

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 May 2009 (22.05.2009)

PCT

(10) International Publication Number
WO 2009/064178 A1

- (51) **International Patent Classification:**
B65D 88/12 (2006.01) *B65D 88/00* (2006.01)
B65D 90/00 (2006.01) *B65D 88/02* (2006.01)
 - (21) **International Application Number:**
PCT/NL2008/050718
 - (22) **International Filing Date:**
12 November 2008 (12.11.2008)
 - (25) **Filing Language:** Dutch
 - (26) **Publication Language:** English
 - (30) **Priority Data:**
1034670 12 November 2007 (12.11.2007) NL
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 - (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
 - (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— with international search report



WO 2009/064178 A1

(54) Title: FLAT CONTAINER AND METHOD FOR TRANSPORTING VEHICLES

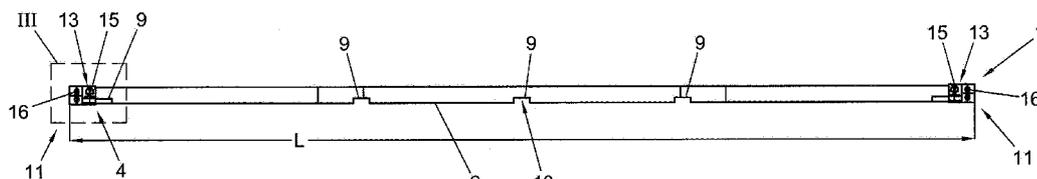


FIG. 1

(57) **Abstract:** A flat container (1) comprising a loading floor (2) having a length of at least fourteen feet, suitable for supporting several vehicles of at least 350 kg each, which container rests on at least one foot (4), wherein the loading floor has a floor surface (7) for supporting the wheels of a vehicle, which floor surface (7) has at least largely a height of 100 mm or less from the underside of the at least one foot of the container, wherein the undersurface of said loading floor is located higher than the underside of the at least one foot.

Title: Flat container and method for transporting vehicles

The invention relates to a flat container.

The invention also relates to a method for transporting vehicles having, in particular, a weight of at least 350 kg.

Shipping vehicles such as cars, trailers, trucks, buses and the like is usually done by container. One, two or three vehicles are then loaded one behind the other into a container and then the container is loaded into a ship. A different manner of shipping over water is, for instance, per ro-ro-ship ("roll on, roll off") where the vehicles to be transported are driven directly into the ship. In both cases, much space in the container and/or the ship is left unused.

Transport to or from the ship further takes place for instance per car train carriage or truck trailer, in particular a "car transporter", so that the respective vehicles are to be transferred to or from the ship, respectively. This transferring takes up relatively much time and may cause damage.

Furthermore, also the vertical space which could be available on train carriages is not optimally utilized. Moreover, car train carriages, especially designed for transporting cars, often return empty.

Further, flat containers, also called for instance but not exclusively "flat rack containers" or "flats", are known. These typically consist of a loading floor provided with a front and rear wall so that several flat containers can be stacked one onto the other. The height of the floor surface of conventional flat containers, i.e. the distance between a base and the supporting surface is often approximately 250 mm or 600 mm, so that a load to be transported thereon is located relatively high, at least measured from the container to the underside of the foot. Conventional closed containers often have a floor surface height of, for instance, 170 mm or more. However, they are provided with a roof, so that the space which is gained at the bottom is partly lost again at the top when compared to a flat container.

It is an object of the invention to provide an alternative container for transporting vehicles in particular of at least 350 kg over land and/or water, i.e. by railroad, via inland navigation or sea, road etc.

This object and/or other objects can be achieved with a flat container comprising a loading floor having a length of at least fourteen feet, suitable for supporting several vehicles of, in particular, each at least 350 kg, which container is provided with at least one foot, wherein the loading floor has a floor surface for supporting the wheels of a vehicle, which floor surface has at least largely a height of approximately 100 mm or less from the underside of the at least one foot of the container, wherein an undersurface of this loading floor is located higher than the underside of the at least one foot.

These positions mentioned of underside and undersurface, height, above and the like are based on a normal position of use of the container, set up on the underside of the foot.

As a flat container is used instead of a closed container with roof and walls, the vertical height of a flat container according to the invention loaded with at least one vehicle can be substantially determined by the height of the at least one vehicle, so that the flat container takes up less vertical space than a conventional closed container. The fact is that with a conventional closed container, the height of the roof is determined in advance. As, furthermore, the floor surface of the flat container according to the invention is located at a low level with respect to a conventional flat container, the vehicle to be transported is located less high than is the case with conventional flat or closed containers and additional space is gained, at least in vertical direction. Furthermore, with this, the center of gravity is held at a relatively low level. Despite the low level of the loading floor, the undersurface of the loading floor is still so high that the base will not be damaged when the loading floor sags.

The above mentioned objects and/or other objects can further be achieved with a method for transporting vehicles having a weight of at least preferably at least approximately 350 kg per vehicle with the aid of a flat

container, wherein the flat container is provided with a loading floor which is at least fourteen feet long, and wherein the container bears on at least one foot, wherein at least one vehicle is driven onto the loading floor so that the underside of at least one of the tires of the at least one vehicle is located at
5 most 100 mm higher than the underside of the at least one foot of the container.

Further advantages and features of the present invention follow from the following description, wherein the invention is described in further detail in several exemplary embodiments on the basis of the appended
10 drawings. In the drawing:

Fig. 1 shows a flat container in side view;

Fig. 2 shows a detailed representation of Fig. 1;

Fig. 3A shows a flat container in top plan view;

Fig. 3B shows the flat container of Fig. 3A in side view;

15 Fig. 3C shows the flat container of Fig. 3A and 3B in front view;

Fig. 4 shows stacked and loaded flat containers in side view; and

Fig. 5 shows a carrier in front view.

In this description, identical or corresponding parts have identical or corresponding reference numerals. In the drawing, embodiments are shown
20 merely by way of example. The elements used there are mentioned merely by way of example and should not be construed to be limitative in any manner. Other parts too can be utilized within the framework of the present invention. Unless indicated otherwise, the proportions of the embodiments shown in the drawings are possibly represented in a schematic and/or exaggerated manner,
25 and should not be construed to be limitative in any manner. Dimensions too are understood to serve merely as illustration and should not be construed to be limitative, unless expressly indicated otherwise. Where required, the dimensions in this description are often expressed in feet and inches, as is also done in the practice of the field of technology, at least with the respective
30 dimensions. Therefore, these dimensions in this specification are often

expressed in feet and inches, in accordance with practice. In this specification as measure for a foot, a length of approximately 30.48 cm or 0.3048 m is involved.

In Fig. 1, a flat container 1 is shown, provided with a loading floor 2.
5 The length l of the loading floor 2 is preferably a standard size for transport containers. In this embodiment, the length l of the loading floor 2 is for instance approximately 40 feet, in other preferred embodiments, the length L is for instance 20, 30, 45 or 53 feet. In principle, any other length L can be suitable, other examples are 14, 22, 23, 24, 25, 26, 27, 30, 35, 42, 43, 50, 51, 57,
10 60 and 80 feet. Preferably, the length L is at least approximately fourteen feet. In this specification, approximately is at least understood to mean that a deviation is possible of at least 10% of a value to which the expression relates, unless indicated otherwise.

The flat container 1 is suitable for supporting several vehicles 3, in particular vehicles of at least approximately 350 kg each and/or a joint weight
15 of at least approximately 700 kg or an average weight of more than approximately 350 kg per vehicle. Vehicles which are suitable to be transported according to the invention comprise, for instance but not exclusively, cars, motor bikes, buses, caravans, motor homes, trucks, low speed
20 vehicles, trailers and the like. An illustrative example of a container 1 according to the invention is for instance suitable for one long heavy truck or, for instance, five cars, depending on the type of truck or car.

In one embodiment, the container 1 has four feet 4, preferably near the ends 11 of the container 1, although more or fewer feet 4 are also possible.
25 The feet 4 are provided with an underside 5, via which underside 5 the container 1 can be brought into contact with, for instance, a base 6 (see Fig. 2), such as for instance but not exclusively, concrete, asphalt or a second container, container chassis, container carriage etc. Other embodiments of the flat container 1 have for instance only one foot 4 continuous all around, or for

instance more than four feet 4, such as, for instance but not exclusively, six, eight or ten feet 4.

The loading floor 2 is provided with a floor surface 7, on which the wheels 8 of vehicles 3 to be transported can rest. In one embodiment, this floor surface 7 can have a height H of approximately 20 mm, measured from the underside 5 of the feet 4. Owing to a limited height H of for instance only approximately 20 mm, or even less, the vehicle 3 is located advantageously low, and a loaded container 1 will take up relatively little space in vertical direction. Other advantageous heights H are, for instance, approximately 50 mm or less, or approximately 100 mm or less.

The loading floor 2 has a thickness d and is provided with an undersurface 8 which can be located substantially parallel to the floor surface 7. The thickness d of the loading floor 2 can for instance but not exclusively be between two and ten mm. The undersurface of the loading floor 2 is located a distance a higher than the underside 5 of the feet 4. The distance a between the undersurface 8 and the underside of the feet 4 can for instance be between seven and eighteen mm, at least depending on the selected height H of the floor surface 7 and the selected thickness d of the loading floor 2. In the example shown, this distance a is for instance approximately thirteen to fifteen mm. As the undersurface 8 is higher than the underside 5 of the feet 4, the loading floor 2 can be prevented from sagging too much, and possibly damaging the underlying base 6, such as an underlying container, or other material located therebeneath. With this, the container 1 has, on the one side, a low height H of the floor surface 7 and, on the other side, sufficient distance a from the base 6. In length and width direction, the loaded container 1 is in contact with the base 6 only at the feet 4. Between the feet 4, there is a space between the undersurface 8 and the base 6, i.e. also in loaded condition a certain distance a is maintained, preferably such that the base 6 does not become damaged.

Preferably, the loading floor 2 is provided with cross reinforcements 9 for reinforcing the loading floor 2. At the location of the cross reinforcements 9, the floor surface 7 can be higher than the general height H of the floor surface 7 (see Fig. 2). The height Hd at the location of the cross reinforcements 9 is, for instance, approximately 63 mm, and preferably no higher than 100 mm, so that the vehicles 3 can simply drive over, or be placed over the cross reinforcements. Preferably, the cross reinforcements 9 also have a width B, viewed in a longitudinal direction L of the container 1, which allows the vehicles 3 to simply drive over the reinforcements 9 and not remain standing thereon during transport. Preferably, the rest of the floor surface 7 has a height h of approximately 20 mm, or less, so that during transport, the vehicles 3 are still located at a low level.

Preferably, the container 1 is provided with indentations 10 to be engaged by for instance a fork of a fork lift truck. In one embodiment, the cross reinforcements 9 comprise indentations 10 for sliding in the fork of the fork lift truck. These indentations 10 are preferably provided at least near the ends 11 of the loading floor 2, so that the loading floor 2 can be engaged by a lift truck near each of the ends 11. By lifting the container 1 near two ends 11, for instance with an adapted fork lift truck, or by a crane or container spreader, the container 1 can be prevented from sagging too much at the ends 11. In one embodiment, a widened lift truck fork board is connected to a forklift truck, which fork board is designed for engaging the flat container 1 at at least two indentations 10 of the container 1, preferably the two extreme indentations 10 near the ends 11. The fork board can for instance also be designed for engaging the container at three or five indentations 10.

The cross reinforcements 9 can comprise, for instance, U-sections. In an advantageous manner, two, three, four, five or more indentations 10 can be provided, for instance integrated with three or more cross reinforcements 9. As can be seen in the Figures, the cross reinforcements 9 comprise reversed U-

sections so that these can also serve as indentations 10. In the embodiment shown, five indentations 10 and five cross reinforcements 9 are provided.

As can be seen in Figs. 3A-C, in one embodiment, the flat container 1 is provided with additional plates 12. Figs. 3A-C show the container 1 in an operative mode, wherein the plates 12 are connected to the loading floor 2 so that they project at least approximately ten feet (approximately three meters) outside the loading floor in the longitudinal direction of the loading floor. Thus, a loading floor of originally fourteen feet can for instance be lengthened to approximately twenty feet. If the plates are provided at both ends 11, the length of the loading floor 2 can be lengthened by at least twenty feet (six meters) so that more loading space is provided. The plates 12 can also project over a longer length, or be shorter, for instance only two feet or five feet, and still advantageously provide extra loading space. The projecting plates 12 are suitable for supporting a vehicle 3 of at least 350 kg completely or at least partly so that they can be used for effecting additional loading space.

The plates 12 can be designed so as to be, for instance, extendible, foldable and/or erectable with respect to the loading floor 2, or are at least designed such that in a resting mode, they project little if at all outside the loading floor 2. Preferably, in resting mode, the plates 12 do not project, but a plate 12 in resting mode can still project for instance a few centimetres, but preferably no more than two feet (61 cm). Preferably, the plates 12 are of extendible or foldable design, or at least such that also with the container 1 in resting mode, the plates 12 are still connected to the container 1, to prevent the plates 12 from separating from the container 1. Fig. 1 shows an embodiment of the container 1 in such a resting mode. The container 1 is provided with, for instance, at least one guide and/or holder which guides and/or holds the plates 12. The plates 12 can for instance be driven and/or extended from and into the guide. The guide and/or holder is designed to sufficiently support the plates in extended condition so that the plates can support one or several vehicles 3. For securing the plates 12, furthermore, an

arm can for instance be provided which, at one end, is hinged to the plate 12 and, at another end, is connected to a carrier 14. Thus, additional stability and/or load bearing capacity can be achieved. These carriers 14 will be further explained and shown in this specification and in Fig. 4, respectively.

5 Preferably, the plates 12 do not serve just as load carriers but also as drive-on plates. As shown, the plates 12 can slightly project upwards. Then too, it may be so that the ends 19 of the plates 12 are still sufficiently low above a base 6, for instance between 20 and 150 mm, to drive the vehicles 3 directly onto the projecting plates 12. The plates 12 can be designed such that
10 they secure themselves in the container 1 by their own weight and/or an additional weight of a part of a vehicle 3 resting on the plate. For instance, through the own weight and/or the weight of the part mentioned of a vehicle 3 there is sufficient friction with a part of the plate guide and/or plate holder of the container 1 for sufficiently securing the plate 12.

15 In a favourable embodiment, the plates 12 are provided at both ends of the container 1, although it is also possible to provide the plates only at one end 11. Further, at each end 11, the plates 12 can comprise double parallel plates 12A, 12B for supporting juxtaposed vehicle wheels 8 connected to one axle (Fig. 4).

20 In Fig. 4, several flat containers 1 are shown which are stacked one above the other and are loaded with vehicles 3 of at least 350 kg, wherein the vehicles 3 are also partly on the plates 12. In this embodiment, for instance four vehicles 12 of a particular type can be placed one behind the other on one container 1.

25 Preferably, the flat container 1 is provided with, for instance, four coupling pieces 13 for coupling the flat container 1 to carriers 14, wherein the coupling pieces 13 are preferably designed to be coupled at the top and bottom side to carriers 14. In this manner, successive carriers 14 and containers 1 are aligned to each other and a stack can be built up modularly in a relatively

simple and efficient manner. In another embodiment, the container 1 is already provided with fixed carriers 14.

The coupling pieces 13 can for instance be integrated with the feet 4 and they are preferably located at the corners of the loading floor 2. In one embodiment, the coupling pieces 13 are provided with holes 16 and/or protrusions 15 which link up to corresponding holes 18 and protrusions 17, respectively, of the carriers 14. One embodiment of a carrier 14 is shown in Fig. 5. In this manner, the carriers 14 can be coupled to the containers 1 relatively simply and rapidly. In an advantageous embodiment, the coupling pieces 13 and/or the carriers 14 comprise corner castings, which are provided with so-called twist locks. A skilled person will recognize this in the drawings. Preferably, the coupling pieces 13 are disposed near the cross reinforcements 9 for additional reinforcement of the container 1, at least the outermost cross reinforcements 9 near the ends 11 of the loading floor 2, whereby the coupling pieces 13 can also function as feet.

In Fig. 4, an assembly can be seen of several flat containers 1 each having four carriers 14, coupled at the bottom to the coupling pieces 13 of a first, lower container 1, and coupled at the top to the coupling pieces 13 of a second, upper container 1. As can be seen, the loading floor 2 extends above the vehicles 3 on the first container 1. In an advantageous embodiment, different carriers 14 of mutually different lengths L_d are available, so that the height of the loading floor 2 of the second container 1 can be chosen, for instance on the basis of the height of the vehicles 3 to be transported. Preferably, the loading floor 2 of the second container 1 extends less than eight feet and more than four feet three inches above the loading floor 2 of the first container 1, so that, on the one hand, sufficient height is achieved for the goods to be transported and, on the other side, space is gained with respect to conventional containers.

The containers 1 and carriers 14 can be stacked to further heights, wherein the second flat container 1 in its turn supports further carriers 14 and

further flat containers 1(not shown) which extend above the first and second container 1. The containers 1 can thus be favourably stacked to great height, for instance on container ships. Also, on particular railroad routes, for instance railroad routes in North America and Canada, stacking to three tiers can take place. In many cases, it can be favourable to use a loading floor 2, with or without projecting plates 12, as a roof for the stack, so that the top is bounded by a flat container 1, on which container 1 no further carriers 14 are coupled to the upper side.

The coupling pieces 13 and/or the carriers 14 are preferably designed to be coupled to lifting means such as a crane or container spreader, so that the container 1 or a stack of containers 1, loaded or not loaded, and both in resting and in operative mode, can be lifted by such a crane or container spreader. This is favourable for instance for transferring loaded containers 1 or loaded stacks of containers 1 in one go from, for instance, ship to shore, or from shore to ship and/or from, for instance, a particular base onto a carriage, or from the carriage onto the base. Then, there is no need to transfer the vehicles 3 and/or containers 1 one by one upon placement on or from a ship, carriage, trailer or the like, but in principle, a few tiers loaded with vehicles 3 can be transferred in one go.

By providing a kit provided with loading floors 2, provided or not with plates 12, and carriers 14, as described hereinabove, the above-mentioned flat containers 1 can be modularly built up by the end user at any location. When building up, in situ, a tier height can be chosen by selecting a carrier 14 of a particular length L_d which matches best the vehicles to be transported, preferably having a length L_d of less than eight feet and more than four feet and three inches. Also, the parts of the kit can be transported and/or stored separately, wherein the parts are stacked flat without taking up much space.

For transporting the vehicles 3, the loading floor 2 is placed on a base 6 such that the vehicles 3 can drive from the base 6 onto the container 1. In another embodiment, the container is already on a chassis, for instance of a

truck, trailer of container carriage, and the container 1 is loaded by a loading bridge. Preferably, first the plates 12 are extended with respect to the loading floor 2 in the longitudinal direction of the loading floor 2 such that the plates 12 project over a desired distance outside the loading floor, and such
5 that the vehicles can simply be driven onto the loading floor 2 and the plates 12. In principle, the plates 12 are not requisite for driving the vehicles 3 onto the container 1. It can also be such that, for instance, the container 1 is put to use without projecting plates 12 and is loaded with vehicles 3, see for instance the embodiment in Fig. 1.

10 Upon loading, the vehicles 3 will drive over the cross reinforcements 9 and be arranged such that the underside of the wheels 8 rest on the predominantly low part of the floor surface 7, which part of the floor surface 7 is located preferably approximately 20 mm, or at least less than 100 mm higher than the underside of the feet 4 of the container 1. When the
15 vehicles 3 are placed one behind the other on the loading floor 2 and/or the plates 12, the loaded container 1 is, in principle, ready for transport.

For building up several tiers, the loading floor 2 is coupled to two or more, for instance four or six carriers 14. To this end, the carriers 14 are connected to the coupling pieces 13. A first carrier 14 is placed to that end in a
20 first coupling piece 13 of a flat container 1, then, a second carrier 14 is placed in a second coupling piece 13 of the flat carrier 1, etc., until for instance four carriers 14 project upward from the corners and/or sides of the loading floor 2. In loaded condition, it may be so that the carriers 14 extend next to the vehicles 3, for instance when the vehicles 3 are partly on the projecting
25 plates 12. When different carriers 14 of different heights L_d are available, a favourable height L_d of the carriers 14 can be selected on the basis of, for instance, the type of vehicle 3 to be transported, for instance such that the loading floor 2 of the second flat container 1 extends less than eight feet and more than four feet three inches above the loading floor 2 of the second
30 container 1.

A second flat container 1 can for instance be provided with carriers 14 in the same manner as the first container 1. Then, one or more vehicles 3 can be driven onto the loading floor 2 of this second container 1 through the carriers 14. The second container 1, loaded or not loaded, can be placed on the already positioned carriers 14 of the first container 1, with the underside of the coupling pieces 13 of this second container 1 linking up with upper top side of the carriers 14.

Optionally, further tiers with further containers 1 can be build, loaded or not loaded with vehicles 3 to be transported, so that stacks of three or more tiers can be built up. Also, above the upper at least one vehicle 3 yet another upper container 1 can be provided, which functions as roof. With this container 1, the carriers 14 at the top side can be omitted.

The coupling elements 13 and/or the carriers 14 can be engaged by lifting means such as a forklift truck, crane or container spreader, for instance such that the container 1, or stack of containers 1 can be placed onto or taken from a ship, carriage or trailer. Also when the first, second and/or further containers 1 are provided with vehicles 3, the loaded containers 1, or stacks of loaded containers 1 can be placed on a ship, carriage or trailer by the lifting means. Transferring the containers 1 with vehicles 3 can be done in one go and the vehicles 3 need not be unloaded from the containers first. The height of the stack can for instance be adjusted to the respective mode of transport. The stacks on a ship might for instance be higher than the stacks on a trailer or carriage. Examples are stacking in two or three tiers on carriages, depending on the maximum allowable height of the respective routes. It is also possible to stack in two tiers on trucks and/or trailers, depending, once again, on the maximum allowable height of the respective routes. On ships for instance, in one go, a stack of five tiers could be loaded. Naturally, several examples are conceivable.

Another favourable aspect of the invention can be that the flat container 1 is universally applicable. The flat container 1 can for instance be

used on standard container carriages, so that these conventional container carriages, after delivering the flat containers 1, can transport other goods back, in contrast with, for instance, car train carriages which often drive back empty after the cars have been delivered. The flat containers 1 and the carriers 14 according to the invention can optionally, after delivery of the vehicles 3, be stacked flatly and transported back without taking up much space. The flat containers 1 can for instance also be loaded with other vehicles 3.

10 In another embodiment of a flat container 1, the loading floor 2 is already provided with fixedly connected carriers 14. Such containers 1 can be ready to be stacked one onto the other without separate carriers 14 having to be coupled first. Here, the carriers 14 are for instance foldably connected to the container. It is also possible to design the carriers 14 to be extendible for realizing different tier heights Ld.

15 The described variant and many comparable variants and combinations thereof are understood to fall within the framework of the invention as set forth by the claims. Naturally, different aspects of different embodiments and/or combinations thereof can be combined and exchanged with each other. Therefore, delimitation should not be restricted to the
20 embodiments mentioned.

Claims

1. A flat container comprising a loading floor having a length of at least fourteen feet, suitable for supporting several vehicles of in particular at least 350 kg each, which container is provided with at least one foot,
wherein the loading floor has a floor surface for supporting the
5 wheels of a vehicle, which floor surface has at least largely a height of approximately 100 mm or less from the underside of the at least one foot of the container,
wherein an undersurface of said loading floor is located higher than the underside of the at least one foot.
- 10 2. A flat container according to claim 1, wherein the floor surface has at least largely a height of 50 mm or less, in particular approximately 20 mm, from the underside of the at least one foot of the container.
3. A flat container according to claim 1 or 2, wherein the loading floor is provided with cross reinforcements, at the location of which cross
15 reinforcements the floor surface is higher than the rest of the floor surface, but is preferably not higher than 100 mm from the underside of the at least one foot of the container.
4. A flat container according to claim 3, wherein the cross
20 reinforcements comprise indentations to be engaged by a fork of a forklift truck.
5. A flat container according to any one of the preceding claims, wherein the flat container is provided with at least one plate, which, in an operative mode, is connected to the loading floor and projects at least two feet, in particular at least five feet, more particularly approximately ten feet outside
25 the loading floor in a longitudinal direction of the loading floor, wherein the at least one plate is suitable for supporting a vehicle, in particular of at least 350 kg.

6. A flat container according to claim 5, wherein the at least one plate in a resting mode projects little if at all outside the loading floor.
7. A flat container according to claim 5 or 6, wherein the at least one plate is extendible, foldable and/or erectable with respect to the loading floor.
- 5 8. A flat container according to any one of the preceding claims, wherein the loading floor has a length of approximately 20, 30, 40, 45 or 53 feet.
9. A flat container according to any one of the preceding claims, wherein at least one vehicle of at least 350 kg is located on the loading floor.
- 10 10. A flat container according to any one of the preceding claims, wherein at least one car is located completely or partly on at least one plate.
11. A flat container according to any one of the preceding claims, provided with at least two coupling pieces for coupling the flat container to carriers, wherein the coupling pieces are designed to be coupled to carriers.
- 15 12. A flat container according to claim 11, wherein the coupling pieces are designed to be coupled at the bottom and top side to carriers.
13. A flat container according to claim 11 or 12, wherein the coupling pieces are provided near the corners of the loading floor and near the cross reinforcements.
- 20 14. An assembly of a flat container according to any one of claims 11 – 13 and at least two carriers, wherein the at least two carriers are coupled to the coupling pieces of the flat container.
15. An assembly according to claim 14, wherein the coupling pieces and/or the carriers are designed to be coupled to lifting means, such as a crane
- 25 or container spreader.
16. An assembly according to any one of claims 14 or 15, wherein the carriers support a second flat container at the top side of the carriers.
17. An assembly according to claim 16, wherein the loading floor of the second container extends less than 8 feet and more than 4 feet 3 inches above
- 30 the loading floor of the first container.

18. An assembly according to claim 17, wherein the second flat container supports further carriers and further flat containers which extend above the first and second flat containers.
19. An assembly according to claim 17 or 18, which assembly is bounded at the top side by a flat container, on which flat container no further carriers are coupled.
20. A kit for arranging several flat containers according to any one of the preceding claims, provided with loading floors and carriers of different heights according to any one of the preceding claims.
21. A method for transporting vehicles having a weight of at least preferably at least approximately 350 kg per vehicle with the aid of a flat container, wherein the flat container is provided with a loading floor which is at least fourteen feet long, and wherein the container bears on at least one foot, wherein at least one vehicle is driven onto the loading floor so that the underside of at least one of the tires of the at least one vehicle is located at most 100 mm higher than the underside of the at least one foot of the container.
22. A method for transporting vehicles with the aid of a flat container, wherein at least one plate is extended with respect to the loading floor in the direction of the loading floor, so that the at least one plate projects at least two feet outside the loading floor, wherein one vehicle, or several vehicles one behind the other, having a weight of preferably at least approximately 350 kg per vehicle, are placed on the loading floor and the at least one plate.
23. A method according to claim 21 or 22, wherein the loading floor is coupled to at least two carriers or is already provided with two carriers, wherein a second flat container is coupled to carriers coupled to the first flat container, so that the second flat container extends above the at least one vehicle on the first flat container, wherein the second flat container is also provided with one or several vehicles of preferably at least approximately 350 kg per vehicle.

24. A method according to claim 23, wherein the loading floor of the second flat container extends less than 8 feet and more than 4 feet 3 inches above the loading floor of the second container.

5 25. A method according to any one of claims 21 - 24, wherein the first and second container are at least provided with vehicles and, with the aid of lifting means, such as a forklift truck, crane or container spreader, are placed on a container transport vehicle, such as a ship, carriage or trailer.

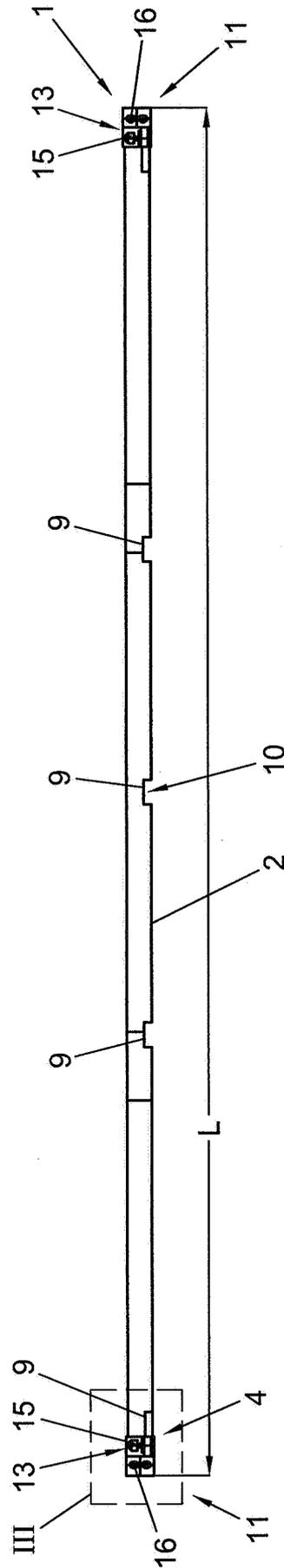
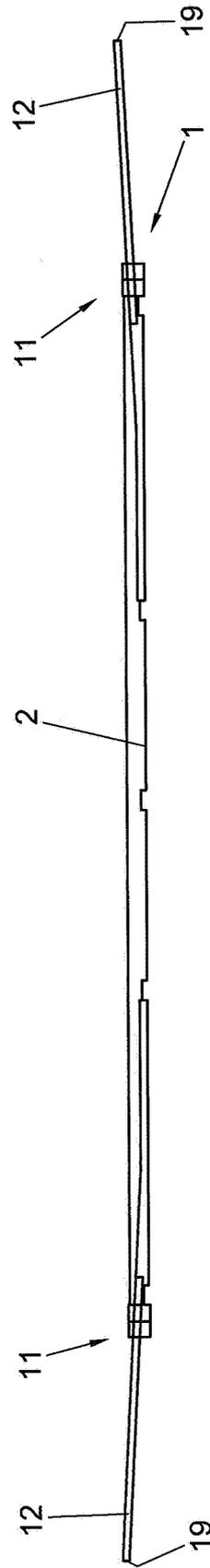
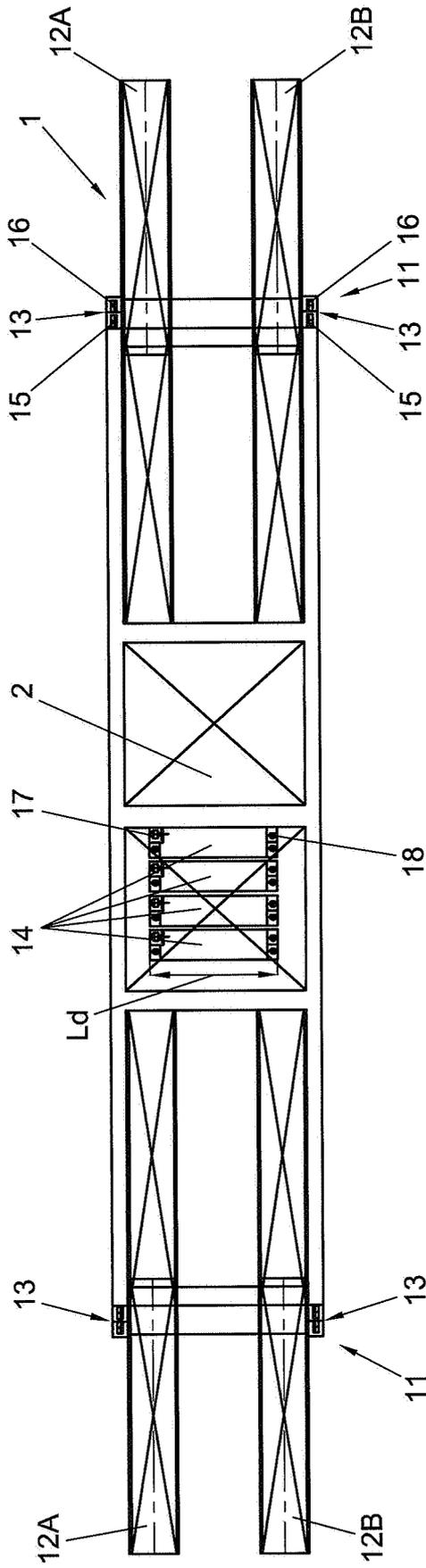


FIG. 1



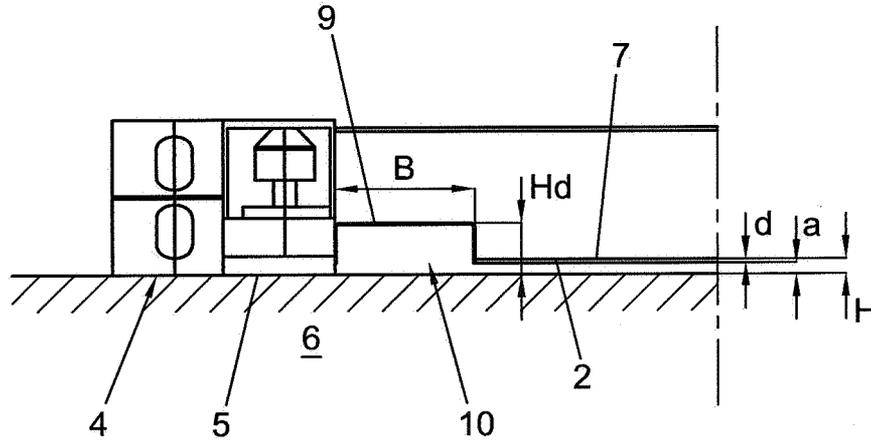


FIG. 2

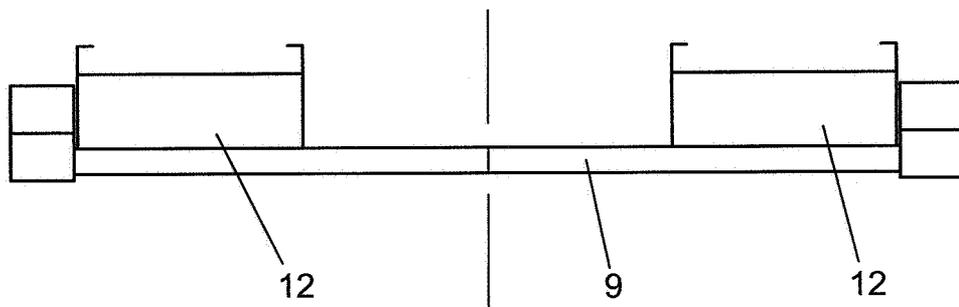


FIG. 3C

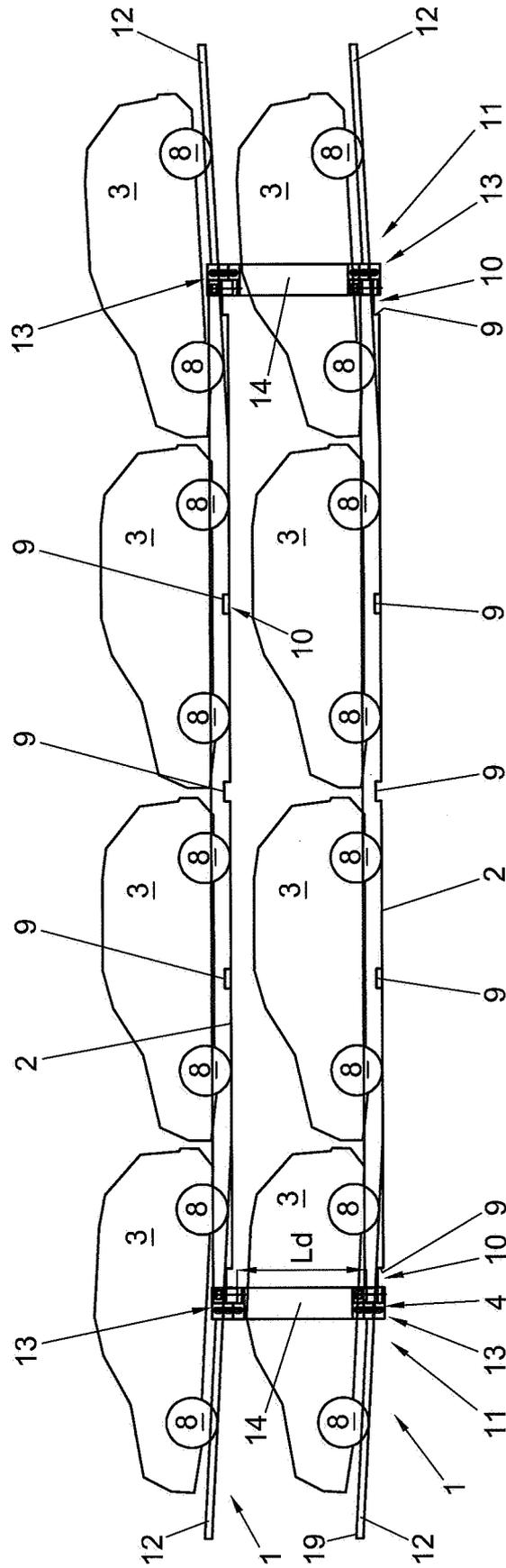


FIG. 4

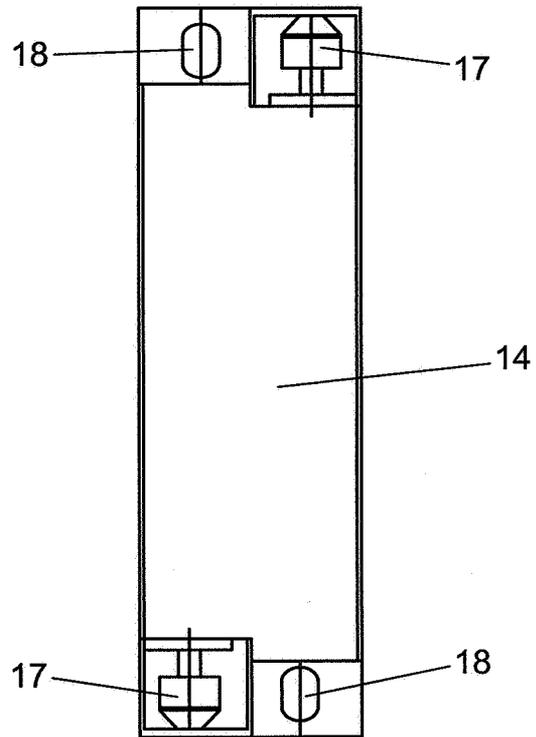


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/NL2008/050718

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D88/12 B65D90/00 B65D88/00 B65D88/02

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)
B65D B60P

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	WO 90/01007 A (FURUKAWA SHIGENOBU [JP]) 8 February 1990 (1990-02-08) abstract; figures 21,22,29,30	1-25
X	WO 2004/041679 A (CLIVE-SMITH MARTIN [GB]) 21 May 2004 (2004-05-21) abstract	1
X	DE 40 17 918 A1 (GOTTMANN BERND [DE]) 5 December 1991 (1991-12-05) abstract; figures	1
A	GB 2 097 364 A (ADAMSON CONTAINERS LTD) 3 November 1982 (1982-11-03) abstract; figure 3	1,14, 20-22

Further documents are listed in the continuation of Box C.

See patent family annex.

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- * & * document member of the same patent family

Date of the actual completion of the international search

10 February 2009

Date of mailing of the international search report

17/02/2009

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/NL2008/050718

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
WO 9001007	A	08-02-1990	NONE	
<hr style="border-top: 1px dashed black;"/>				
WO 2004041679	A	21-05-2004	AT 367329 T	15-08-2007
			AU 2003276480 A1	07-06-2004
			CN 1708441 A	14-12-2005
			DE 60315065 T2	20-03-2008
			EP 1567429 A1	31-08-2005
			JP 2006505460 T	16-02-2006
			US 2006104755 A1	18-05-2006
			US 2007206999 A1	06-09-2007
<hr style="border-top: 1px dashed black;"/>				
DE 4017918	A1	05-12-1991	NONE	
<hr style="border-top: 1px dashed black;"/>				
GB 2097364	A	03-11-1982	NONE	
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