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(54) **Assembly of a vehicle and a container for collecting refuse**

(57) The invention relates to an assembly of a vehicle (1) and a container (8) for collecting refuse, wherein the vehicle (1) is provided with a supply device (2) for supplying refuse to the container (8), and wherein the container (8) is coupleable to the vehicle (1), wherein the container (8) is provided with:

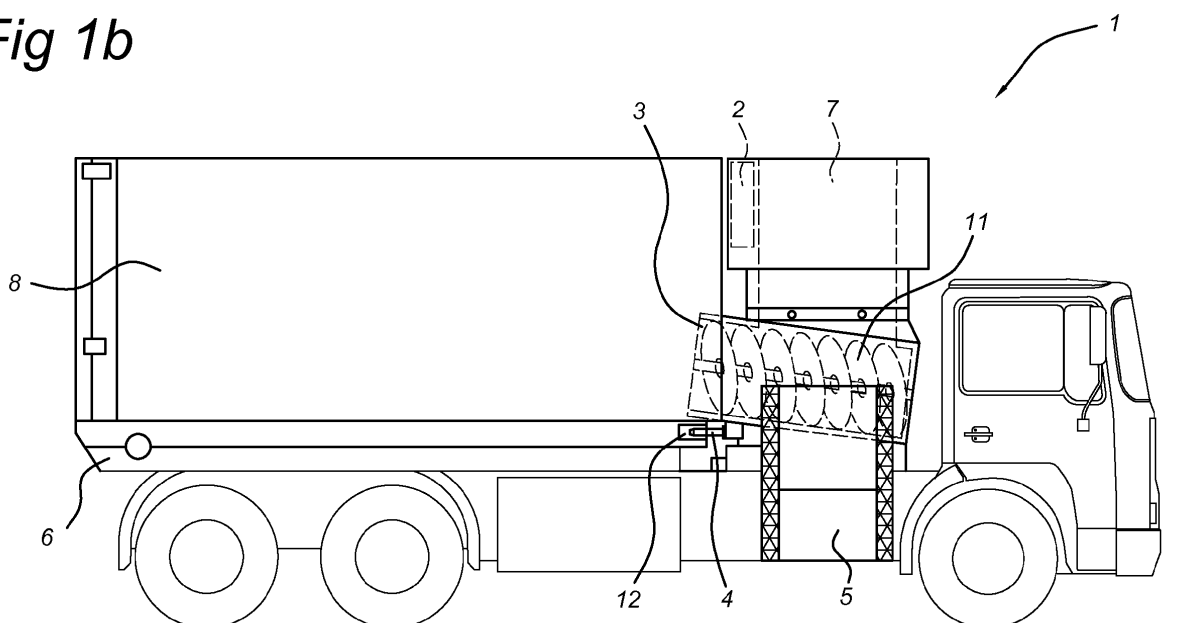
- a bottom with surrounding walls;
- an opening in the container, said opening being connectable to the supply device;
- a closing device of the opening which is movable be-

tween an open position, in which the opening is accessible, and a closed position, in which the opening is closed;

- a control device (12) arranged to alternately bring the closing device to an open and to a closed position.,

and wherein the control device (12) is arranged to cooperate with an activator body (4) provided on the vehicle (1), in such a manner that said activator body (4) automatically brings the closing device to the open position while the container (8) is being coupled to the vehicle (1).

Fig 1b



Description

[0001] The invention relates to an assembly of a vehicle and a container for collecting refuse, wherein the vehicle is provided with a supply device for supplying refuse to the container, and wherein the container can be coupled with the vehicle, wherein the container is provided with a bottom with walls and with an opening in the container that can be connected to the supply device, a closing device of the opening that can be moved between an open position, in which the opening is freely accessible, and a closed position, in which the opening is closed, and a control device for alternately bringing the closing device to an opened and to a closed position. The invention also relates to a container for such an assembly. The invention further relates to a method for coupling such an assembly to such a vehicle.

[0002] Such a container and such an assembly are known. The known container is used to collect refuse. The container, for example a garbage container, comprises a bottom and walls, in particular surrounding walls connected to the bottom. In a wall an opening is provided. The opening is closable with for example a door or slide. The container can be coupled with a truck or lorry. The truck has a supply device for refuse. The supply device comprises a lifting arm for lifting relatively small refuse containers, an inlet into which the contents of said refuse containers can be emptied, and an outlet. The opening of the coupleable container is connectable to an outlet of the supply device. Refuse can thus be collected in the container. When the container is filled with a certain amount of refuse, the container can be de-coupled after which a new, empty container can be placed on the vehicle.

[0003] In the de-coupled condition, the door closes off the opening of the container, so that refuse in the container cannot leave the container. During coupling of the container with the truck, the door must first be brought to the opened position, so that the opening is made available and ready to be coupled with the outlet of the supply device. To this end a control button is provided, with which an operator can control the door before a container is coupled with the garbage truck.

[0004] Document FR 2 218 260 A1 describes an assembly of a container and a truck, the truck also having a tailgate assembly. Before a new container can be coupled with the truck, the tailgate assembly must be fully raised. After a new container has been coupled with the truck, the tailgate assembly is lowered, after which the assembly is connected to the loaded container. As such, FR 2 218 260 requires a number of distinct actions required to couple a new container.

[0005] Document DE 94 07 869 U1 discloses an assembly of a container with a truck. After coupling of the container with the truck, an opening in the container must be made accessible.

[0006] Document DE 198 20 665 A1 discloses a closing device for a container designed to prevent the un-

wanted collection of refuse in parts of the closing device mechanism.

[0007] It is a disadvantage of the known devices that the operator must take specific actions to make the opening in the container accessible after coupling a container with the vehicle. It is possible that the operator forgets to open a door of the container. If the operator forgets to open the door, the container can no longer be coupled with the supply device. In cases in which in a coupled state of the container, the supply device partially penetrates the interior of the container, it is not possible to first couple the container to the vehicle and only then bring the opening of the container to the open position. When an operator forgets to open the container prior to coupling the container, damage to the container and the supply device of the truck may result.

[0008] It is a further disadvantage of the known devices that opening a door covering the container opening takes time and/or requires a number of distinct operations. The door is generally opened before the container is placed on the truck, and only after this is done can the container be connected with the supply device. In other cases, the coupling process must be interrupted half-way in order to open the container door. In yet other cases, movements of other parts, such as a tailgate assembly, is required before and after coupling. The requirement of these distinct, sequential, operations is inefficient.

[0009] It is therefore an object of the invention to provide a container for collecting refuse with which at least a drawback of the known assemblies is solved or at least reduced.

[0010] According to a first aspect, the invention provides an assembly of a vehicle according to claim 1. The assembly has elements of the known assembly mentioned in the introduction, and is furthermore characterized in that the control device is arranged to cooperate with an activator body provided on the vehicle in such a manner that the activator body brings the closing device to the open position while the container is being coupled with the vehicle. The invention thus makes it possible to automatically open the closing device, making the opening in the container available to the supply device, as part of the process of coupling the container with the vehicle. With the phrase "automatically opening" is meant that bringing the closing device to the open position may be achieved without a separate action by an operator.

[0011] During the process of coupling the container with the vehicle, or, while the container is being coupled with the vehicle, the activator body will activate the control device. The activated control device, which is arranged to cooperate with the activator body, will then open the closing device. An operator is not required to use the control device in order to open the closing device. As a result, the act of opening the closing device cannot be omitted through forgetfulness of an operator. Also, as the control device is arranged to cooperate with the activator body to open the closing device while the container is being coupled -- in other words, the time spans required

for coupling the container with the vehicle and for opening the closing device overlap -- the process of coupling is more efficient as the two acts are performed simultaneously instead of sequentially .

[0012] In an embodiment, in a coupled state of the container a part of the supply device extends into, or penetrates, via the opening of the container, the interior of the container. As indicated in the above, it is impossible to open the doors only after coupling since coupling with closed doors could lead to damage to the supply device or the closing device. According to the invention, the closing device is opened during coupling, so that damage to the closing device is prevented. Also in embodiments in which opening of the closing device after coupling is possible in principle, for example when the supply device has no protruding parts that extend into the interior of the container, it is more efficient and less error-prone to automatically open the opening device, or the doors, during coupling.

[0013] In an embodiment, the control device is arranged to cooperate with the activator body in such a manner that during de-coupling of the container and the vehicle the control device brings the closing device to the closed position. The closing device is thus closed already during the process of de-coupling. The operator does not need to perform an additional act after de-coupling the container and the vehicle, so said act cannot be omitted through forgetfulness. The refuse collected in the container can thus not accidentally spill out of the opening.

[0014] Preferably the control device comprises a control element that is movable between a first and a second position, a movement to said positions being arranged to bring the closing device in the open respectively the closed position. The control element can be a plunger with a first and a second position. The control element can be a piston with a piston rod in a cylinder. The control element can be a hydraulic element, such as a hydraulic cylinder. A hydraulic transmission may be used to use movement of a piston in the hydraulic cylinder to effect an opening of the closing device.

[0015] The activator body can be arranged to move the control element while the container is being coupled to the vehicle. The activator body can be arranged to move the control element to a first position during coupling, in such a manner that the closing device is brought to the open position. The activator body may be arranged to keep the control element in the first position while in the coupled state. During de-coupling, the activator body will move away from the control element. This will bring the closing device to the closed position.

[0016] The control device may be an electronic device. In case of an electronic device, the control element can be an electrical button, which in a pressed state activates an electronic circuit in order to bring the closing device to an open position. As long as the button is depressed, the closing device will remain in the open position. The electric circuit may register a release of the button, after which the closing device is brought to the closed position.

[0017] The control element may comprise a slidable plunger. With the plunger a force can be exerted. The force may be used to open or close the closing device.

[0018] In a particularly advantageous embodiment, the control device comprises a hydraulic cylinder. The hydraulic cylinder may be a plunger cylinder. The piston and the piston rod form the control element. The activator body pushes against the piston rod during coupling. The displacement of the piston and the piston rod causes a force that can be used for opening the closing device, such as a door. When the container is moved away, during de-coupling, the force exerted by the activator body on the piston rod will be reduced. This will cause the piston rod to automatically return to its original position. The application of a hydraulic cylinder has the effect that a certain threshold amount of force is needed to bring the closing device to an open position. The threshold force can be determined at will. The threshold force ensures that the closing device cannot be opened when the force on the piston rod is insufficient. This prevents unwanted opening of the closing device.

[0019] The container may comprise a transmission connected to the closing device and to the control device. This allows the control device to be placed in a suitable location, which may be at a distance from the closing device.

[0020] Preferably the transmission is a hydraulic transmission. In particular in combination with a hydraulic control device, a reliable opening and closing action of the opening may be achieved. The hydraulic device may be used to control the closing device with a high level of precision. The hydraulic device may pose a threshold value for opening the closing device. The closing device is only brought to the open position when a certain minimal force is exerted on the control device.

[0021] In an embodiment, the opening is provided in the surrounding wall of the container. In other words, the opening is situated in a side wall of the container. Refuse may be brought into the container along an essentially horizontal direction.

[0022] The container may be essentially in the shape of a hollow brick, wherein the opening is provided in an end surface, meaning a smaller side wall on either end of the brick-shape of the container. The brick shape is suitable for placing on a truck. Providing the opening on an end surface conveniently allows the opening to be connected to a supply device on a truck. The supply device may be provided with a preprocess unit for preprocessing refuse.

[0023] The closing device may comprise a first closing element, which is arranged to cover at least a portion of the opening in a closed state of the closing device. In an embodiment, at least one other, complementing, closing element is provided.

[0024] The first and/or complementing closing element may be rotatably attached. A translatable attachment is also possible. The closing element then functions essentially as a slidable door.

[0025] In an advantageous embodiment, the first and/or complementing closing element is placed essentially parallel to the bottom of the container in an open position of the closing device.

[0026] The container is preferably provided with a lid connected to the walls. The lid is preferably fixedly attached to said walls. In this manner, the container will be arranged to keep refuse inside the container.

[0027] The volume of the container is preferably such that a relatively large amount of refuse may be collected. To this end, the volume of the container may be 20-30 cubic metres. The volume of the container may also be 30-40 cubic metres.

[0028] The opening of the container is preferably coupleable to the supply device of the vehicle. The opening may be coupleable with an outlet of the supply device.

[0029] The vehicle may comprise a conducting element, such as a rail, over or along which the container is movable towards a coupled state. The conducting element allows for a relatively easy coupling process. The movement may be essentially along a horizontal direction.

[0030] The activator body may be placed near an end of the conducting element, so that the closing device is opened just before coupling with the supply device is completed. The closing device is preferably brought to an open position as late as possible. This will help prevent the introduction of unwanted objects in the container.

[0031] Preferably the vehicle is provided with a lifting device, such as a winch, for coupling the container with the vehicle. The vehicle can then always couple the container with the vehicle, without requiring an external supply of force. The lifting device may be arranged to pull the container towards the supply device. The lifting device may also be a lever, or a hook-arm

[0032] The lifting device may be arranged to couple the control device with the activator body so that the closing device is brought to an open position while the container is being coupled to the vehicle. In a particular embodiment, the lifting device supplies a force that is larger than the determined threshold force. The threshold force may for example be determined through the use of a suitable hydraulic system or with the aid of a suspension or spring force.

[0033] The supply device may comprise a processing unit. The processing unit is preferably arranged to compress or compact refuse. The processing unit preferably comprises two screws positioned parallel next to each other, and arranged to rotate in opposing directions. However, other embodiments of the processing unit are also imaginable, such as a block press or a plate press.

[0034] According to a further aspect of the invention a method is provided for coupling a container for collecting refuse with a vehicle. The container is provided with a bottom with surrounding walls, an opening in the container which is connectable to a supply device provided on the vehicle for supplying refuse to the container, a closing device of the opening that is movable between an open

position in which the opening is accessible, and a closed position in which the opening is closed, and a control device arranged to alternately bring the closing device to an open and a closed position. The method according to the invention comprises bringing the closing device to the open position while the container is being coupled to the vehicle. The coupling is efficient and results in a gain of time. The closing device is automatically opened in the course of coupling the container to the vehicle.

[0035] The control device may be arranged to cooperate with an activator body provided on the vehicle. The method may comprise bringing the activator body into contact with the control device in order to bring the closing device to an open position during coupling. The closing device will thus always be automatically opened in the course of coupling the container to the vehicle. It is not possible to forget opening the closing device.

[0036] The control device may comprise a control element that is movable between a first position and a second position, arranged to bring the closing device to an open respectively closed position. The method may comprise bringing the activator body in contact with the control element in order to bring the control element to the second position.

[0037] The vehicle is preferably provided with a lifting device, such as a winch, arranged to facilitate coupling the container with the vehicle. The lifting device may also be a lever or a hook-arm. Preferably the method comprises bringing the control element to the second position as a result of the force exerted by the lifting device. In a particular embodiment, the lifting device, such as the winch, exerts the required force to bring the closing device to the open position. The lifting device can be arranged to exert a force that exceeds a predetermined threshold force.

[0038] The invention will now be further explained in reference to exemplary embodiments. It will be clear to the skilled person that the invention is not limited to these exemplary embodiments.

Figure 1a schematically shows a side view of a vehicle with a supply device on which a container for refuse may be placed.

Figure 1b schematically shows a side view of the vehicle of figure 1a, with the container in placed on the vehicle.

Figure 2 schematically shows a view in perspective of a container.

Figure 3a schematically shows a side view of a container in a de-coupled state.

Figure 3b schematically shows a side view of the container of figure 2a during coupling of the container.

Figure 3c schematically shows a side view of the container of figure 2a in a coupled state.

Figures 4a-c show embodiments of a container and an activator body.

[0039] Figure 1a shows a side view of a truck 1 for collecting refuse. As can be seen in figure 1b, on an undercarriage 6 of the truck 1 an holder, such as container 8 may be placed. In the container 8 refuse may be collected. The refuse is supplied to the container by means of supply device 2, which is placed on the truck. The truck is provided with a lifting arm 5 for lifting and emptying relatively small, compared to container 8, refuse containers. The volume of the refuse containers may vary, for example between 40 litres and 5000 litres. The lifting arm lifts the refuse containers and empties them over inlet 7 of the supply device 2. The supply device 2 further comprises outlet 3, which is connectable to an opening in the container 8. In the embodiment of figure 1, the outlet 3 of the supply device 2 has a protruding part, which in a coupled state of the container 8 partially extends through the accessible opening of the container 8. However, it is also possible to provide an alternative supply device which does not extend or protrude into a coupled container. The supply device may be arranged to compact and/or reduce the refuse. The processing unit 11 may for example comprise two essentially parallel screws next to each other, wherein the screws are arranged to rotate in opposing directions.

[0040] The supply device 2 and the lifting arm 5 ensure a supply of refuse to the container 8. When the container is filled with a certain amount of refuse, the container may be de-coupled and removed from the vehicle after which another, empty, container may be placed on the vehicle. The container is provided with a closing element (not shown in figure 1). The closing element is for closing the opening of the container in a de-coupled state of said container. The closing device is movable between a position in which the opening is accessible, and a position in which the opening is closed. The container 8 is provided with a control device 12 for opening and closing the closing device. The control device is arranged to cooperate with an activator body 4 located on the vehicle. The control device 12 and the activator body 4 are arranged to open the closing device while the container is being coupled to the vehicle, as will now be further explained in reference to figures 2 and 3.

[0041] Figure 2 shows a view in perspective of a container 21. The container comprises a bottom 22 and surrounding walls 23. The container is also provided with a top side 24. The container 21 is provided with an opening 26. In the shown embodiment, the opening is closed by a first closing element 28 and a complementing closing element 29. The closing elements, such as doors, may be rotably attached. The closing elements are movable between an open position, in which the opening is accessible, and a closed position, in which the opening is closed off. The closing elements are connected to an opening and closing mechanism. The opening and closing mechanism can be activated by control device 25 which is provided on the container 21.

[0042] In the interior of the container 21 a space is formed. In the space refuse may be collected. The refuse

may be introduced into the container through opening 26. To this end, container 21 is coupleable with a supply device that is placed on a vehicle. Before container 21 may be coupled with the supply device, closing elements 28 and 29 must be in the open position.

[0043] The coupling of the container with the supply device will now be explained in reference to figures 3a-3c.

[0044] Figure 3a shows a situation in which the container 21 is placed on a conducting element 30 of an otherwise not shown vehicle. The container 21 will be moved in the direction of arrow A during coupling. On the vehicle a pen 31 is positioned. The pen is placed at the height of control device 25, the control device comprising a control element. The pen extends in a direction that is essentially parallel to the conducting element 30. The control device comprises a hydraulic cylinder. The hydraulic transmission acts as an opening and closing mechanism.

[0045] The hydraulic cylinder comprises a plunger, which is movable between a first position and a second position. In the first position the control element, in this case the plunger, is completely depressed. In the second position, the control element, or plunger, is completely extended outwards. The pressure in the hydraulic system ensures that the plunger is forced outwards. Therefore, the control element will be in the second position when no external force is applied to the plunger. The latter situation is shown in figure 3a. By applying an external force to the plunger, the plunger is brought to the first position. This will cause an increase in hydraulic pressure and a displacement of the hydraulic fluid, which can be used to bring the closing device or the closing elements to an open position. The skilled person will be familiar with hydraulic components suitable for this.

[0046] On the vehicle pen 31 is provided, which serves to bring plunger 25 to the first position during coupling. The pen 31 acts as an activator body 31. The control device 25 is arranged to cooperate with the activator body in such a manner that it brings the closing elements 28, 29 to the opened position while the container is being coupled with the vehicle. Figure 3b shows the situation in which the pen 31 and the control device 25 are brought in contact with each other. A further displacement of the container in the direction of the pen 31 will ensure that the pen 31 pushes the plunger 25, and moves the plunger towards the first position.

[0047] Figure 3c shows the situation in which the pen 31 completely depresses the plunger 25. The closing elements 28, 29 are then rotated to the open position. The opening 26 is accessible, and coupling with the supply device is possible.

[0048] Therefore, during coupling of the container with the vehicle the closing device will move to the open position, so that the opening is made accessible and the coupling with the supply device may take place. During de-coupling of the container, the force exerted by the pen on the plunger will be reduced, and the plunger will, due to the hydraulic pressure, move outwards again. The

closing device will then close the opening. The mechanism thus ensures that the closing device is automatically and assuredly opened during coupling, and is automatically and assuredly closed during de-coupling. The operator can no longer forget these acts. Furthermore, opening and closing the opening may take place during coupling and de-coupling, which saves time.

[0049] Relative movement between the activator body and the control device makes it possible to open and/or close the closing device. It will be clear to a skilled person that this effect may be achieved in a number of ways. Some alternative embodiments of the control device and the activator body are shown schematically in figures 4a-c.

[0050] Figure 4a schematically shows an embodiment of container 108 with control device 112 and an activator body 104 on an otherwise not shown vehicle. In the shown embodiment the activator body 104 is arranged to move relative to the vehicle, in order to cooperate with the control device 112 in order to bring the (not shown) closing device to an open position while the container is being coupled to the vehicle. The container may be at rest, or nearly at rest. The activator body may comprise a housing 104 and a movable plunger 105. The activator body may for example be a hydraulic cylinder.

[0051] Figure 4b schematically shows an embodiment in which the control device 212 and the activator body 204 form a ridge system. The control device comprises a running wheel 213 that is movable over a ridge 205 of the activator body 204. The running wheel 213 is attached to an otherwise not shown transmission 214. On the vehicle activator body 204 is placed. The activator body comprises the ridge 205, which has an angled surface over which the wheel may be moved. The control device and the activator body are arranged to force a translation, in the current example a vertical translation, of the control device 212 during coupling of the container 208 with the vehicle. The vertical translation of the control device will be converted by the transmission into an opening or a closing of the (not shown) closing device. In the shown embodiment, an upwards movement of the running wheel will cause the closing device to be opened, while a downwards movement of the running wheel will cause the closing device to be closed.

[0052] Figure 4c schematically shows an embodiment in which the control device 312 and the activator body 304 are formed as a cable mechanism 303 and a hook element 304. The cable mechanism 303 comprises a cable 313 running over a pulley 312, the cable having a first distal end 314 and a second distal end 315. Provided on the first distal end 314 is a hook body 314, such as an eye. The activator body is placed on the vehicle, and comprises hook 304, which is arranged to cooperate with the hook body 314 of the cable mechanism 303. At the second distal end 315 of the cable 313, the cable is attached to lever 307 which is attached to the closing device 309. The control device 312 and the activator body 304 are arranged in such a manner that while the container

is being coupled to the vehicle, the hook 304 will take on hook body 314. The cable will then be stationary relative to the container 308. When the container 308 is then moved, the lever 307 will thus be moved downwards, causing the closing device to move downwards as well. The closing device will thus move to an open position.

[0053] It will be clear to the skilled person that combinations and variations of various embodiments or aspects of embodiments are possible, without diverging from the scope of the invention as defined by the attached claims.

[0054] For example, the invention can relate to an assembly according to any of the attached claims, wherein (any one or more of the following):

- coupling of the container with the vehicle involves a mainly horizontal movement of the container relatively to the vehicle (the vehicle or the container may be stationary during coupling, the container may for example rest on support legs just prior to coupling);
- the transmission is a hydraulic transmission;
- the opening is provided in a surrounding wall of the container;
- the container is essentially brick-shaped and the opening is provided on one end surface of the brick-shape;
- the closing device comprises a first closing element, which is arranged to cover at least a portion of the opening in a closed position of the closing device;
- the closing device also comprises at least a second closing element;
- the first and/or the second assembly elements are attached rotably;
- the first and/or second closing element comprises a panel surface which, in an opened position, is placed essentially parallel to a support surface defining the bottom of the container;
- the container is provided with a lid that is connected with the surrounding walls;
- the volume of the container is approximately 20 to 30 cubic metres;
- the vehicle comprises a conducting element, such as a rail, over which the container is movable to a coupled position;
- the activator body is located near an end of the conducting element;
- the lifting device is arranged to couple the control device and the activator body with each other in order to bring the closing device to an opened position while the container is being coupled to the vehicle;
- the supply device comprises a processing unit arranged to reduce and/or compact refuse;
- the processing unit comprises two screws which are placed essentially parallel to each other and are arranged to rotate in opposing directions.

[0055] The skilled person will be able to form further equivalent embodiments according to the invention on the

basis of the explanation of the invention and the exemplary embodiments in this description.

[0056] For example, the invention is not limited to the use of a specific supply device. The processing unit in the supply device may also be a plate press or a block press. The skilled person will be familiar with various suitable alternatives.

[0057] The invention is also not limited to the use of a transmission. In an embodiment, the control device may also directly engage the closing device, i.e. without the need for a transmission between the control device and the closing device. However, the use of a transmission advantageously gives the designer of the assembly of the vehicle with container more design freedom, for example allowing the designer to place the control device in a particularly suitable spot at a distance from the closing device, for improved cooperation with the activator body.

[0058] The invention is further not limited to a hydraulic control device. For example, it is possible to make use of an electrical control device, or a mechanical control device, as long as said control device is arranged to cooperate with an activator body on the vehicle in such a manner that while the container is being coupled to the vehicle, the activator body causes the closing device to move to the open position.

Claims

1. Assembly of a vehicle (1) and a container (8, 21) for collecting refuse, wherein the vehicle (1) is provided with a supply device (2) for supplying refuse to the container, and wherein the container (8) is coupleable to the vehicle (1), wherein the container is provided with:

- a bottom (22) with walls (23);
- an opening (26) in the container, said opening being connectable to the supply device;
- a closing device (28, 29) of the opening which is movable between an open position, in which the opening is accessible, and a closed position, in which the opening is closed;
- a control device (12, 25) arranged to alternately bring the closing device to an open and to a closed position,

characterized in that,

the control device (12, 25) is arranged to cooperate with an activator body (4, 31) provided on the vehicle (1), in such a manner that said activator body (4, 31) automatically brings the closing device (28, 29) to the open position while the container is being coupled to the vehicle.

2. Assembly according to claim 1, wherein at least a part of the supply device (2) extends into the interior

of the container (8, 21) when said container is in the coupled condition.

3. Assembly according to claim 1 or 2, wherein the control device (12, 25) is arranged to cooperate in such a manner with the activator body (4, 31) that the control device brings the closing device (28, 29) to the closed position while the container (8, 21) is being de-coupled from the vehicle (1).
4. Assembly according to any of the preceding claims, wherein the control device (12, 25) comprises a control element (25) which is movable between a first position and a second position, arranged to bring the closing device (28, 29) in an open respectively a closed position.
5. Assembly according to claim 4, wherein the activator body (4, 31) is arranged to move the control element (25) while the container is being coupled with the vehicle.
6. Assembly according to claim 4 or 5, wherein the control element comprises a slidable plunger (25).
7. Assembly according to any of the claims 4-6, wherein the control devices comprises a hydraulic cylinder.
8. Assembly according to any of the preceding claims, wherein the container (8, 21) comprises a transmission connected to the closing device (28, 29) and the control device (12, 25).
9. Assembly according to any of the preceding claims, wherein the vehicle (1) is provided with a lifting device, such as a winch, arranged to facilitate coupling the container (8, 21) with the vehicle.
10. Container (8, 21) arranged to be used in an assembly according to any of the preceding claims.
11. Method for coupling a container (8, 21) for collecting refuse to a vehicle (1), wherein the container is provided with:
 - a bottom (22) with walls (23);
 - an opening (26) in the container, said opening being connectable to a supply device (2) arranged on the vehicle for supplying refuse to the container;
 - a closing device (28, 29) of the opening which is movable between an open position, in which the opening is accessible, and a closed position, in which the opening is closed;
 - a control device (12, 25) arranged to alternately bring the closing device to an open and to a closed position.;

wherein the method further comprises automatically bringing the closing device to the open position while the container is being coupled to the vehicle.

12. Method according to claim 11, wherein the control device (12, 25) is arranged to cooperate with an activator body (4, 31) provided on the vehicle (1), the method comprising bringing the activator body into contact with the control device in order to bring the closing device (28, 29) to the open position while the container is being coupled with the vehicle. 5 10
13. Method according to claim 12, wherein the control device (12, 25) comprises a control element (25) that is movable between a first position and a second position, said control element being arranged to bring the closing device in an open respectively a closed position in the first respectively the second position, wherein the method further comprises bringing the activator body (4, 31) and the control element (25) into contact with each other during coupling in order to bring the control element in the second position. 15 20
14. Method according to claim 1, wherein the vehicle (1) is provided with a lifting device, such as a winch, for coupling the container (8, 21) with the vehicle, wherein the method comprises bringing the control element (12, 25) to the second position as a result of force exerted by the winch. 25 30

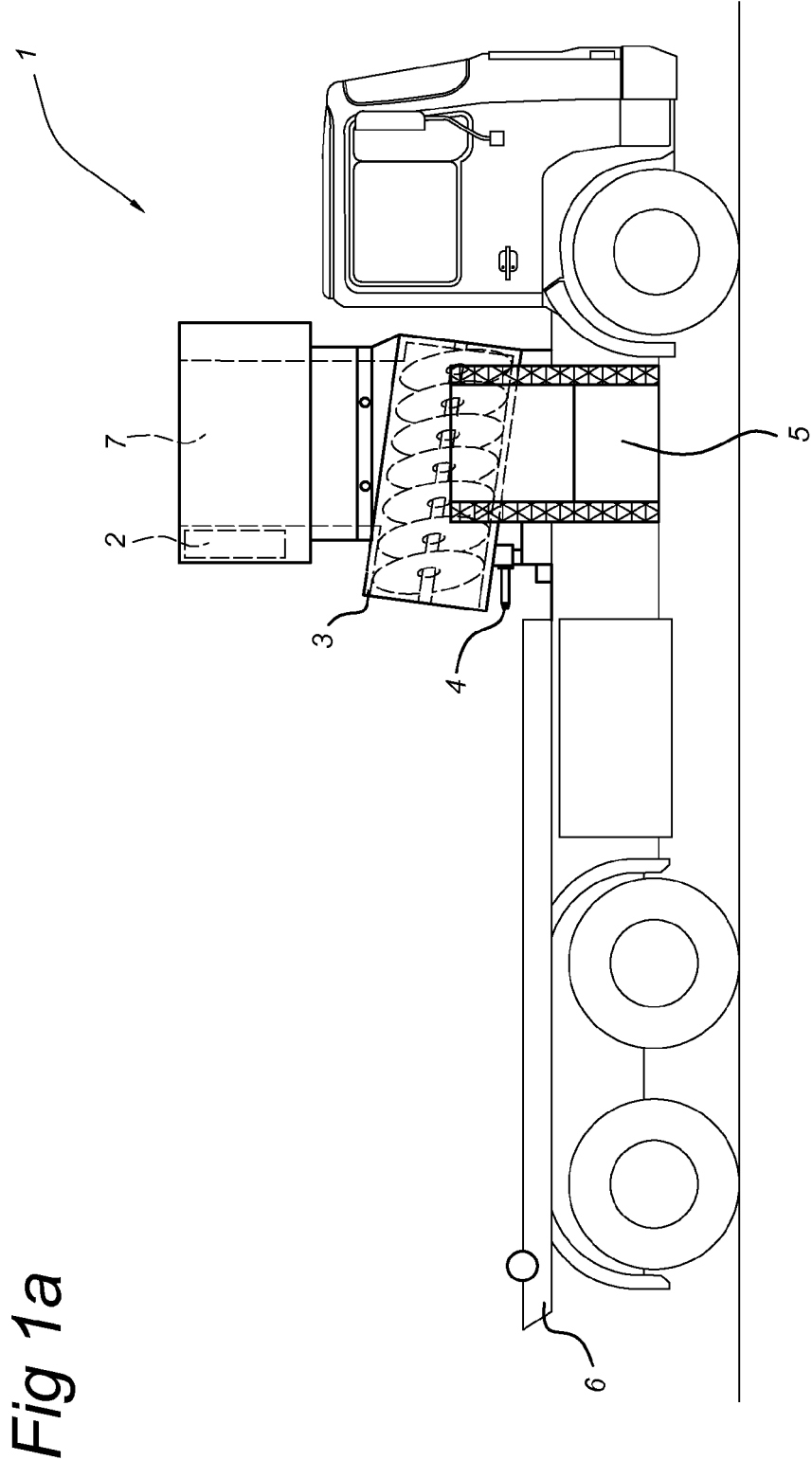
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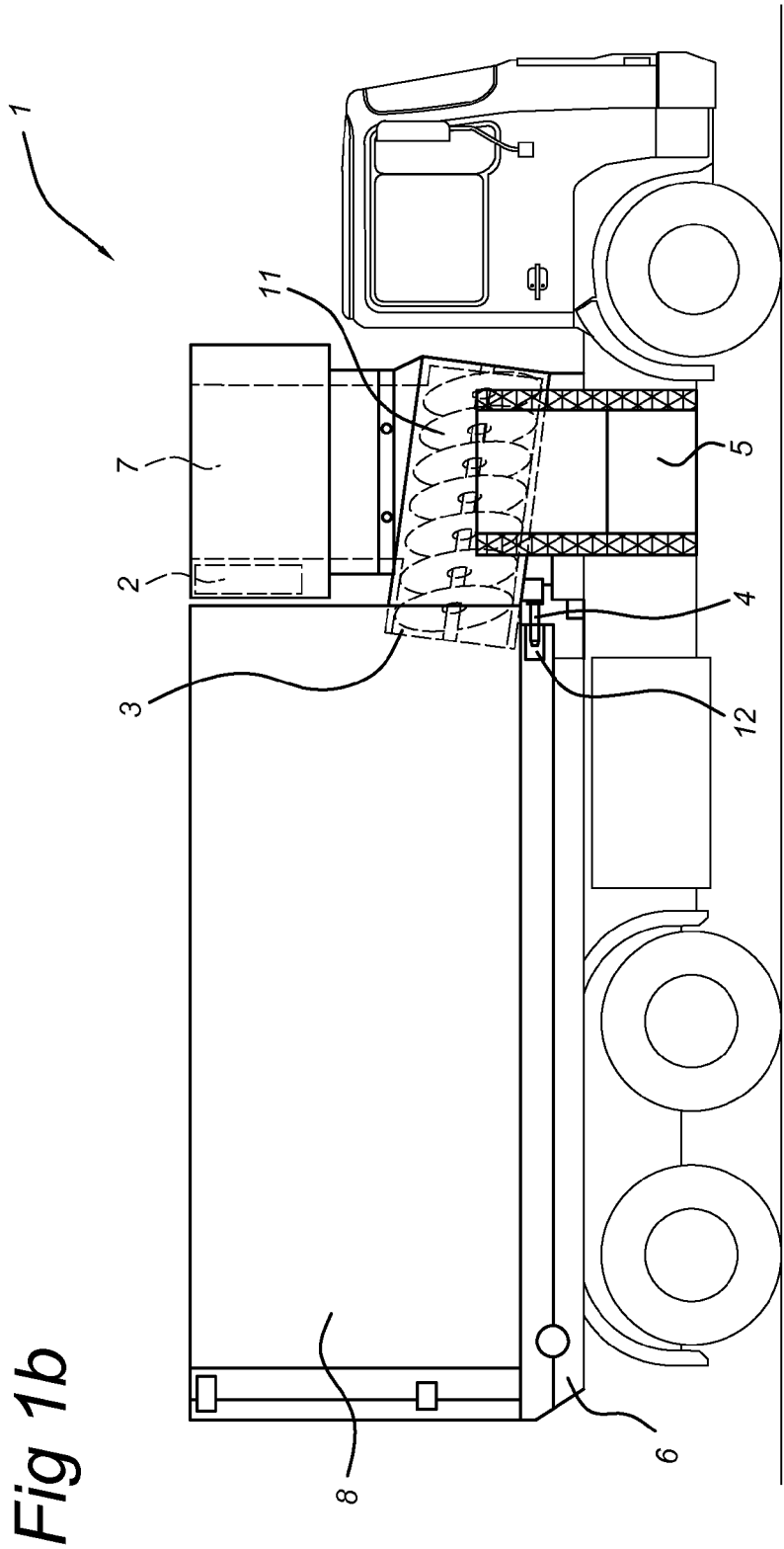
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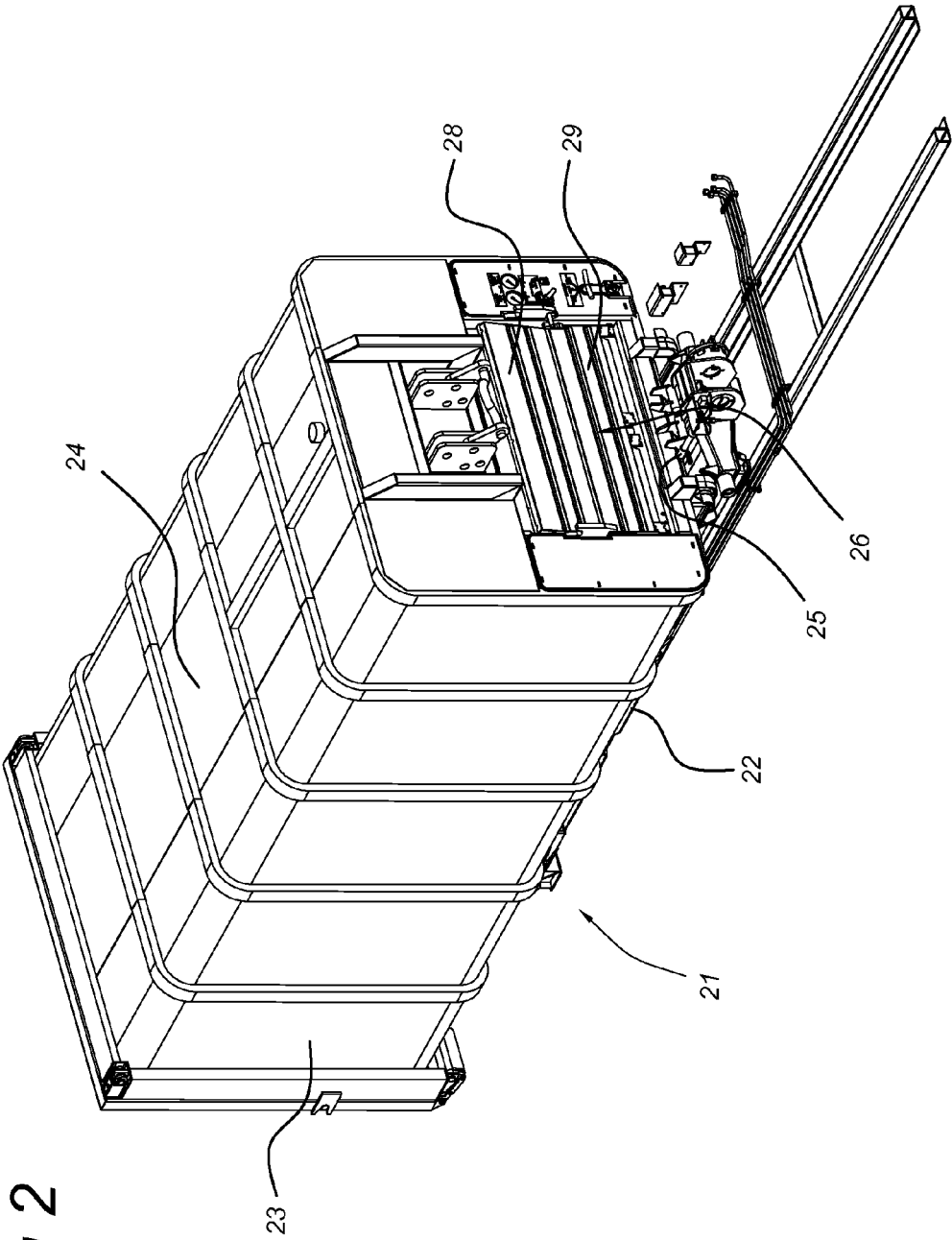


Fig 2

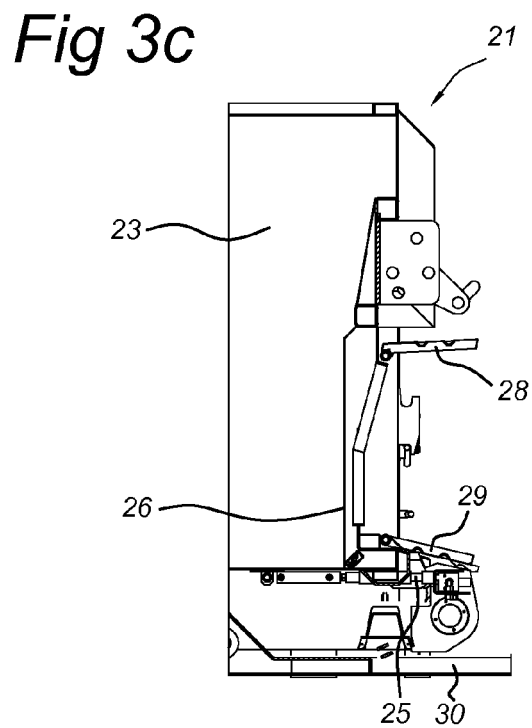
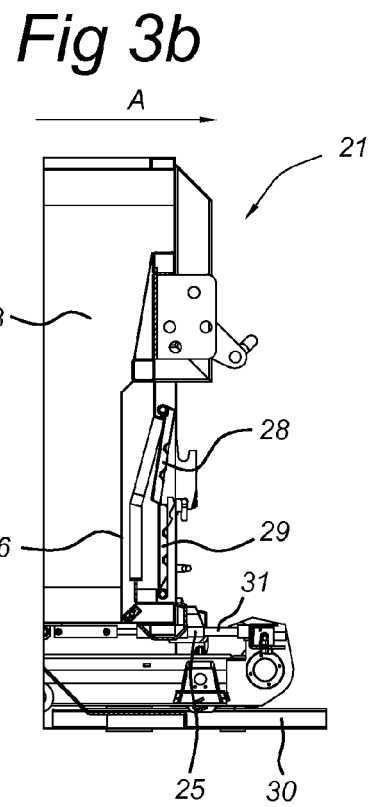
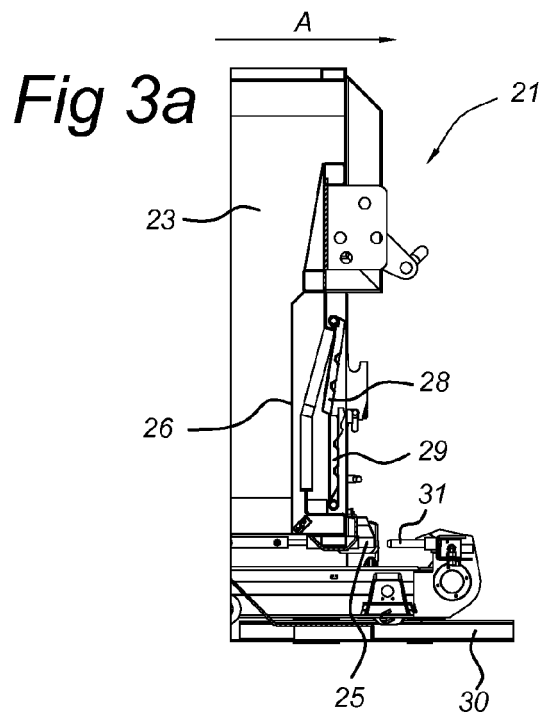


Fig 4a

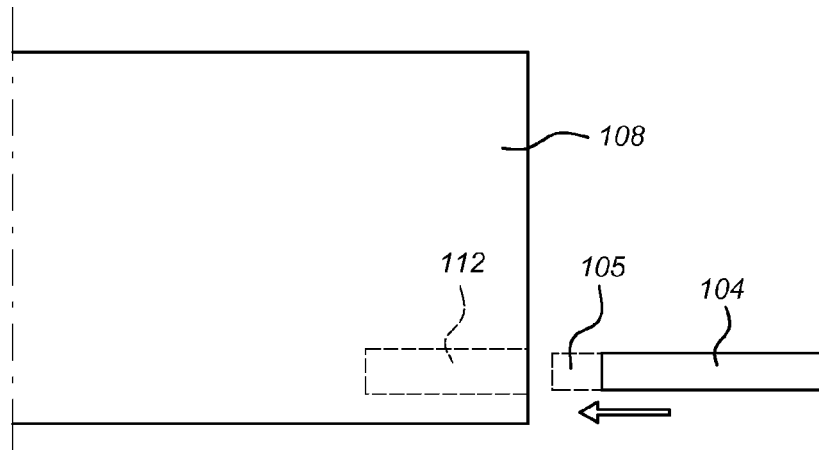


Fig 4b

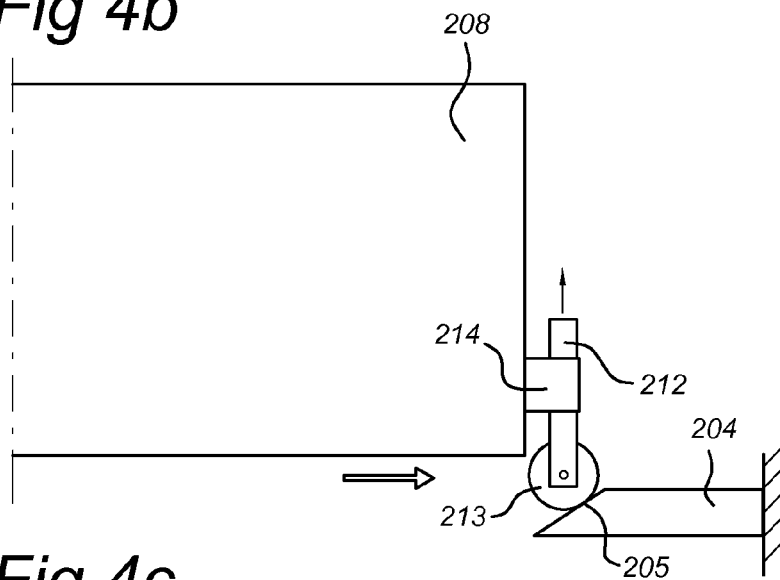
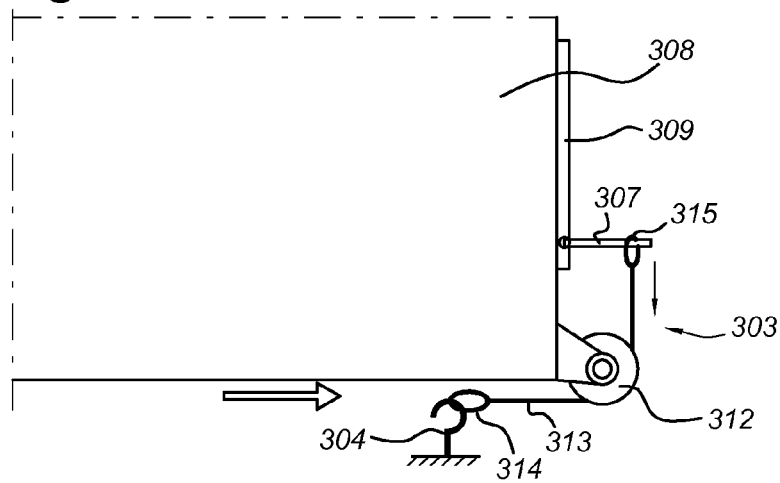


Fig 4c





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Application Number
EP 11 16 1699

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Place of search		Date of completion of the search	Examiner
The Hague		4 July 2011	Smolders, Rob
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