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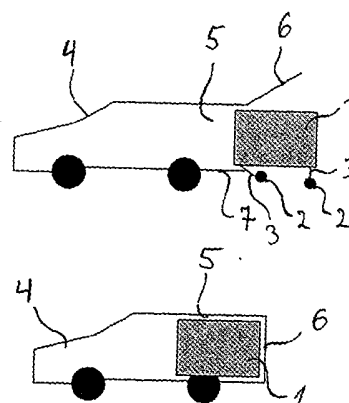
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(54) Title of the Invention: **Preload system for wagons or commercial vehicles**
Abstract Title: **Vehicle and storage trolley with foldable legs**

(57) A logistics system which enables the preloading of goods. The invention proposes a logistics system comprising at least one motor vehicle 4 providing a transport volume 5 adapted for carrying a separately displaceable transport container 1. At least a separately displaceable transport container 1 having a dimension, shape and configuration adapted to perfectly fit in the transport volume 5 provided by the motor vehicle 4. The transport container 1 is equipped with an undercarriage having liftable and / or foldable legs 3 and wheels 2 or rollers bearing legs 3 which are lifted and / or folded, when the transport container 1 is stored within the transport volume 5 on the load floor 7 of the motor vehicle. Optionally the container has two or more boxes providing a modular configuration. The legs 3 may be telescopic or pivotal and pairs of legs 3 may be connected by a pivotal shaft or crossbar. Preferable the legs 3 are lifted from their ground engaging position when the vehicle 4 moves against them.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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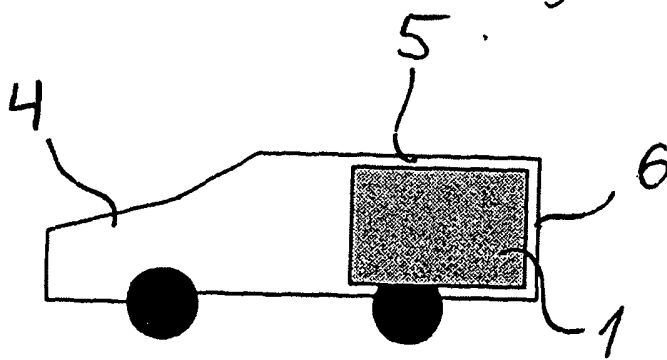
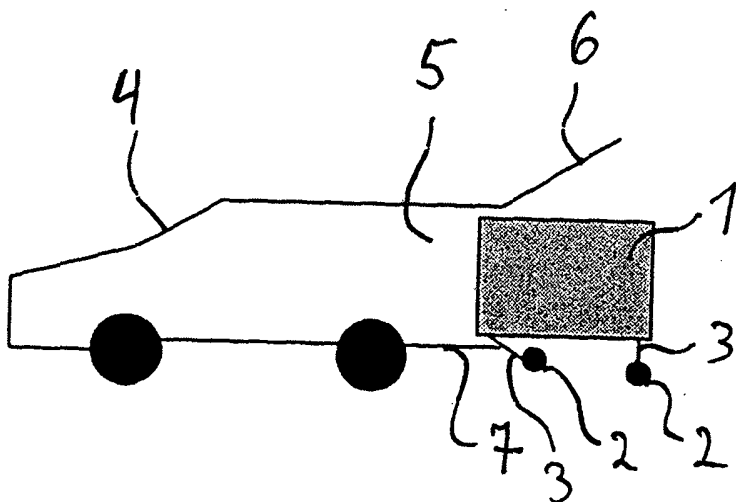
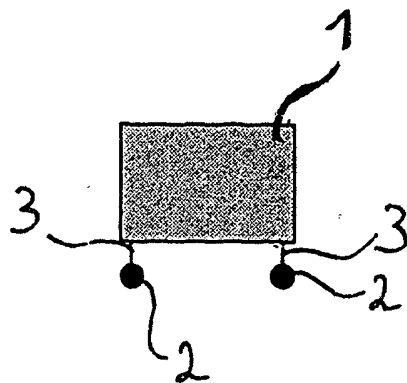


Fig.



5 **Preload System for Wagons or Commercial Vehicles**

D e s c r i p t i o n

10 The invention refers to a logistics system comprising at least one motor vehicle providing a transport volume adapted for carrying a separately displaceable transport container, and at least a separately displaceable transport container having a dimension, shape, and
 15 configuration adapted to perfectly fit in the transport volume provided by the motor vehicle.

 For loading trucks it is known to have big containers which are preloaded with goods so that the loading and charging process for loading the truck only comprises to load the container onto the truck. For this
 20 purpose the truck is equipped with a special carriage to receive the container.

25 Contrary to those trucks wagons and commercial vehicles comprise a closed transport volume or cargo compartment to which access is possible by opening doors, especially rear doors. The loading of these wagons and commercial vehicles is only possible by directly putting
 30 and loading the goods into the respective vehicle. Therefore, it is always necessary to have direct access to the respective vehicle during the loading and charging process. A preloading is only possible by loading pallets, which may then be stored until access to the respective

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vehicle is possible. This system has the disadvantage
that pallets have to be transported by separate vehicles,
e.g. pallet jacks or hand forklift trucks. Thus, the lo-
gistics system is relatively costly and complex because
5 it comprises the motor vehicle, pallets and another vehi-
cle to constitute a preloading system.

It is an object of the present invention to
provide an enhanced logistics system, which also enables
10 the preloading of goods.

This aim is reached by a logistics system com-
prising at least one motor vehicle providing a transport
volume adapted for carrying a separately displaceable
15 transport container, and at least a separately displace-
able transport container having a dimension, shape and
configuration adapted to perfectly fit in the transport
volume provided by the motor vehicle, wherein the trans-
port container is equipped with an undercarriage having
20 liftable and/or foldable and wheels or rollers bearing
legs, which legs are lifted and/or folded when the trans-
port container is stored within the transport volume on
the load floor of the motor vehicle.

25 The invention provides a separately displace-
able transport container having wheels or rollers, so
that it is possible to preload such a box or container
and then pull or push or slide it to the respective motor
vehicle, which has to be loaded. Due to this preloading
30 system it is again not necessary to have access to the
respective vehicle during the preloading. On the other
hand, due to the wheels or rollers of the transport con-
tainer, it is not necessary to use additional vehicles as
hand forklift trucks or pallet carriers for moving the

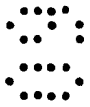
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loaded transport container. Additionally, because the legs of the undercarriage are liftable and/or foldable it is easy to place the transport container on the load floor of the respective motor vehicle during loading of the motor vehicle. As soon as the legs come into contact with the motor vehicle they are folded or lifted so that the transport container is inserted and slid into the transport volume or cargo compartment with a retracted undercarriage.

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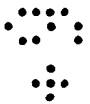
To be able to adapt the logistics system to different sizes of transport volumes and different types of wagons or commercial vehicles it may be of advantage to have more than one transport container, wherein the transport boxes or containers are of a modular configuration and arrangement. Therefore, it is another aspect of the invention to provide a logistics system, wherein the transport volume is filled in with two or more transport boxes or containers, which are of a modular configuration and arrangement in such a way as to enable them to perfectly fit in the transport volume.

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For enabling an easy loading of the respective transport volume of a wagon or commercial vehicle the invention also comprises a logistics system, wherein the transport container comprises legs, which are lifted and/or folded from a ground engaging position to a folded position.

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An advantageous possibility to realize this retracting movement is to provide a logistics system, wherein the legs of the transport container are lifted and/or folded from their ground engaging position to

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their folded position, when the motor vehicle moves against the legs or struts.

To provide the possibility for adapting the height of the respective transport container to the height of the respective wagon or commercial vehicle to be loaded the invention further comprises a logistics system, wherein the transport container is equipped with a means for raising and lowering the transport container to a height enabling to slide the transport container on the load floor of the motor vehicle. This can be achieved by a logistics system, wherein the legs of the transport container are telescopically extendable.

An advantageous construction of the undercarriage of a transport a container of the logistics system according to the invention is further characterized by a transport container, wherein the legs are arranged as opposing pairs at the undercarriage, wherein each pair is swivelling about a common rotating axis.

To provide a stable arrangement of foldable legs or struts, the invention further proposes to have a logistics system, wherein each pair of legs is connected by a pivotable shaft and/or a cross bar.

To avoid any unintended folding movement of the legs the logistics system further comprises legs, which are arranged at a lockable and unlockable pivot bearing.

Finally, the invention is characterized by a logistics system, wherein the at least one transport container is equipped with additional bearing rollers for

moving the transport container on the load floor, when the legs are in their folded position.

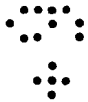
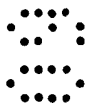
Following an example of an embodiment of the invention is explained by means of a drawing. This drawing schematically shows a motor vehicle and a separately displaceable transport container, which together constitute the logistics system according to the invention.

10 The figure shows a transport container 1, which is equipped with an undercarriage having foldable and wheels 2 bearing legs 3. The transport container 1 may be loaded with the goods and is then wheeled to a motor vehicle 4. The motor vehicle 4 comprises a transport volume

15 5 or cargo compartment, which is adapted for carrying the separately displaceable transport container 1. After having opened a or the rear door(s) 6 of the vehicle 4 the transport container 1 is placed in front of the load floor 7 of the vehicle 4. Then the transport container 1

20 is pulled or pushed or slid onto the load floor 7. For enabling this action the legs 3 of the transport container 1 are lifted and/or folded from a ground engaging position to a folded position. During this movement the legs 3 come into contact with a part of the vehicle 4 and

25 are folded back as indicated in the middle of the drawing. The legs 3 are lifted and/or folded from their ground engaging position to their folded position, when the motor vehicle 4 moves against the legs 3 or struts.



30 To adapt the height of the undercarriage of the transport container 1 to the height of the load floor 7 the transport container 1 is equipped with a means for raising and lowering the transport container 1 to a height enabling to slide the transport container 1 onto

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the load floor 7 of the motor vehicle 4. For this purpose the legs 3 are telescopically extendable.

5 For an easy movement on the load floor of the vehicle 4 the at least one transport container 1 is equipped with additional bearing rollers (not shown) for moving the transport container 1 on the load floor 7, when the legs 3 are in their folded position.

10 The separately displaceable transport container 1 has a dimension, shape and configuration adapted to perfectly fit in the transport volume 5 of the motor vehicle 4 so that it is stored within the transport volume 5 on the load floor 7 of the motor vehicle 4 when it has
15 been completely inserted into the vehicle 4. This is shown by the last picture of the drawing which represents the end of the loading process.

20 Due to the separately displaceable transport container 1 for cargo it is possible to do a preloading without having access to the vehicle 4. For commercial use it is possible to have several preloaded boxes 1 for different use, e.g. different tool sets, or to introduce
25 a delivery system where a quickly load or offload of the cargo by leaving or collecting the whole container 1 is realised. Thus, the logistics system according to the invention provides a more effective solution for loading and offloading of a vehicle 4. The transport volume 5 represents the cargo compartment usually available in
30 vans or wagons or commercial vehicles.

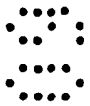


The transport container 1 is perfectly adapted to the respective cargo compartment so that it more or less completely fills the compartment. But, it is also

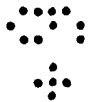
possible to have one or more transport containers 1, which together completely fill the cargo compartment.

Therefore, it is possible to fill in the transport volume 5 with two or more transport boxes or containers 1, which are of a modular configuration and arrangement in such a way as to enable them to perfectly fit in the transport volume 5.

10 A person skilled in the art knows about several possibilities for realizing a construction for a transport container 1 and/or an undercarriage having liftable and/or foldable and wheels 2 or rollers bearing legs 3, which legs 3 are lifted and/or folded, when the
15 transport container 1 is stored within the transport volume 5 on the load floor 7 of the motor vehicle 4. Such a construction may comprise a transport container, wherein the legs 3 are arranged as opposing pairs at the undercarriage, wherein each pair is swivelable or swiveling
20 about a common rotating axis and wherein each pair of legs 3 is connected by a pivotable shaft and/or a cross bar. It is also possible and known to have the legs 3 arranged at a lockable and unlockable pivot bearing.

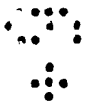
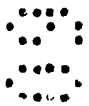


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Reference signs

1. container
2. wheel
3. leg
4. vehicle
5. transport volume
6. rear door
7. load floor

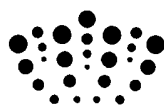


C l a i m s

1. Logistics system comprising at least one motor vehicle (4) providing a transport volume (5) adapted for carrying a separately displaceable transport container (1), and at least a separately displaceable transport container (1) having a dimension, shape and configuration adapted to perfectly fit in the transport volume (5) provided by the motor vehicle (4), wherein the transport container (1) is equipped with an undercarriage having liftable and/or foldable and wheels (2) or rollers bearing legs (3), which legs (3) are lifted and/or folded, when the transport container (1) is stored within the transport volume (5) on the load floor (7) of the motor vehicle.
2. Logistics system according to claim 1, wherein the transport volume (5) is filled in with two or more transport boxes or containers (1), which are of a modular configuration and arrangement in such a way as to enable them to perfectly fit in the transport volume (5).
3. Logistics system according to claim 1 or 2, wherein the legs (3) are lifted and/or folded from a ground engaging position to a folded position.
4. Logistics system according to claim 3, wherein the legs (3) are lifted and/or folded from their ground engaging position to their folded position, when the motor vehicle (4) moves against the legs (3).

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5. Logistics system according to one of the preceding claims, wherein the transport container (1) is equipped with a means for raising and lowering the transport container (1) to a height enabling to slide the transport container (1) on the load floor (7) of the motor vehicle.
6. Logistics system according to claim 5, wherein the legs (3) are telescopically extendable.
7. Logistics system according to one of the preceding claims, wherein the legs (3) are arranged as opposing pairs at the undercarriage, wherein each pair is swivelable about a common rotating axis.
8. Logistics system according to claim 6, wherein each pair of legs (3) is connected by a pivotable shaft and/or a cross bar.
9. Logistics system according to one of the preceding claims, wherein the legs (3) are arranged at a lockable and unlockable pivot bearing.
10. Logistics system according to one of the preceding claims, wherein the at least one transport container (1) is equipped with additional bearing rollers for moving the transport container (1) on the load floor (7), when the legs (3) are in their folded position.



Application No: GB0910432.4

Examiner: Mr Patrick Phillips

Claims searched: 1 - 10

Date of search: 2 October 2009

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1 - 3, 5, 7, 9, 10	NL 9301726 A (GERT) Abstracts and Figures.
X	1 - 3, 5, 6	US 2008/303248 A1 (CHAPARRO) Figures 1 to 10.
X	1, 3, 5 - 7, 9, 10	US 6070899 A (GINES) Whole document.
X	1, 3, 5, 6, 9, 10	DE 202008006599 U (JARUGA) Abstract and Figures 1 to 7.
X	1, 3, 7, 9	US 2008/061531 A1 (NUGENT) Whole document.
X	1, 3, 5, 7	GB 1592293 A (EICHER) Whole document.

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X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
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Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

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Worldwide search of patent documents classified in the following areas of the IPC

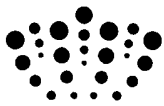
B60P; B62B

The following online and other databases have been used in the preparation of this search report

WPI, EPODOC

International Classification:

Subclass	Subgroup	Valid From
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Subclass	Subgroup	Valid From
B62B	0005/00	01/01/2006
B60P	0001/64	01/01/2006