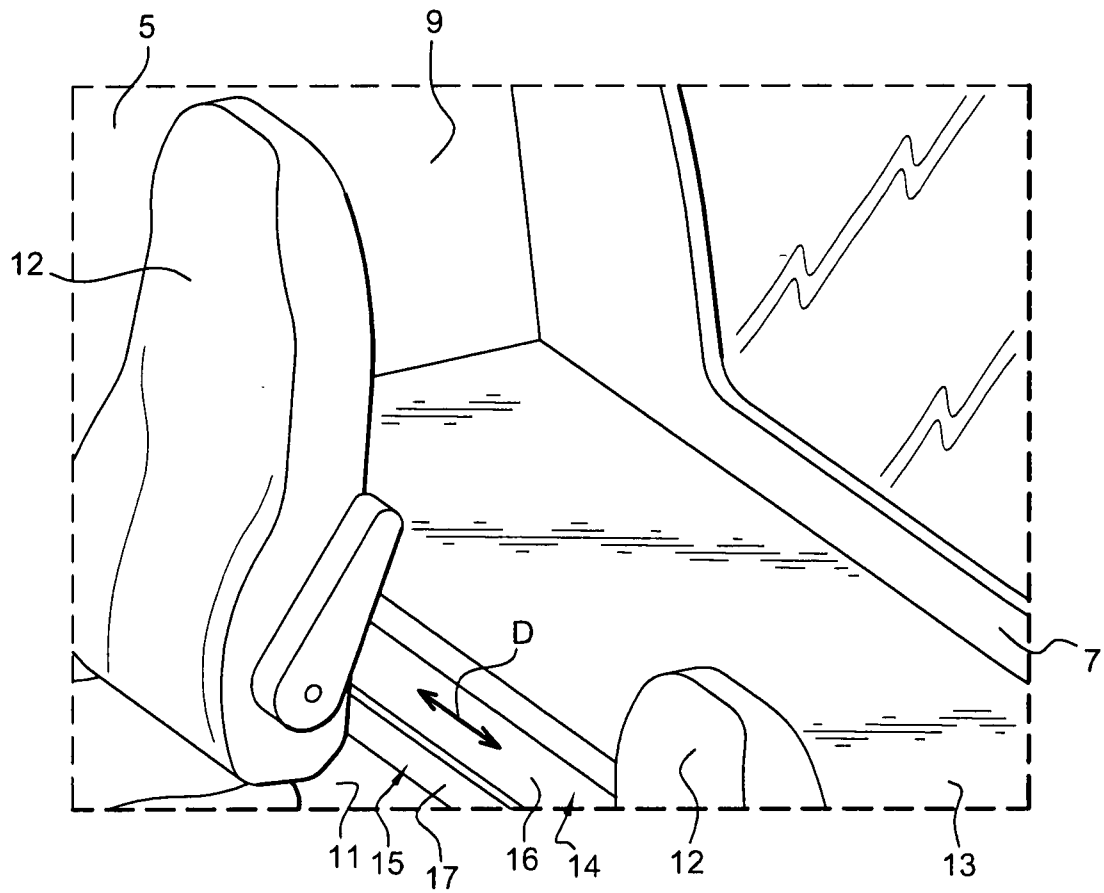


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2008/003817

A. CLASSIFICATION OF SUBJECT MATTER

INV. B62D25/24 B62D33/06 B60R7/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B62D B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 10 2005 002577 B3 (DAIMLER CHRYSLER AG [DE]) 12 October 2006 (2006-10-12) abstract; claims 1-8,10,13-15; figures paragraph [0024] - paragraph [0039] -----	1-10
X	JP 64 028345 U (N.N.) 20 February 1989 (1989-02-20) figures -----	1-4,7,9
X	DE 10 2004 025248 A1 (DAIMLER CHRYSLER AG [DE]) 8 December 2005 (2005-12-08) abstract; claims 1,3,5,7; figures paragraph [0022] - paragraph [0032] paragraphs [0039], [0040] ----- -/--	1,3-5,7, 9-10

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	EP 2 093 133 A1 (MAN NUTZFAHRZEUGE AG [DE]) 26 August 2009 (2009-08-26) claims 1,9,10; figures paragraphs [0020], [0021] paragraphs [0026], [0027] -----	1-4,7,9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2008/003817

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