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54 **Freight container and method for transporting cargo.**

57 One aspect of the present disclosure provides a freight container (100) for transporting cargo (5), especially temperature sensitive cargo. The container comprises a container body (24) enclosing a cargo space (25) for storing the cargo (5). The container (100) further comprises an air conditioning unit (7) arranged for controlling a temperature and/or humidity in the cargo space. At least part the air conditioning unit (7) is suspended above a cargo floor (3) of the cargo space. A further aspect relates to a method for transporting cargo. The method comprises at least partly charging a battery by means of a generator also at a moment when there is no need to alter the air property of the air inside the container.

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Dit octrooi is verleend ongeacht het bijgevoegde resultaat van het onderzoek naar de stand van de techniek en schriftelijke opinie. Het octrooischrift komt overeen met de oorspronkelijk ingediende stukken.

Title: FREIGHT CONTAINER AND METHOD FOR TRANSPORTING CARGO

TECHNICAL FIELD AND BACKGROUND

5 The present disclosure relates to a freight container for transporting cargo, especially temperature sensitive cargo. The disclosure further relates to a method for transporting cargo.

Modern society has become increasingly dependent on the long distance transport of cargo. Freight containers are widely used to transport such cargo, e.g. by boat, train, and/or truck. Some cargo, e.g. food, such as
10 fruit, dairy products, meat, etc., but also electronics, may require a climate controlled environment to prevent their deterioration. Temperature and/or humidity sensitive cargo can be transported by a freight container comprising an air conditioning unit. For example, the air conditioning unit can be integrated into the container. To guarantee continuous temperature
15 control, it is desirable to also integrate a power source/generator into the container or air conditioning unit. For example a diesel powered generator and fuel tank can be integrated into the container. However, the extra equipment may affect the available cargo space because the outer
20 dimensions of the container are constrained by international standards. For example, a long range transport container may contain a relatively large fuel tank that occupies part of the cargo space. However, such a design runs counter to the general need for maximizing the cargo capacity of the freight container.

25 Therefore, a general need exists for a long range, climate controlled freight container or reefer having an increased cargo capacity. For example, a specific need exists to have sufficient cargo capacity to transport thirty-three or more Euro pallets (each with a size of 80 cm x 120 cm) arranged side by side, while keeping climate control for a journey
30 lasting twenty days or more.

SUMMARY

To meet these or other challenges, one aspect of the present disclosure provides a freight container for transporting cargo, especially temperature sensitive cargo. The container comprises a container body enclosing a cargo space for storing the cargo. The container further comprises an air conditioning unit arranged for controlling a temperature and/or humidity in the cargo space. The container further comprises a generator for powering the air conditioning unit. The container further comprises a fuel tank for supplying the generator with fuel, especially diesel. At least part the air conditioning unit is suspended above a cargo floor of the cargo space.

Advantageously, the present arrangement may allow cargo to be placed on the cargo floor below the air conditioning system. By arranging the air conditioning unit at or near a front side of the container opposite a back side provided with one or more doors, the unit can be placed against the front without affecting the doors. For example, at least a part of the air conditioning system can be provided against a top side of the container. By providing an outside of the container body with a cavity protruding inward into the container and accommodating at least part of the air conditioning unit in the cavity, the outer dimensions of the container can be kept within specification, while saving cargo space at least at the floor level. For example, a part of the air conditioning unit, e.g. condenser, may be sticking outside from the container body. By shaping the cavity as an inward step of the container body on the upper front side of the container, the air conditioning unit can be placed through a vertical side wall, yet stay within the constrained perimeter of the container. Advantageously, the cargo floor may extends below the step for allowing cargo to be placed on the cargo floor below the step.

In one aspect, the design made available by the present disclosure can provide a container having an outer length corresponding with the sizes and dimensions of a standard freight container. For example, the freight container can be formed as a 45 foot container, preferably as a so-called 45
5 ft. pallet wide container. A relevant norm for the standard container dimensions would for example be an ISO standard, such as ISO 668 (1995) or an equivalent standard. The present design allows for a cargo floor that is at least 2.4 meter wide and at least 13.2 meter long, such as to accommodate at least 33 Euro-pallets or EPAL-pallets on the floor (each
10 pallet typically has width x length = 80 cm x 120 cm). For example, 11 rows of 3 pallets (having their longitudinal direction extending in the longitudinal direction of the container/cargo floor) Alternatively, 1 row of 3 pallets (having their longitudinal direction extending in the longitudinal direction of the container/cargo floor) and 15 rows of 2 + 1 * 3 pallets having their
15 longitudinal direction extending in the width direction of the container/cargo floor). The container can be provided with first fitting blocks of which the mutual spacing corresponds to the mutual spacing of a 40 foot container and/or second fitting blocks or so-called corner fittings of which the mutual spacing corresponds to the mutual spacing of the outermost
20 placed fitting blocks of a 45 foot container.

To save further space, the air conditioning unit can be arranged at least partially above the fuel tank. For example, the fuel tank can be arranged flat against an outer hull of the container. Further space can be saved by integrating components. For example the generator can be
25 integrated as part of the air conditioning unit. Alternatively, or in addition to the generator, the container may comprise one or more batteries for feeding the air conditioning unit and/or starting the generator. Advantageously, the battery can be charged by the generator. To save further space, the fuel tank may comprises an L-shape, wherein the battery
30 is accommodated in a cavity formed by the L-shape.

The container may comprise a sensor, especially a temperature sensor, associated with the cargo space, and a controller for controlling the air conditioning system. For example, the controller is arranged for determining whether an air property sensed by the sensor needs to be altered by examining whether the sensed air property is below a predetermined bottom threshold value and/or above a predetermined top threshold value, and for controlling the air conditioning unit such as to alter the air property accordingly.

Another or further problem associated with containers for transporting temperature sensitive cargo is that the batteries of such containers can run low, especially when the containers are transported through relatively cold areas with a relatively cold outdoor temperature (e.g. when being transported overland, for instance by train, e.g. from Europe through Russia to China, or vice versa).

Accordingly, in another or further aspect, the present disclosure provides a freight container for transporting cargo, especially temperature sensitive cargo as described above, or otherwise. The container comprises a cargo space defining a cargo floor, and an air conditioning unit, preferably a cooling and/or heating unit, a battery for feeding the air conditioning unit, a generator, especially a diesel powered generator, for charging the battery at least partly, and a fuel tank for supplying the generator with fuel. The container further comprises a clock and a controller arranged for controlling the generator in order to charge the battery at least partly at a moment when a predetermined time interval has lapsed since the last time the battery is charged at least partly. Alternatively, or in addition, the container further comprises a voltage sensing device and a controller arranged for controlling the generator in order to charge the battery at least partly at a moment when is determined that the terminal voltage of the battery has dropped below a predetermined minimum voltage threshold value. Alternatively, or in addition, the container further comprises a

receiver and a controller arranged for controlling the generator in order to charge the battery at least partly based on a control signal received by said receiver.

5 By providing a wall separating the cargo space from a part of the air conditioning system located behind said wall, said wall can define a cavity for guiding air from the cargo space to the air conditioning unit or vice versa.

10 In a further aspect, the present disclosure provides a method for transporting cargo, especially temperature sensitive cargo, by means of a freight container. The method comprises providing a freight container, preferably a container as described herein. The container is provided with at least an air conditioning unit, preferably a cooling and/or heating unit. The container is further provided with a battery and a generator, especially a diesel powered generator. The method further comprises sensing an air
15 property of air inside the container, especially the temperature of air inside the container. The method further comprises determining whether said air property needs to be altered by examining whether the sensed air property is below a predetermined bottom threshold value and/or above a predetermined top threshold value. The method further comprises altering
20 said air property when the value of the sensed air property is below said predetermined bottom threshold value, such as to bring said air property above said predetermined bottom threshold value, or altering said air property when the sensed value of the air property is above said predetermined top threshold value, such as to bring said air property below
25 said predetermined top threshold value. The method further comprises at least partly charging the battery by means of the generator at a moment when there is no need to alter the air property of the air inside the container. This may be advantageous for keeping the battery charged also during periods when the air conditioning is not strictly necessary.

Otherwise, the battery may discharge which may also prevent the generator from starting.

In one embodiment, the step of charging the battery at a moment when there is no need to alter the air property of the air inside the container is initiated when a predetermined time interval has lapsed, e.g. when a
5 predetermined time interval has lapsed since the last time the battery is charged at least partly. In another or further embodiment, the step of charging the battery at a moment when there is no need to alter the air property of the air inside the container is initiated when it is determined
10 that the terminal voltage of the battery has dropped below a predetermined minimum voltage threshold value. In another or further embodiment, the freight container further is provided with a receiver, and wherein the step of charging the battery at a moment when there is no need to alter the air property of the air inside the container is initiated by means of a control
15 signal received by said receiver of the freight container. In one embodiment, the air conditioning unit is activated while the air property does not need to be altered based e.g. on temperature. Alternatively, or in addition, the battery can be at least partly charged by means of the generator at a moment when there is a need to alter the air property of the air inside the
20 container.

BRIEF DESCRIPTION OF DRAWINGS

These and other features, aspects, and advantages of the apparatus, systems and methods of the present disclosure will become
25 better understood from the following description, appended claims, and accompanying drawing wherein:

FIG 1 shows a schematic perspective bird's eye view of an embodiment of a container;

FIG 2 shows a cross-section side view of a front of another
30 embodiment of the container including placement of cargo;

FIG 3 shows a schematic perspective drawing of the front part of the embodiment;

FIG 4 shows a schematic front view of an embodiment of the embodiment;

5 FIG 5 shows a schematic side view of an embodiment of the embodiment;

FIG 6 shows a schematic top view of an embodiment of the embodiment;

10 FIG 7 shows a schematic perspective view of an embodiment of a fuel tank.

DESCRIPTION OF EMBODIMENTS

Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly
15 understood by one of ordinary skill in the art to which this invention belongs as read in the context of the description and drawings. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and will not be interpreted in an
20 idealized or overly formal sense unless expressly so defined herein. In some instances, detailed descriptions of well-known devices and methods may be omitted so as not to obscure the description of the present systems and methods. Terminology used for describing particular embodiments is not intended to be limiting of the invention. As used herein, the singular forms
25 "a", "an" and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. The term "and/or" includes any and all combinations of one or more of the associated listed items. It will be understood that the terms "comprises" and/or "comprising" specify the presence of stated features but do not preclude the presence or addition of
30 one or more other features. It will be further understood that when a

particular step of a method is referred to as subsequent to another step, it can directly follow said other step or one or more intermediate steps may be carried out before carrying out the particular step, unless specified otherwise. Likewise it will be understood that when a connection between structures or components is described, this connection may be established directly or through intermediate structures or components unless specified otherwise. All publications, patent applications, patents, and other references mentioned herein are incorporated by reference in their entirety. In case of conflict, the present specification, including definitions, will control.

The invention is described more fully hereinafter with reference to the accompanying drawings, in which embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. The description of the exemplary embodiments is intended to be read in connection with the accompanying drawings, which are to be considered part of the entire written description. In the drawings, the absolute and relative sizes of systems, components, layers, and regions may be exaggerated for clarity. Embodiments may be described with reference to schematic and/or cross-section illustrations of possibly idealized embodiments and intermediate structures of the invention. Relative terms as well as derivatives thereof should be construed to refer to the orientation as then described or as shown in the drawing under discussion. These relative terms are for convenience of description and do not require that the system be constructed or operated in a particular orientation unless stated otherwise.

In the description and drawings, like numbers refer to like elements throughout. In particular, the following reference numbers may

apply: 1 container front, 2 container ceiling, 3 cargo floor, 4 container bottom, 5 cargo, 6 corner pieces, 7 cooler, 8 container side, 9 battery, 10 solar panels, 11 cooler gate, 13 reinforced holes, 20 fuel tank, 21 remote control, 22 belt, 23 distribution sheet, 24 container body, 25 cargo space, 100 container.

FIG 1 shows a schematic perspective bird's eye view of an embodiment of a freight container 100. The container 100 is suitable for transporting cargo 5, especially temperature sensitive cargo. A freight container may also be referred to as an intermodal container, shipping container, e.g. a refrigerated container or a so-called reefer.

According to the embodiment shown, the container 100 comprises a container body 24 enclosing a cargo space 25 for storing the cargo 5. The container further comprises an air conditioning unit 7 arranged for controlling a temperature and/or humidity in the cargo space 25. At least part the air conditioning unit 7 is suspended above a cargo floor 3 of the cargo space 25 for allowing cargo to be placed on the cargo floor 3 below the said part of the air conditioning system 30. In another or further embodiment, the container 100 comprises a generator (not shown) for powering the air conditioning unit 7. For example, the generator may be external, or integrated into the air conditioning unit 7. The generator may be coupled to a fuel tank (not shown here) for supplying the generator 33 with fuel, typically diesel. Alternatively, or in addition, the generator may be powered by other means, e.g. electricity

In one embodiment, at least the outer length of the container corresponds with the sizes and dimensions of a standard freight container, especially a 45 foot container. In another or further embodiment, the container is formed as a 45 foot container, preferably as a so-called 45 ft. pallet wide container. In one embodiment, the cargo floor 3 is at least 2.4

meter wide and at least 13.2 meter long, such as to accommodate at least 33 Euro-pallets, e.g. stored in the manner shown in FIG 1.

For example, in case the part of the air conditioning system 7 located above the cargo floor 3 is extending above the cargo floor for at most about 0.8 meter, it can be advantageous to place the first Euro-pallets with their longitudinal direction (e.g. two times 120 cm) extending in the width direction of the container (240 cm), such that only the loading height of two pallets (instead of that of three pallets) is restricted by said part of the air conditioning system located above the cargo floor.

In one embodiment (not shown here), the container is provided with first fitting blocks of which the mutual spacing corresponds to the mutual spacing of a 40 foot container and/or second fitting blocks or so-called corner fittings of which the mutual spacing corresponds to the mutual spacing of the outermost placed fitting blocks of a 45 foot container.

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FIG 2 shows a cross-section side view of a front of another embodiment of the container 100 including cargo 5 placed inside the cargo space 25.

In one embodiment, e.g. as shown, the air conditioning unit 7 is arranged at or near a front side 1 of the container 100. This may be opposite a back side provided with one or more doors (not shown). In another or further embodiment, at least a part of the air conditioning system is provided against or near a top side 2 of the container 100.

In one embodiment, e.g. as shown, the container body 24 comprises a cavity 17 protruding inward into the container. In another or further embodiment at least part of the air conditioning unit 7 is sticking out from the container body 24 and accommodated in the cavity 17. For example, a condenser part 7a of the air conditioning unit 7 may stick outside the container body 24 while an evaporator part 7b sticks inside the container body 24, in particular into the cargo space 25. In another or

further embodiment, e.g. as shown, the cavity 17 is formed by an inward step of the container body 24 on the upper front side 1,2 of the container 100. In another or further embodiment, e.g. as shown, the cargo floor 3 extends below the step for allowing cargo 5 to be placed on the cargo floor 3
5 below the step.

In one embodiment, a sheet or sail 23 is provide at an outlet of the air conditioning unit 7 in the cargo space 25. By arranging the sheet 23, as shown suspended at the top side 2 of the container 100, the cool air from the air conditioning unit 7 may be distributed over the cargo space 25.

10 In one embodiment, e.g. as shown, the air conditioning unit 7 is arranged at least partially above the fuel tank 20. For example, in the embodiment shown, part of the condenser 7a is above the fuel tank 20. In another or further embodiment, e.g. as shown, the fuel tank 20 is arranged flat against an outer hull of the container. By providing a relatively flat fuel
15 tank, cargo space 25 inside the container body 24 may be further increased.

In one embodiment, the container and/or air conditioning unit 7 comprises a sensor (not shown), e.g. a temperature sensor. The sensor may be associated with the cargo space. In another or further embodiment a controller is provided for controlling the air conditioning system. For
20 example, the controller is arranged for determining whether an air property sensed by the sensor needs to be altered by examining whether the sensed air property is below a predetermined bottom threshold value and/or above a predetermined top threshold value. The controller may be arranged for controlling the air conditioning unit such as to alter the air property
25 accordingly.

In one embodiment, the container 100 comprises a separation wall being located at a distal end of the cargo floor and separating the cargo space at least partly from a second part of the air conditioning system located behind said wall. In the embodiment, the said wall defines a cavity

for guiding air from the cargo space to the air conditioning unit or vice versa.

FIG 3 shows a schematic perspective drawing of the front part of the embodiment, e.g. similar to FIG 2. In one embodiment, e.g. as shown, 5 the container 100 comprises a battery 9 for feeding the air conditioning unit, the container 100 comprises a battery 9 for feeding the air conditioning unit, a generator (not specifically indicated), especially a diesel powered generator, for charging the battery at least partly, and a fuel tank 20 for supplying the generator with fuel. In one embodiment, e.g. as shown, the 10 container 100 comprises a battery 9 for feeding the air conditioning unit 7 and/or starting the generator. In one embodiment, the battery is arranged to be charged by the generator.

In one embodiment, e.g. as shown, the fuel tank 20 comprises an L-shape, wherein the battery 9 is accommodate in a cavity formed by the L- 15 shape. This, in combination with the suspended air conditioning unit 7, may provide a maximum capacity to the fuel tank 20 while allowing the placement of a battery 9, and without sacrificing cargo space.

In one embodiment, the container 100 as described herein, or otherwise, comprises a clock and a controller arranged for controlling the 20 generator in order to charge the battery 9 at least partly at a moment when a predetermined time interval has lapsed since the last time the battery is charged at least partly. Alternatively, or in addition, the container 100 comprises a voltage sensing device and a controller arranged for controlling the generator in order to charge the battery at least partly at a moment 25 when is determined that the terminal voltage of the battery has dropped below a predetermined minimum voltage threshold value. Alternatively, or in addition, the container further comprises a receiver 21 and a controller arranged for controlling the generator in order to charge the battery at least partly based on a control signal received by said receiver.

In another or further aspect of the disclosure, the figure may illustrate a method for transporting cargo, especially temperature sensitive cargo, by means of a freight container. In one embodiment, the method comprises providing a freight container, preferably a container 100 as
5 described herein, said container being provided with at least an air conditioning unit 7, preferably a cooling and/or heating unit, a battery 9, and a generator, especially a diesel powered generator. In another or further embodiment, the method comprises sensing an air property of air inside the container, especially the temperature of air inside the container. In another
10 or further embodiment, the method comprises determining whether said air property needs to be altered by examining whether the sensed air property is below a predetermined bottom threshold value and/or above a predetermined top threshold value. In another or further embodiment, the method comprises altering said air property when the value of the sensed
15 air property is below said predetermined bottom threshold value, such as to bring said air property above said predetermined bottom threshold value, or altering said air property when the sensed value of the air property is above said predetermined top threshold value, such as to bring said air property below said predetermined top threshold value. In another or further
20 embodiment, the method comprises at least partly charging the battery 9 by means of the generator at a moment when there is no need to alter the air property of the air inside 25 the container.

In one embodiment, the step of charging the battery 9 at a moment when there is no need to alter the air property of the air inside 25
25 the container is initiated when a predetermined time interval has lapsed, e.g. when a predetermined time interval has lapsed since the last time the battery 9 is charged at least partly.

In one embodiment, the step of charging the battery 9 at a moment when there is no need to alter the air property of the air inside the
30 container 100 is initiated when it is determined that the terminal voltage of

the battery has dropped below a predetermined minimum voltage threshold value.

In one embodiment, the freight container 100 is provided with a receiver 21, e.g. on a top side 2 of the container as shown in FIG 6. For
5 example the step of charging the battery 9 at a moment when there is no need to alter the air property of the air inside the container can be initiated by means of a control signal received by said receiver of the freight container.

In one embodiment, the method comprises the step of altering the
10 air property of the air inside the container while the battery is charged at the moment when the air property does not need to be altered.

In one embodiment, the method comprises the step of at least partly charging the battery by means of the generator at a moment when there is a need to alter the air property of the air inside the container.

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FIG 4 shows a schematic front view of an embodiment of the embodiment, e.g. similar to FIG 2 and 3. In the embodiment shown, the container 100 comprises on the front side 1, an air conditioning unit 7, a fuel tank 20, and a battery 9. The fuel tank 20 may be held fixed by belts 22.

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FIG 5 shows a schematic view of the side 8 of an embodiment of the container 100, e.g. similar to FIGs 2-4. As visible in this view, the container 100 comprises an air conditioning unit 7 at or near the ceiling 2 of the container. The fuel tank 20 is arranged at the front side. As shown, the
25 fuel tank 20 may be protected by extended corners 6. Also shown in this figure is the floor 3 at the bottom 4 of the container.

FIG 6 shows a schematic view of the top 2 of the embodiment, e.g. similar to FIGs 2-5. The top view shows for example a roster 11, which may
30 function as an outlet for the air conditioning unit (not visible here). Also

shown on the top side is an optional transceiver 21, which may be used for receiving instructions and/or sending a status/location of the container or air conditioning unit. Finally, the top view shows an optional solar panel 10, which may be used to power equipment in the container. For example, the solar panel 10 may be used to charge the battery (not shown here).

FIG 7 shows a schematic perspective view of an embodiment of a fuel tank 20, e.g. as used in FIGs 2-6. The L-shape of the tank 20 may be advantageous to accommodate equipment, e.g. a battery. In the embodiment shown, the fuel tank 20 comprises a number of holes or tubes extending into the fuel tank. These may be advantageous e.g. to prevent or diminish slushing of the fuel inside the tank.

For the purpose of clarity and a concise description, features are described herein as part of the same or separate embodiments, however, it will be appreciated that the scope of the invention may include embodiments having combinations of all or some of the features described. Alternative, or in addition to providing a cooling function, the air conditioning unit may also provide heating when necessary. Alternatively, or in addition, the air conditioning unit may also provide other environmental control, e.g. humidity control. For example, while embodiments were shown for a specifically arranged air conditioning unit, also alternative ways may be envisaged by those skilled in the art having the benefit of the present disclosure for achieving a similar or equivalent function and result.

E.g. components such as the air conditioning unit, generator, battery, and/or fuel tank may be combined or split up into one or more alternative components. The various elements of the embodiments as discussed and shown offer certain advantages, such providing an air conditioned cargo space having maximizes capacity. Of course, it is to be

appreciated that any one of the above embodiments or processes may be combined with one or more other embodiments or processes to provide even further improvements in finding and matching designs and advantages. It is appreciated that this disclosure offers particular advantages to transport of temperature sensitive cargo, and in general can be applied for any application wherein a maximum storage capacity for a climate controlled cargo container is desired.

While the present systems and methods have been described in particular detail with reference to specific exemplary embodiments thereof, it should also be appreciated that numerous modifications and alternative embodiments may be devised by those having ordinary skill in the art without departing from the scope of the present disclosure. For example, embodiments wherein devices or systems are disclosed to be arranged and/or constructed for performing a specified method or function inherently disclose the method or function as such and/or in combination with other disclosed embodiments of methods or systems. Furthermore, embodiments of methods are considered to inherently disclose their implementation in respective hardware, where possible, in combination with other disclosed embodiments of methods or systems. Furthermore, methods that can be embodied as program instructions, e.g. on a non-transient computer-readable storage medium, are considered inherently disclosed as such embodiment.

Finally, the above-discussion is intended to be merely illustrative of the present systems and/or methods and should not be construed as limiting the appended claims to any particular embodiment or group of embodiments. The specification and drawings are accordingly to be regarded in an illustrative manner and are not intended to limit the scope of the appended claims. In interpreting the appended claims, it should be understood that the word "comprising" does not exclude the presence of other elements or acts than those listed in a given claim; the word "a" or

"an" preceding an element does not exclude the presence of a plurality of such elements; any reference signs in the claims do not limit their scope; several "means" may be represented by the same or different item(s) or implemented structure or function; any of the disclosed devices or portions thereof may be combined together or separated into further portions unless 5 specifically stated otherwise. The mere fact that certain measures are recited in mutually different claims does not indicate that a combination of these measures cannot be used to advantage. In particular, all working combinations of the claims are considered inherently disclosed.

Conclusies

1. Vrachtcontainer (100) voor het transporteren van goederen (5), in het bijzonder temperatuurgevoelige lading, waarbij de container (100) omvat:
 - een containerlichaam (24) dat een laadruimte (25) voor het opslaan van de lading (5) bevat;
 - 5 - een airco-eenheid (7) die is ingericht voor het regelen van een temperatuur en/of vochtigheid in de laadruimte (25);
 - een generator voor het voeden van de airco-eenheid (7); en
 - een brandstoftank (20) voor het de generator (33) verschaffen van brandstof, in het bijzonder diesel;
 - 10 - waarbij ten minste een deel van de airco-eenheid (7) boven een laadvloer (3) van de laadruimte (25) is geplaatst teneinde het toe te staan lading op de laadvloer (3) te plaatsen onder het genoemde deel van het airco-systeem (7).
2. Vrachtcontainer volgens conclusie 1, waarbij de airco-eenheid (7) is
15 aangebracht aan of nabij een voorzijde (1) van de container (100) die zich tegenover een achterzijde bevindt die is voorzien van een of meer deuren.
3. Vrachtcontainer volgens conclusie 1 of 2, waarbij een buitenzijde van het containerlichaam (24) een holte (17) omvat die zich binnenwaarts de container in uitstrekt, waarbij ten minste een deel van de airco-eenheid (7)
20 uit het containerlichaam (24) steekt en in de holte (17) is gehuisvest.
4. Vrachtcontainer volgens conclusie 3, waarbij de holte (17) gevormd is door een naar binnen tredende stap van het containerlichaam (24) aan de bovenste voorzijde (1, 2) van de container (100).
5. Vrachtcontainer volgens conclusie 4, waarbij de laadvloer (3) zich
25 uitstrekt onder de stap voor het toestaan lading (5) op de laadvloer (3) onder de stap te plaatsen.

6. Vrachtcontainer volgens een der voorgaande conclusies, waarbij de airco-eenheid (7) ten minste gedeeltelijk boven de brandstoftank (20) is aangebracht.
7. Vrachtcontainer volgens een der voorgaande conclusies, waarbij de
5 brandstoftank (20) vlak is aangebracht tegen een buitenromp van de container.
8. Vrachtcontainer volgens een der voorgaande conclusies, waarbij de generator deel is van de airco-eenheid (7).
9. Vrachtcontainer volgens een der voorgaande conclusies, omvattende
10 een accu (9) voor het voeden van de airco-eenheid (7) en/of het starten van de generator, waarbij de accu is ingericht om te worden opgeladen door de generator.
10. Vrachtcontainer volgens conclusie 8, waarbij de brandstoftank (20)
15 een L-vorm omvat, waarbij de accu (9) is gehuisvest in een holte gevormd door de L-vorm.
11. Vrachtcontainer volgens een der voorgaande conclusies, waarbij genoemde ten minste ene deel van de airco-eenheid is voorzien tegen een bovenzijde (2) van de container.
12. Vrachtcontainer volgens een der voorgaande conclusies, waarbij ten
20 minste de buitenlengte van de container overeenkomt met de maten en afmetingen van een standaard vrachtcontainer, in het bijzonder een 45-voet container.
13. Vrachtcontainer volgens een der voorgaande conclusies, waarbij de
25 container is gevormd als een 45-voet container, bij voorkeur als een zogenaamde 45-voet "pallet wide container".
14. Vrachtcontainer volgens een der voorgaande conclusies, waarbij de laadvloer (3) ten minste 2,4 meter breed is en tenminste 13,2 meter lang is, om zodanig ten minste 33 europallets te kunnen huisvesten.

15. Vrachtcontainer volgens een der voorgaande conclusies, waarbij de container is voorzien van eerste montageblokken waarvan de onderlinge afstand overeenkomt met de onderlinge afstand van 40-voet container en/of tweede montageblokken of zogenaamde hoekstukken waarvan de onderlinge
5 afstand overeenkomt met de onderlinge afstand van de meest naar buiten geplaatste montageblokken van een 45-voet container.

16. Vrachtcontainer volgens een der voorgaande conclusies, voorts omvattende een sensor, in het bijzonder een temperatuursensor, die met de laadruimte is geassocieerd, en een besturing voor het besturen van het
10 airco-systeem, waarbij genoemde besturing is ingericht voor het bepalen of een door de sensor waargenomen luchteigenschap behoeft te worden aangepast door te onderzoeken of de waargenomen luchteigenschap zich onder een vooraf bepaalde onderste drempelwaarde en/of boven een vooraf bepaalde bovenste drempelwaarde bevindt, en voor het besturen van de
15 airco-eenheid teneinde de luchteigenschap dienovereenkomstig aan te passen.

17. Vrachtcontainer, in het bijzonder een container volgens een der voorgaande conclusies, voor het transporteren van lading, in het bijzonder temperatuurgevoelige lading, omvattende een laadruimte (25) die een
20 laadvloer (3) definieert, en een airco-eenheid (7), bij voorkeur een koel- en/of verwarmeenheid, een accu (9) voor het voeden van de airco-eenheid, een generator, in het bijzonder een diesel-aangedreven generator, voor het tenminste gedeeltelijk opladen van de accu, en een brandstoftank (20) voor het de generator van brandstof verschaffen, waarbij de container (100)
25 voorts een klok omvat en een besturing die is ingericht voor het besturen van de generator teneinde de accu (9) ten minste gedeeltelijk op te laden op een moment dat een vooraf bepaalde tijdsperiode is verstreken sinds de laatste keer dat de accu ten minste gedeeltelijk is opgeladen, en/of waarbij

de container (100) voorts een voltagesensor omvat en een besturing die is ingericht voor het besturen van de generator teneinde de accu ten minste gedeeltelijk op te laden op een moment wanneer is bepaald dat de klemspanning van de accu is gedaald tot onder een vooraf bepaalde

5 minimale spanningsdrempelwaarde, en/of waarbij de container voorts een ontvanger (21) omvat en een besturing die is ingericht voor het besturen van de generator teneinde de accu ten minste gedeeltelijk op basis van een door genoemde ontvanger ontvangen besturingssignaal.

18. Vrachtcontainer volgens een der voorgaande conclusies, voorts

10 omvattende een scheidingswand die zich aan een distaal uiteinde van de laadvloer bevindt en die de laadruimte ten minste gedeeltelijk afscheidt van een tweede deel van het airco-systeem dat zich achter de wand bevindt, waarbij genoemde wand een holte definieert voor het geleiden van lucht vanuit de laadruimte naar de airco-eenheid of vice versa.

15 19. Werkwijze voor het transporteren van lading, in het bijzonder temperatuurgevoelige lading, met behulp van een vrachtcontainer, waarbij de werkwijze omvat:

- het verschaffen van een vrachtcontainer, bij voorkeur een container (100) volgens een der voorgaande conclusies, waarbij de container is

20 voorzien van ten minste een airco-eenheid (7), bij voorkeur een koel- en/of verwarmeenheid, een accu (9), en een generator, in het bijzonder een diesel-aamgedreven generator;

- het waarnemen van een luchteigenschap van lucht in de container, in het bijzonder de temperatuur van lucht in de container;

25 - het bepalen of de luchteigenschap behoeft te worden aangepast door te onderzoeken of de waargenomen luchteigenschap zich onder een bepaalde onderste drempelwaarde bevindt en/of boven een vooraf bepaalde bovenste drempelwaarde;

- het veranderen van genoemde luchteigenschap wanneer de waarde van de waargenomen luchteigenschap zich onder de vooraf bepaalde onderste drempelwaarde bevindt, om zodanig genoemde luchteigenschap boven de vooraf bepaalde onderste drempelwaarde te brengen, of het
5 veranderen van genoemde luchteigenschap wanneer de waargenomen waarde van de luchteigenschap zich boven de vooraf bepaalde bovenste drempelwaarde bevindt, om zodanig genoemde luchteigenschap onder genoemde vooraf bepaalde bovenste drempelwaarde te brengen;

- het ten minste gedeeltelijk opladen van de accu (9) met behulp van
10 de generator op een moment dat er geen behoefte is om de luchteigenschap van de lucht in de container te veranderen.

20. Werkwijze volgens conclusie 19, waarbij de stap van het opladen van de accu (9) op een moment dat er geen behoefte aan is de luchteigenschap van de lucht in (25) de container te veranderen wordt geïnitieerd wanneer
15 een vooraf bepaalde tijdsperiode is verstreken, bijvoorbeeld wanneer een vooraf bepaalde tijdsperiode is verstreken sinds de laatste keer dat de accu (9) ten minste gedeeltelijk werd opgeladen.

21. Werkwijze volgens conclusie 19 of 20, waarbij de stap van het opladen van de accu (9) op een moment dat er geen behoefte aan is de
20 luchteigenschap van de lucht in de container (100) te veranderen wordt geïnitieerd wanneer is vastgesteld dat de klemspanning van de accu onder een vooraf bepaalde minimale spanningsdrempelwaarde is gedaald.

22. Werkwijze volgens een der conclusies 19-21, waarbij de vrachtcontainer voorts voorzien van een ontvanger (21), en waarbij de stap
25 van het opladen van de accu (9) op een moment dat er geen behoefte aan is om de luchteigenschap van de lucht in de container te veranderen wordt geïnitieerd met behulp van een besturingssignaal dat door genoemde ontvanger van de vrachtcontainer is ontvangen.

23. Werkwijze volgens een der conclusies 19-22, voorts omvattende de stap van het veranderen van de luchteigenschap van de lucht in de container terwijl de accu wordt opgeladen op het moment dat de luchteigenschap niet veranderd hoeft te worden.
- 5 24. Werkwijze volgens een der conclusies 19-23, voorts omvattende de stap van het ten minste gedeeltelijk opladen van de accu met behulp van de generator op een moment dat er een behoefte aan is de luchteigenschap van de lucht in de container te veranderen.

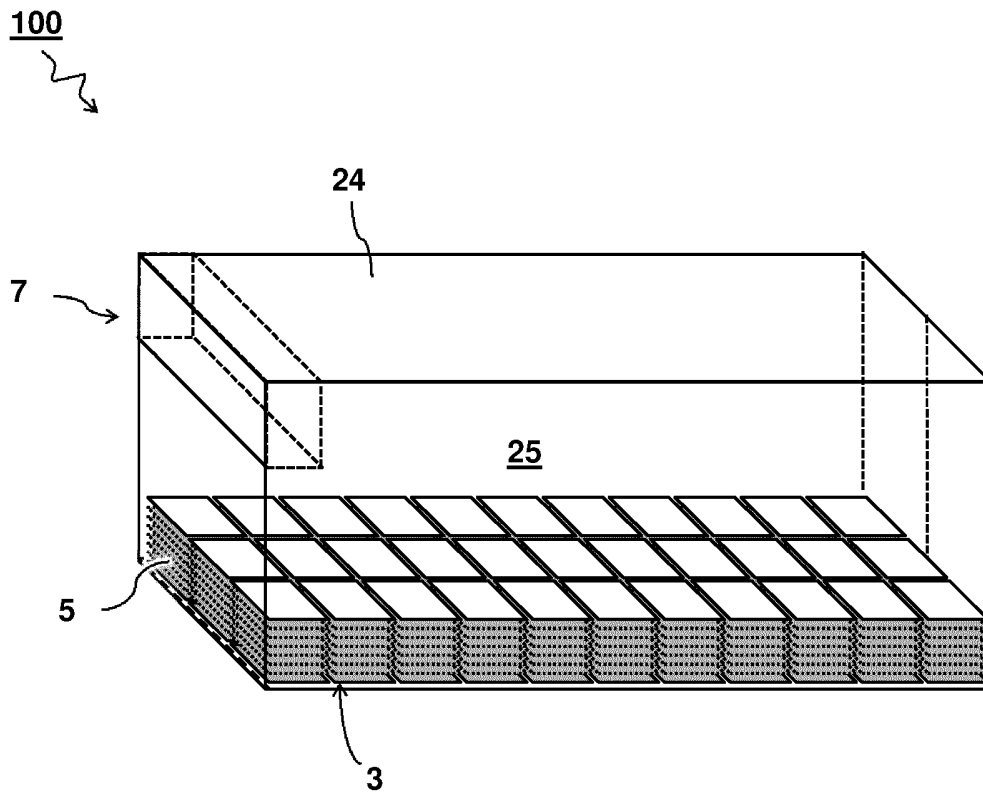


FIG 1

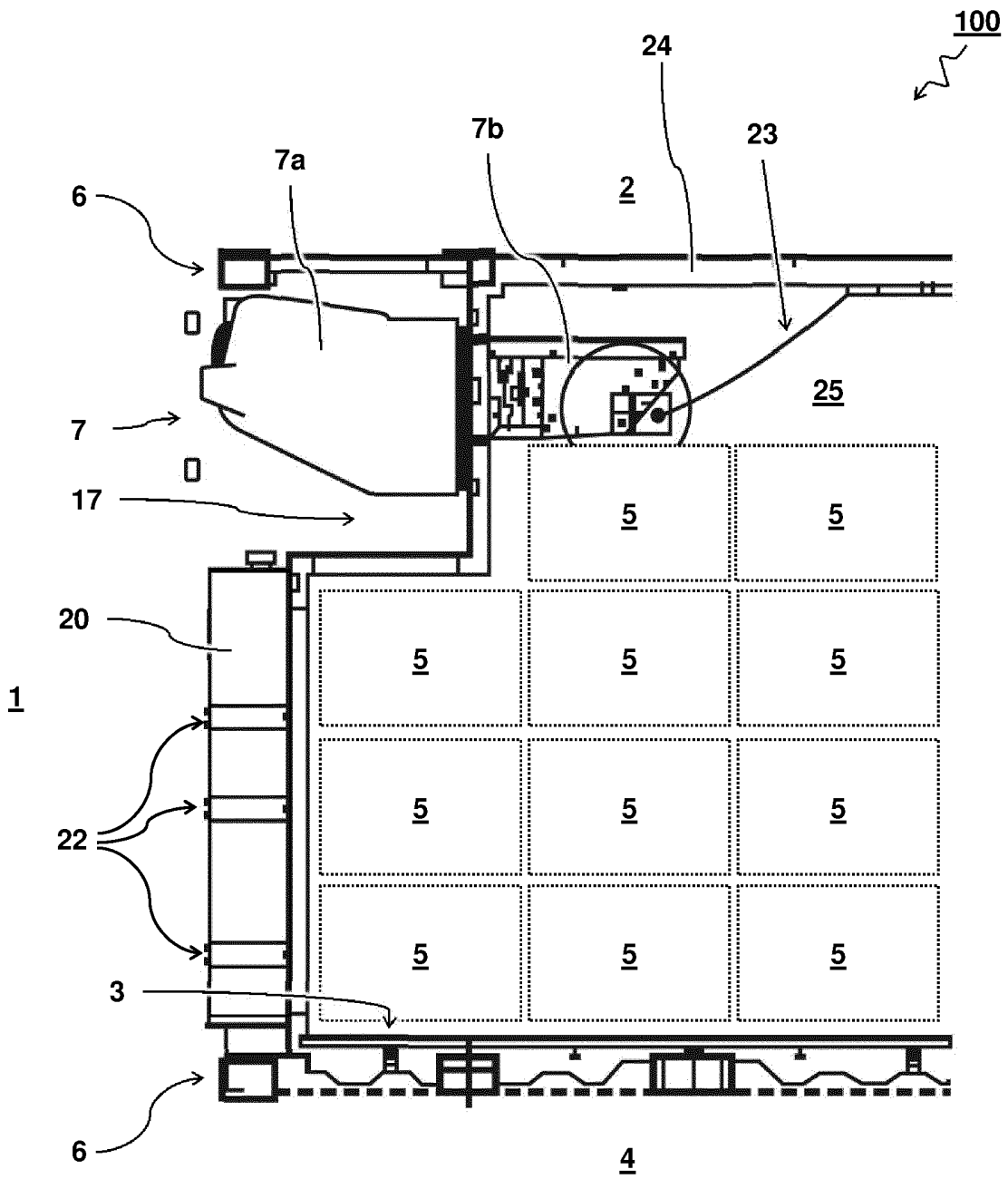


FIG 2

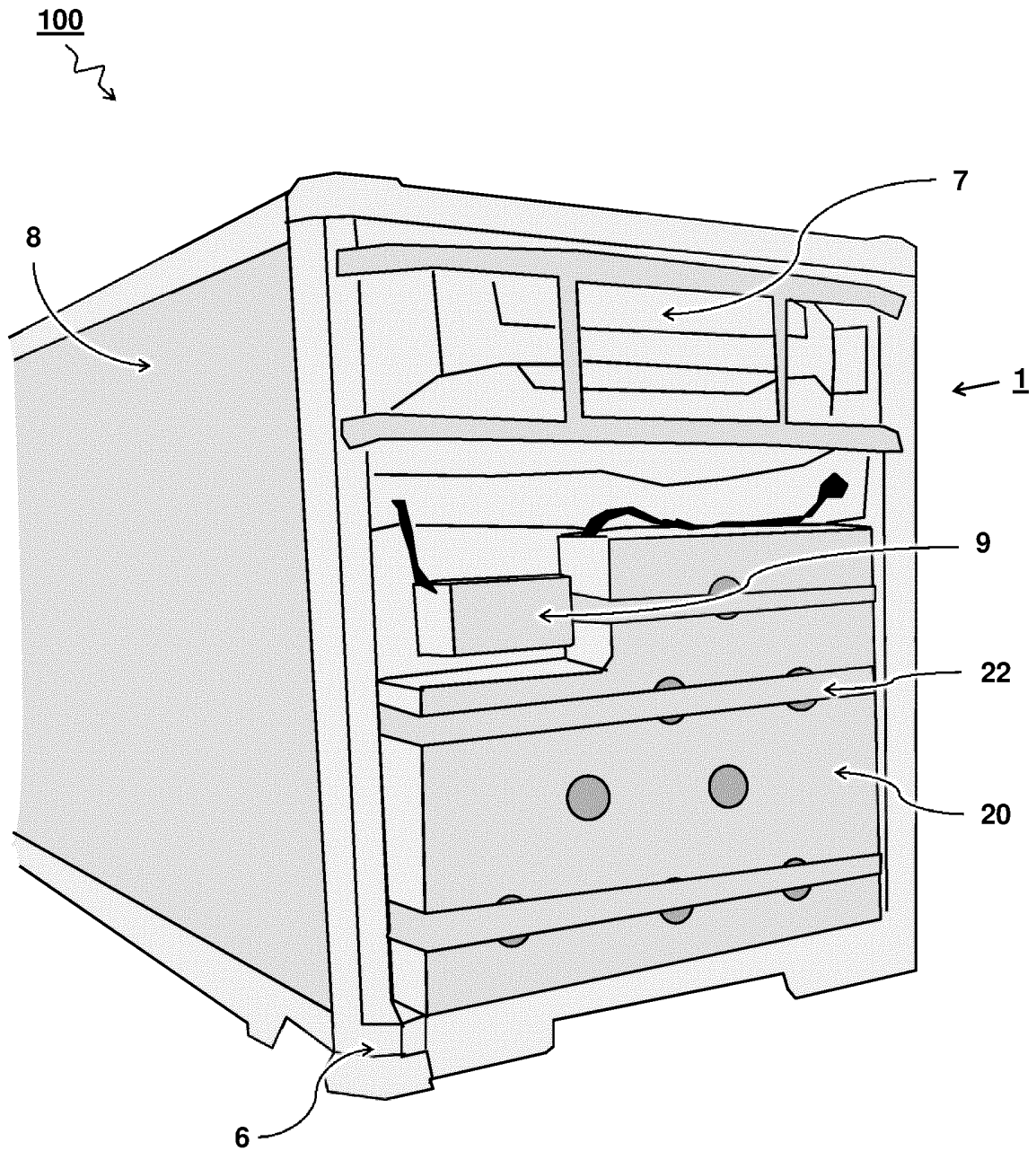


FIG 3

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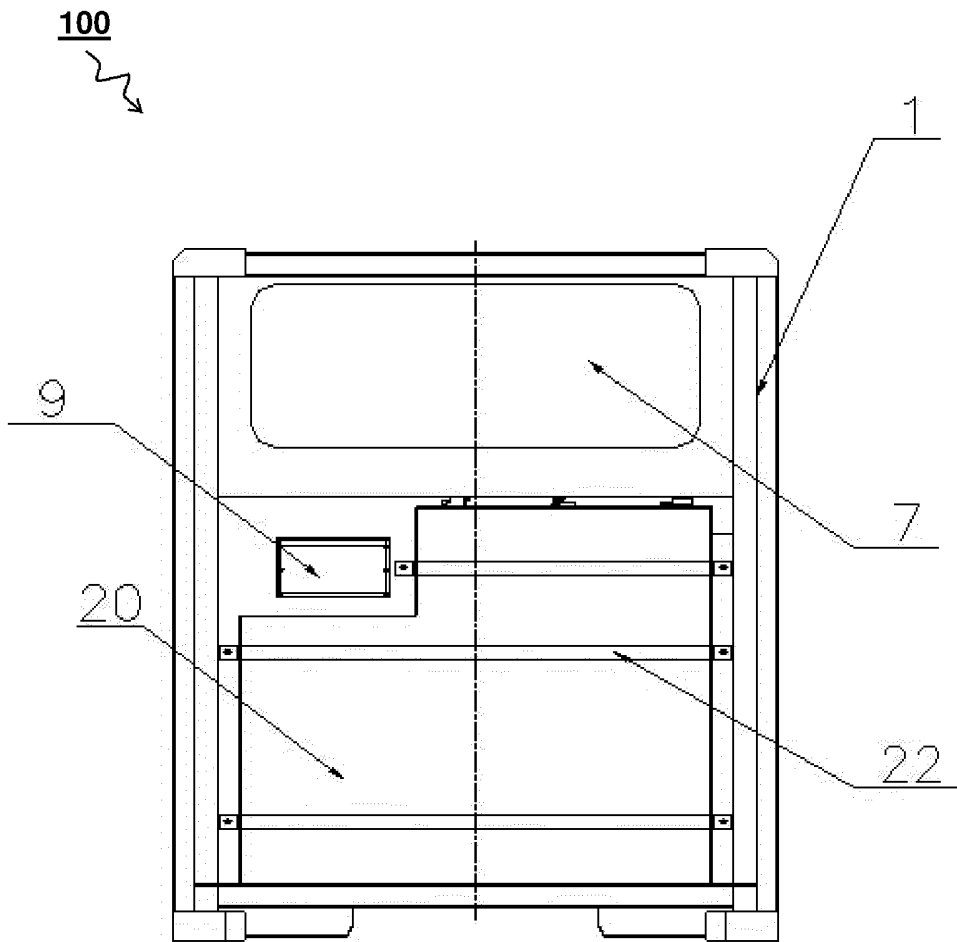


FIG 4

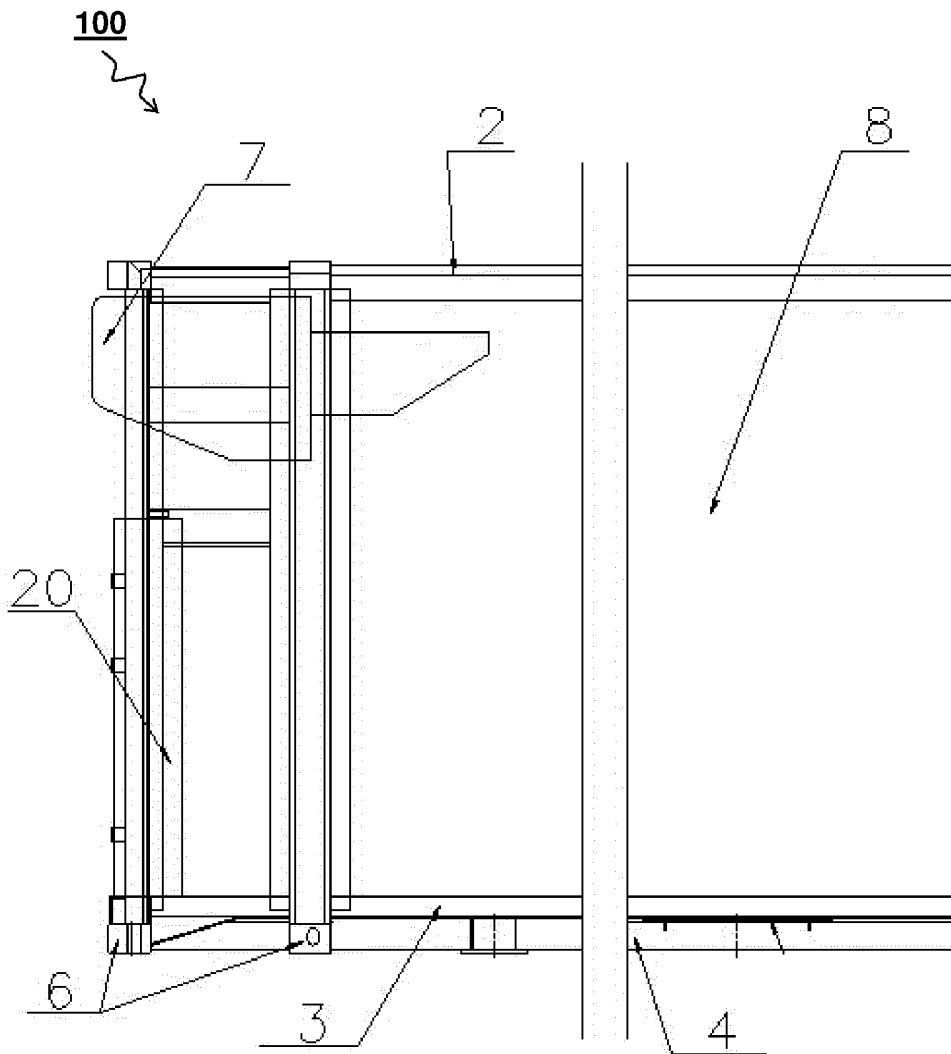


FIG 5

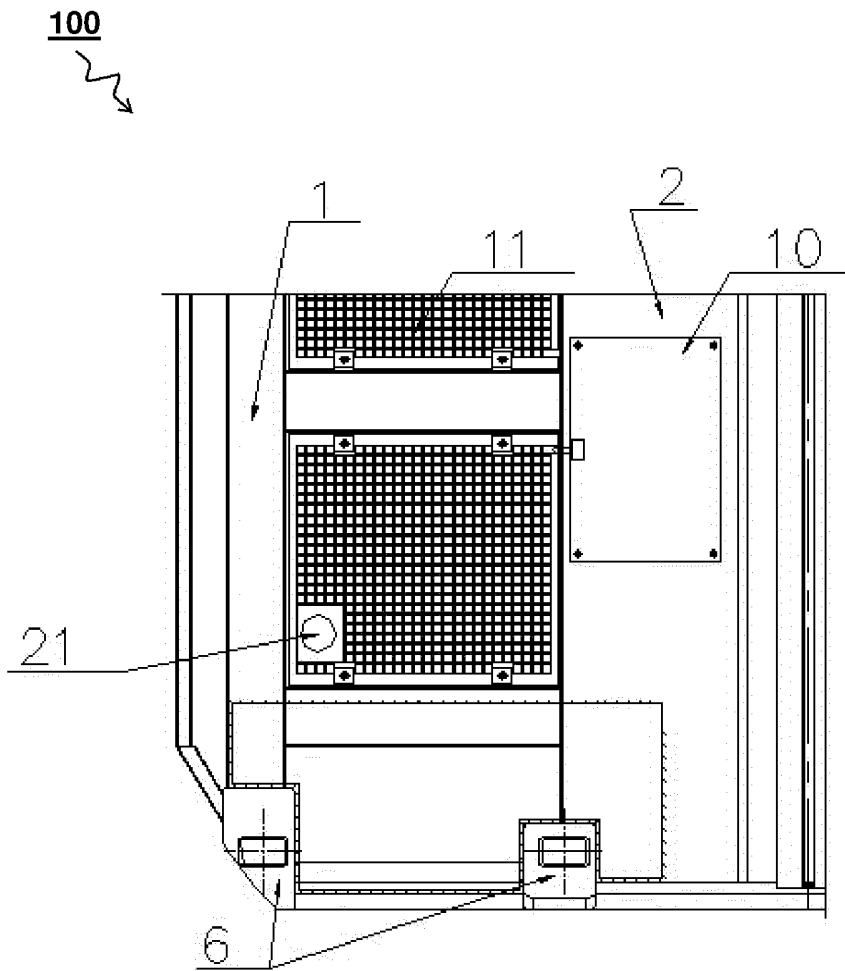


FIG 6

7/7

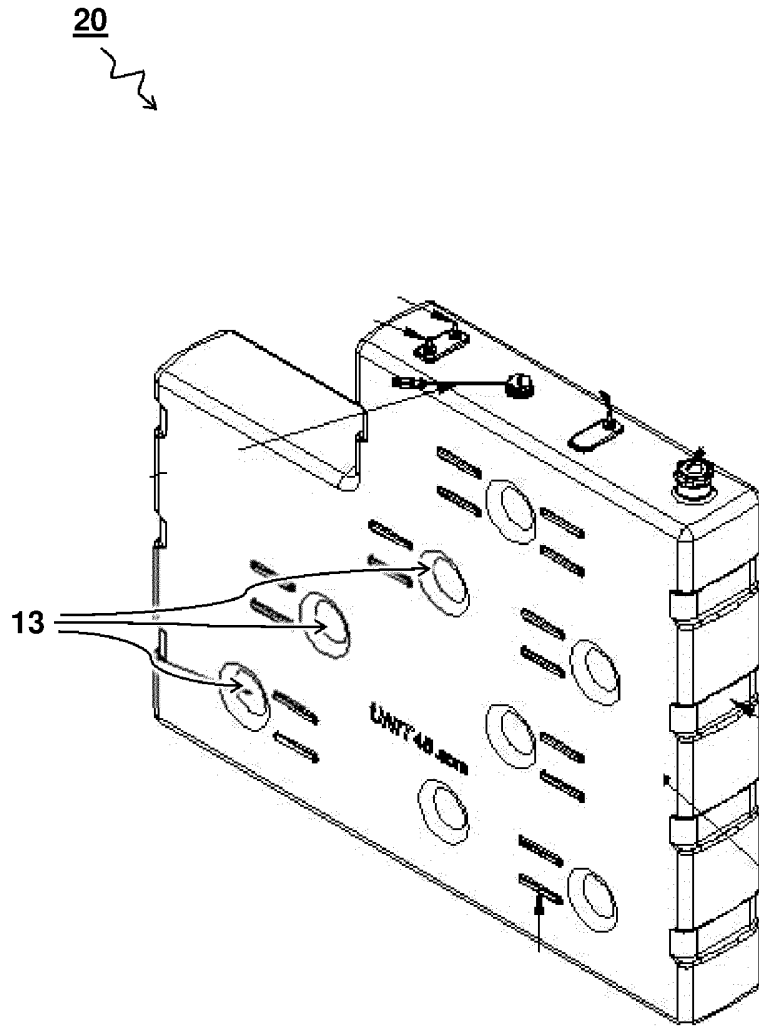


FIG 7

SAMENWERKINGSVERDRAG (PCT)

RAPPORT BETREFFENDE NIEUWHEIDSONDERZOEK VAN INTERNATIONAAL TYPE

IDENTIFICATIE VAN DE NATIONALE AANVRAGE	KENMERK VAN DE AANVRAGER OF VAN DE GEMACHTIGDE	
	P105017NL00	
Nederlands aanvraag nr.	Indieningsdatum	
2012992	12-06-2014	
	Ingeroepen voorrangsdatum	
Aanvrager (Naam)		
Unit45 B.V., et al		
Datum van het verzoek voor een onderzoek van internationaal type	Door de Instantie voor Internationaal Onderzoek aan het verzoek voor een onderzoek van internationaal type toegekend nr.	
01-11-2014	SN 63001	
I. CLASSIFICATIE VAN HET ONDERWERP (bij toepassing van verschillende classificaties, alle classificatiesymbolen opgeven)		
Volgens de internationale classificatie (IPC)		
B65D88/74		
II. ONDERZOCHE GEBIEDEN VAN DE TECHNIEK		
Onderzochte minimumdocumentatie		
Classificatiesysteem	Classificatiesymbolen	
IPC	B65D	F25D
Onderzochte andere documentatie dan de minimum documentatie, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen		
III.	<input type="checkbox"/>	GEEN ONDERZOEK MOGELIJK VOOR BEPAALDE CONCLUSIES (opmerkingen op aanvullingsblad)
IV.	<input checked="" type="checkbox"/>	GEBREK AAN EENHEID VAN UITVINDING (opmerkingen op aanvullingsblad)

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Nummer van het verzoek om een onderzoek naar
de stand van de techniek
NL 2012992

A. CLASSIFICATIE VAN HET ONDERWERP
INV. B65D88/74
ADD.

Volgens de Internationale Classificatie van octrooien (IPC) of zowel volgens de nationale classificatie als volgens de IPC.

B. ONDERZOCHETE GEBIEDEN VAN DE TECHNIEK

Onderzochte minimum documentatie (classificatie gevolgd door classificatiesymbolen)
B65D F25D

Onderzochte andere documentatie dan de minimum documentatie, voor dergelijke documenten, voor zover dergelijke documenten in de onderzochte gebieden zijn opgenomen

Tijdens het onderzoek geraadpleegde elektronische gegevensbestanden (naam van de gegevensbestanden en, waar uitvoerbaar, gebruikte trefwoorden)
EPO-Internal, WPI Data

C. VAN BELANG GEACHTE DOCUMENTEN

Categorie °	Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages	Van belang voor conclusie nr.
X	EENHEID VAN UITVINDING ONTBREEKT zie aanvullingsblad B ----- DE 10 2011 105475 A1 (MAN TRUCK & BUS AG [DE]) 27 december 2012 (2012-12-27)	1-5,8,9, 11,12, 16,18
Y	* het gehele document *	1,7,9, 12-15
A		6,10
X	----- US 2 635 432 A (KLEIST HERMAN W) 21 april 1953 (1953-04-21)	1-5,8,9, 11,16,18
A	* het gehele document *	6,10
	----- -/--	

Verdere documenten worden vermeld in het vervolg van vak C.

Leden van dezelfde octrooifamilie zijn vermeld in een bijlage

° Speciale categorieën van aangehaalde documenten

A niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft

D in de octrooiaanvraag vermeld

E eerdere octrooi(aanvraag), gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven

L om andere redenen vermelde literatuur

O niet-schriftelijke stand van de techniek

P tussen de voorrangsdatum en de indieningsdatum gepubliceerde literatuur

T na de indieningsdatum of de voorrangsdatum gepubliceerde literatuur die niet bezwarend is voor de octrooiaanvraag, maar wordt vermeld ter verheldering van de theorie of het principe dat ten grondslag ligt aan de uitvinding

X de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur

Y de conclusie wordt als niet inventief beschouwd ten opzichte van de combinatie van deze literatuur met andere geciteerde literatuur van dezelfde categorie, waarbij de combinatie voor de vakman voor de hand liggend wordt geacht

Z lid van dezelfde octrooifamilie of overeenkomstige octrooipublicatie

Datum waarop het onderzoek naar de stand van de techniek van internationaal type werd voltooid

10 februari 2015

Verzenddatum van het rapport van het onderzoek naar de stand van de techniek van internationaal type

Naam en adres van de instantie

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

De bevoegde ambtenaar

Leijten, René

**ONDERZOEKSRAPPORT BETREFFENDE HET
 RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
 VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Nummer van het verzoek om een onderzoek naar
 de stand van de techniek
NL 2012992

C.(Vervolg). VAN BELANG GEACHTE DOCUMENTEN		
Categorie °	Geciteerde documenten, eventueel met aanduiding van speciaal van belang zijnde passages	Van belang voor conclusie nr.
Y A	WO 92/20542 A1 (REEFCO MFG CORP [US]) 26 november 1992 (1992-11-26) * bladzijde 2, regels 20-22 * * bladzijde 6, regel 15 - bladzijde 7, regel 30; figuur 1 * -----	1,7,9, 12-15 6,10
A	WO 2012/045132 A1 (GONCALVES DOS ANJOS NILSON [BR]) 12 april 2012 (2012-04-12) * samenvatting; figuren 1-4 * -----	1
A	WO 97/27128 A1 (FRIGOTAINER AB [SE]; LARSSON NILS [SE]; WESTERHOLM GOERAN [SE]) 31 juli 1997 (1997-07-31) * het gehele document * -----	1

GEBREK AAN EENHEID VAN UITVINDING

Octrooiaanvraag Nr.:

SN 63001
NL 2012992

AANVULLINGSBLAD B

De Instantie belast met het uitvoeren van het onderzoek naar de stand van de techniek heeft vastgesteld dat deze aanvraag meerdere uitvindingen bevat, te weten:

1. conclusies: 1-16(compleet); 18(gedeeltelijk)

Freight container having a container body, an air conditioning system, a generator and a fuel tank, wherein a part of the air conditioning system is placed above a cargo floor for allowing cargo to be placed on the floor below the said part of the air conditioning system.

2. conclusies: 17, 19-24(compleet); 18(gedeeltelijk)

Freight container having a cargo space, an air conditioning system, a battery, a generator and a fuel tank, wherein the container further comprises a clock and/or a voltage sensing device and/or a receiver, and a controller arranged for controlling the generator in order to charge the battery, and method therefore.

Het vooronderzoek werd tot het eerste onderwerp beperkt.

The Searching Authority found multiple (groups of) inventions in the international application, as follows:

1. Claims 1-16, 18 (partly, when dependent on claim 1)

Freight container having a container body, an air conditioning system, a generator and a fuel tank, wherein a part of the air conditioning system is placed above a cargo floor for allowing cargo to be placed on the floor below the said part of the air conditioning system.

2. Claims 17, 18 (partly, when dependent on claim 1) and 19-24

Freight container having a cargo space, an air conditioning system, a battery, a generator and a fuel tank, wherein the container further comprises a clock and/or a voltage sensing device and/or a receiver, and a controller arranged for controlling the generator in order to charge the battery, and method therefore.

The common technical features between group of inventions 1 and group of inventions 2 are:

Freight container having a container body, an air conditioning system, a generator and a fuel tank.

These common technical features are known in the prior art, see for example DE 10 2011 105 475 A1, US 2,635,432 or W092/20542 in the Search Report (additionally see any other document in the Search Report).

The potential special technical features of the group of inventions 1 are: none (documents DE 10 2011 105 475 A1 and US 2,635,432 both disclose the subject-matter of claim 1)

The potential special technical features of the group of inventions 2 are:

the container further comprises a clock and/or a voltage sensing device

GEBREK AAN EENHEID VAN UITVINDING

Octrooiaanvraag Nr.:

SN 63001
NL 2012992

AANVULLINGSBLAD B

De Instantie belast met het uitvoeren van het onderzoek naar de stand van de techniek heeft vastgesteld dat deze aanvraag meerdere uitvindingen bevat, te weten:

and/or a receiver, and a controller arranged for controlling the generator in order to charge the battery, and method therefore.

It is obvious that these potential special technical features are neither the same nor corresponding and that the group of inventions 1 and 2 are not so linked as to form a single general inventive concept as required.

Since the different potentially special technical features of groups of inventions 1 and 2 solve several different problems (group 1: none, group 2: how to charge the battery), they cannot be considered as being the same or corresponding technical features as required by. Therefore group of inventions 1 (claims 1-16, 18 (partly) and group of inventions 2 (claims 17, 18 (partly), 19-24) do not form unity of invention.

**ONDERZOEKSRAPPORT BETREFFENDE HET
RESULTAAT VAN HET ONDERZOEK NAAR DE STAND
VAN DE TECHNIEK VAN HET INTERNATIONALE TYPE**

Informatie over leden van dezelfde octrooifamilie

Nummer van het verzoek om een onderzoek naar
de stand van de techniek

NL 2012992

In het rapport genoemd octrooi geschrift	Datum van publicatie	Overeenkomend(e) geschrift(en)	Datum van publicatie
DE 102011105475 A1	27-12-2012	GEEN	
US 2635432 A	21-04-1953	GEEN	
WO 9220542 A1	26-11-1992	AU 2004992 A BR 9205988 A CA 2108773 A1 EP 0585388 A1 FI 935005 A JP H06507702 A NO 934089 A US 5187945 A WO 9220542 A1	30-12-1992 02-08-1994 14-11-1992 09-03-1994 12-11-1993 01-09-1994 11-01-1994 23-02-1993 26-11-1992
WO 2012045132 A1	12-04-2012	BR MU9002187 U2 WO 2012045132 A1	06-11-2012 12-04-2012
WO 9727128 A1	31-07-1997	AT 211455 T AU 715348 B2 AU 1562397 A BR 9707186 A CA 2243475 A1 CN 1213352 A DE 69709909 D1 DE 69709909 T2 EP 0961742 A1 HK 1021966 A1 JP 2000504100 A NO 983199 A NZ 326927 A RU 2177126 C2 US 6016664 A WO 9727128 A1	15-01-2002 20-01-2000 20-08-1997 23-03-1999 31-07-1997 07-04-1999 28-02-2002 22-08-2002 08-12-1999 15-02-2002 04-04-2000 23-09-1998 28-01-2000 20-12-2001 25-01-2000 31-07-1997

WRITTEN OPINION

File No. SN63001	Filing date (<i>day/month/year</i>) 12.06.2014	Priority date (<i>day/month/year</i>)	Application No. NL2012992
International Patent Classification (IPC) INV. B65D88/74			
Applicant Unit45 B.V., et al			

This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the application
- Box No. VIII Certain observations on the application

	Examiner Leijten, René
--	---------------------------

WRITTEN OPINION

Application number
NL2012992

Box No. I Basis of this opinion

1. This opinion has been established on the basis of the latest set of claims filed before the start of the search.
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material:
 - on paper
 - in electronic form
 - c. time of filing/furnishing:
 - contained in the application as filed.
 - filed together with the application in electronic form.
 - furnished subsequently for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION

Application number
NL2012992

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step, or to be industrially applicable have not been examined in respect of

- the entire application
- claims Nos. 17, 19-24(compleet); 18(gedeeltelijk)

because:

- the said application, or the said claims Nos. relate to the following subject matter which does not require a search (*specify*):
- the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed (*specify*):
- no search report has been established for the whole application or for said claims Nos. 17, 19-24(compleet) ; 18(gedeeltelijk)
- a meaningful opinion could not be formed as the sequence listing was either not available, or was not furnished in the international format (WIPO ST25).
- a meaningful opinion could not be formed without the tables related to the sequence listings; or such tables were not available in electronic form.
- See Supplemental Box for further details.

Box No. IV Lack of unity of invention

1. The requirement of unity of invention is not complied with for the following reasons:

see separate sheet

2. This report has been established in respect of the following parts of the application:

- all parts.
- the parts relating to claims Nos. (see Search Report)

WRITTEN OPINION

Application number
NL2012992

Box No. V Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty	Yes: Claims	6, 7, 10, 13-15
	No: Claims	1-5, 8, 9, 11, 12, 16(compleet); 18(gedeeltelijk)
Inventive step	Yes: Claims	6, 10
	No: Claims	1-5, 7-9, 11-16(compleet); 18(gedeeltelijk)
Industrial applicability	Yes: Claims	1-16(compleet); 18(gedeeltelijk)
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item IV.

The Searching Authority found multiple (groups of) inventions in the international application, as follows:

1. Claims 1-16, 18 (partly, when dependent on claim 1)

Freight container having a container body, an air conditioning system, a generator and a fuel tank, wherein a part of the air conditioning system is placed above a cargo floor for allowing cargo to be placed on the floor below the said part of the air conditioning system.

2. Claims 17, 18 (partly, when dependent on claim 1) and 19-24

Freight container having a cargo space, an air conditioning system, a battery, a generator and a fuel tank, wherein the container further comprises a clock and/or a voltage sensing device and/or a receiver, and a controller arranged for controlling the generator in order to charge the battery, and method therefore.

The common technical features between group of inventions 1 and group of inventions 2 are: freight container having a container body, an air conditioning system, a generator and a fuel tank.

These common technical features are known in the prior art, see for example DE 10 2011 105 475 A1, US 2,635,432 or WO92/20542 in the Search Report (additionally see any other document in the Search Report).

The potential special technical features of the group of inventions 1 are: none (documents DE 10 2011 105 475 A1 and US 2,635,432 both disclose the subject-matter of claim 1)

The potential special technical features of the group of inventions 2 are:

the container further comprises a clock and/or a voltage sensing device and/or a receiver, and a controller arranged for controlling the generator in order to charge the battery, and method therefore.

It is obvious that these potential special technical features are neither the same nor corresponding and that the group of inventions 1 and 2 are not so linked as to form a single general inventive concept as required.

Since the different potentially special technical features of groups of inventions 1 and 2 solve several different problems (group 1: none, group 2: how to charge the battery), they cannot be considered as being the same or corresponding technical features as required by. Therefore group of inventions 1 (claims 1-16, 18 (partly) and group of inventions 2 (claims 17, 18 (partly), 19-24) do not form unity of invention.

Re Item V.

1 Reference is made to the following documents:

D1 DE 10 2011 105475 A1

D2 US 2 635 432 A

D3 WO 92/20542 A1

2 INDEPENDENT CLAIM 1

The present application does not meet the criteria of patentability, because the subject-matter of claim 1 is not new.

The document D1 discloses (the references in parentheses applying to this document):

Vrachtcontainer (1) voor het transporteren van goederen, in het bijzonder temperatuurgevoelige lading, waarbij de container omvat:

- een containerlichaam dat een laadruimte (11) voor het opslaan van de lading bevat;

- een airco-eenheid (2) die is ingericht voor het regelen van een temperatuur en/of vochtigheid in de laadruimte;
- een generator (6) voor het voeden van de airco-eenheid; en
- een brandstoftank (par. 30) voor het de generator verschaffen van brandstof, in het bijzonder diesel;
- waarbij ten minste een deel van de airco-eenheid boven een laadvloer van de laadruimte is geplaatst teneinde het toe te staan lading op de laadvloer te plaatsen onder het genoemde deel van het airco-systeem.

(whole document)

For the sake of completeness, it is pointed out that the document D2 also discloses the subject-matter of claim 1.

3 DEPENDENT CLAIMS 2-5, 7-9, 11-16 and 18

Dependent claims 2-5, 7-9, 11-16 and 18 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of novelty (2-5, 8, 9, 11, 12, 16, 18) or inventive step (7, 13-15), see documents D1-D3 and the corresponding passages cited in the search report.

4 DEPENDENT CLAIMS 6 and 10

Dependent claims 6 and 10 meet the requirements of novelty and inventive step, because none of the prior art documents appears to suggest the features of these claims.