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(54) Refuse collection system and container therefore

Abfallsammelsystem und Behälter dafür

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(56) References cited:
EP-A- 1 679 271 DE-U- 29 705 938

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Description

[0001] The invention is related to a refuse collection container according to the preamble of claim 1 and a refuse collection system, comprising the refuse collection container, a lifting device and a ground surface, said refuse collection container comprising a supporting base supported on the ground surface, a top which extends above the ground level while the base is supported on the ground surface, a circumferential wall extending between the base and the top, which base, top and circumferential wall define a refuse collection chamber, and a closeable opening for depositing refuse in the chamber, said refuse collection container and lifting device comprising coupling means which are activatable for coupling the refuse collection container and the lifting device to each other for emptying the refuse collection container.

[0002] Such refuse collection systems are widely known. The prior art refuse collection systems are usually applied for handling relatively large amounts of refuse, for instance in public areas. Also applications in industrial environments are known. The refuse collection containers are positioned on a surface, in such a way that the refuse collection opening is accessible to the public. The covering of the refuse collection opening should thus be readily accessible, which is the case when said covering is at a level of for instance about 1 to 1,5 meter above the surface. A refuse collection system of this type is known.

[0003] Further refuse collection systems are known according to which the refuse collection container is fully contained in a bunker below ground level. Via a column on the lid which closes the bunker on the top side, refuse can be collected in the refuse collection container which is open at the top side and which therefore does not comprise a cover itself. Such type of refuse collection system is outside the scope of the present invention. An example of such refuse collection system is disclosed in EP 1 679 271 A, which discloses the preamble of claim 1.

[0004] For the purpose of emptying the refuse collection container, several systems are known. Usually these entail a refuse collection vehicle which carries a lifting device which is able to grip the refuse collection container, to lift it and to turn it upside down above the hold of the refuse collection vehicle so as to transfer the collected refuse from the refuse collection container to said hold.

[0005] Although these prior art systems are widely applied, nevertheless some disadvantages are connected thereto. These disadvantages are related to the way in which the refuse collection containers are connected to the lifting device. This coupling generally allows quite some play, which makes the lifting and turning over of the refuse collection containers, for the purpose of emptying, not quite convenient. Moreover, this process is accompanied by noise generation, which makes the prior art refuse collection system less fit for the specific applications, such in crowded areas.

[0006] The object of the invention is therefore to pro-

vide a refuse collection container by means of which a better coupling can be obtained between the refuse collection container and the lifting device. Said object is achieved by a refuse collection container according to claim 1. The application of bayonet type coupling means has several advantages. First of all, such a coupling means can be carried out in a way which provides a sturdy, stiff connection between the refuse collection container and the lifting device. Thereby, the process of lifting and turning over the refuse collection container can be carried out in a reliable way, having regard to the absence of any play between the refuse collection container and the lifting device. Moreover, noise generation is suppressed largely by such stiff connection.

[0007] Furthermore, the bayonet type coupling means provides the possibility to approach the refuse collection container from several directions by means of the lifting device. This makes the proper positioning of the lifting device with respect to the refuse collection container more easy, which is favourable for a quick coupling process. Thus, the work of the operator which controls the coupling process is greatly simplified and moreover the cycle time of handling a refuse collection container for emptying thereof is shortened. Alternatively, the bayonet type coupling means makes it more attractive to apply an automatic coupling process, that is without control by an operator.

[0008] The refuse collection container comprises coupling supports having elongate slots, and the lifting device comprises rotatable locking members having a longitudinal shape, said locking members being insertable through a corresponding coupling support slot each and being rotatable so as to hook behind the coupling supports. With the aim of further simplifying the process of coupling the lifting device onto the refuse collection container, the slots may have a curved shape, the radius of the curvature being an order of magnitude larger than the length of said slots.

[0009] By virtue of this curvature, coupling between the refuse collection container and the lifting device can take place even in case the rotatable locking members are positioned somewhat at an angle with respect to the slots concerned. This is obtained by the fact that the curvature may provide the rotatable members with an initial coupling within a certain range of play, in such a way that the rotatable members are guided further into the slots for a complete coupling.

[0010] The coupling supports are positioned on opposite sides of the refuse collection chamber, a skirt being provided on each of these sides and the coupling supports each extending between a side and a respective skirt. These skirts have the function of shielding the coupling supports, which protrude with respect to the refuse collection chamber, in such a way that the users of the refuse collection container are not harmed by said protruding parts, or soiled thereby. After all, the refuse collection container is placed on the surface of a specific area where the users have access so as to dispose of

their garbage.

[0011] Furthermore, the skirts may comprise end strips which are oriented perpendicular with respect to, and which are connected to, a respective side of the refuse collection chamber. Furthermore, the coupling supports may comprise a support plate each which is connected to a respective side of the refuse collection chamber at approximately right angles with respect to said side, the slots being provided in said support plates.

[0012] The lifting device may comprise counter supports which are positioned against the support plates for providing a stiff connection between the lifting device and the refuse collection container when the coupling means are in the activated condition. As mentioned before, said the lifting device approaches the support plates from above during the process of coupling. Finally, the coupling means abut or even collide against the support plates, and subsequently the coupling means are pressed firmly onto said support plates so as to enable the twist lock couplings to become activated. The downward forces exerted by the coupling means can therefore be considerable. Moreover, as the weight of the refuse collection container, together with collected refuse, may be considerable, the coupling members should be of a sturdy character. With the aim of providing sufficient resistance against such coupling forces and loadings, several types of reinforcements can be applied to the refuse collection container.

[0013] As mentioned before, the coupling means may approach the container from several directions. In a first embodiment, the direction of approach is vertical from above. To that end, the coupling supports comprise a support plate each, connected to a respective side of the refuse collection chamber at approximately right angles with respect to said side and parallel to the base, the slots being provided in said support plates.

[0014] According to a second possibility, the coupling means may approach the container in horizontal direction towards a side thereof. In this connection, the coupling supports comprise an end strip each connected to a respective side of the refuse collection chamber at approximately right angles with respect to said side and the base of the refuse collection chamber, the slots being provided in said end strips.

[0015] Fixed reinforcements may be provided which are each connected to the underside of a respective support plate of skirt and to the respective side. Furthermore, each reinforcement may comprise vertical respective horizontal stiffening plates extending between the underside of a respective support plate and the support base respective between the sides. Fixed reinforcements may extend between opposite end strips. These reinforcements provide a load path by means of which the coupling forces exerted on the coupling plates can be transferred, e.g. to the support base and thereby to the ground surface. Moreover, stiffening plates provide the refuse collection container with a sturdy character so as to cope with the loadings of the refuse collected therein.

[0016] According to a further possibility, displaceable reinforcements are provided, said displaceable reinforcements each extending in vertical direction in line with a respective elongate slot and comprising an upper control part and a lower foot part, said displaceable reinforcements having a rest position in which the lower foot part is at a distance above the ground surface and the upper control part protrudes in upward direction through the corresponding elongate slot, and an activated position in which the lower foot part rests upon the ground surface and the upper control part is at a distance beneath the corresponding elongate slot.

[0017] Such displaceable reinforcements can be activated by means of the lifting device. In this connection, the upper control part comprises an upper control surface against which a corresponding locking member is resting, a distance of the upper control surface of the upper control part beneath the corresponding elongate slot being generally equal to the thickness of the corresponding locking member.

[0018] Thus, after the twist lock type coupling means have been applied, at the same time the displaceable reinforcements are activated so as to transfer the coupling forces to the ground surface. These coupling forces are directed downwardly, and possibly would expose the refuse collection container to undesirable loadings. Such kind of reinforcements are in particular useful in case the refuse collection container comprises wheels which are positioned beneath the supporting base. As the coupling forces are transferred by means of the activated reinforcements, the vulnerable wheels are protected against overloadings.

[0019] The top may be provided with all kinds of closeable openings, depending on the use of the refuse collection chamber and the ease of handling desired. In particular the top may be provided with at least one refuse collection opening and at least one lid for opening respectively closing said refuse collection opening. Such lid can have a handle which may be gripped by a user at a convenient height, for instance 1 to 1,5 metres above the surface supporting the refuse collection container. Furthermore, for ease of handling and accessibility the lid may extend up to a transverse side of the refuse collection chamber, a hand grip being provided at said lid bordering said side. According to a variant, two opposite lids may be provided, said lids being hingeably supported in the middle of the refuse collection chamber between two opposite sides of the refuse collection chamber. Thus, the refuse collection container is accessible from two sides. Usually, the lifting device is mounted on a refuse collection vehicle provided with a refuse collection hold.

[0020] The invention is furthermore related to a refuse collection system according to the preamble of claim 14.

[0021] Such a refuse collection system is disclosed in EP-A-1679271. Said prior art refuse collection container is completely located underground in a refuse collection chamber. This prior art refuse collection container is

therefore less suitable for location above ground.

[0022] The object of the invention is to provide a refuse collection container of the type described before, which allows above ground location. Said object is achieved by the characterizing features of claim 14.

[0023] The invention will allow further be described with reference to the refuse collection system as shown in the drawings.

Figure 1 shows the refuse collection container according to the invention.

Figure 2 shows the top view of the refuse collection container according to figure 1.

Figure 3 shows a side view of the refuse collection container according to figure 1.

Figures 4a-d show several phases of the refuse collection system according to the invention, during emptying of the refuse collection container according to figures 1-3.

Figure 5 shows a second embodiment of the refuse collection container.

Figures 6-8 show a third embodiment of the refuse collection container.

Figure 9 shows an alternative embodiment of the container according to figure 1.

Figure 10 shows an alternative embodiment of the container according to figure 6

Figure 11 shows an example of handling the container according to figures 9 and 10.

[0024] The refuse collection container 1 as shown in figures 1-3 comprises a supporting base 2 and a top which has been indicated with the reference 3 in general. Furthermore, the circumferentially extending wall 4 extends between the base 2 and the top 3. The top comprises a number of four lids 5, each provided with a handle 6 to be gripped by a user for opening the respective lid 5 around the hinge 7.

[0025] The base 2, the top 3 and the circumferential wall 4 define the refuse collection chamber 8. In particular, said refuse collection chamber 8 is delimited by two sides 9 and two transverse sides 25. Welded to the top of the sides 9 are the respective support plates 10, which each comprise a curved slot 11. At the location of these curved slots 11, each support plate 10 is reinforced by means of a box 12, comprising vertical stiffening plates 13 and a distance plate 14. The stiffening plates 13 are welded to the underside of the respective support plate 10, at opposite ends of the curved slot 11, as well as to a respective side 9 of the refuse collection chamber 8. The lower end of the stiffening plates 13 is welded to the projecting parts 26 of the supporting base 2. The distance plate 14 is positioned at the distance from the slot 11, and is welded to the stiffening plates 13.

[0026] As is clear from figure 1, the support plates each have a curved outer edge 15 onto which a similarly curved skirt 16 has been welded. Said curved skirt 16 has end strips 17, which on the one hand are welded to the curved

skirt 17 and on the other hand to the refuse collection chamber 8.

[0027] Now turning to the phases as shown in figures 4a-b, the refuse collection container 1 is shown, as well as a refuse collection vehicle 18 which is provided with a lifting device 19. Both the refuse collection device 1 and the vehicle 18 are positioned on a ground surface 23. Said lifting device has an articulated arm 20, the free end of which is provided with elongate rotatable locking members 21 as well as counter supports 22. In full, two of such rotatable locking members 21 and counter supports 22 are provided next to each other on the lifting device 19.

[0028] In the phase shown in figure 4a, the lifting device 19 has been manipulated in such a way that the rotatable locking members 21 each have been inserted into a respective curved slot 11 of the refuse collection container 1, and have subsequently been rotated over 90° so as to grip behind the support plate 10 according to a generally known bayonet fitting. By lifting the arm 19 to the position shown in figure 4b, the refuse collection container 1 is slightly tilted towards the hold 24 of the refuse collection vehicle 18. Upon further moving the arm and 19 to the position as shown in figure 4c, the refuse collection container 1 is overturned above the hold 24. Under the influence of gravity, the lids 5 (or 32, see figure 5) pivot to the open position, after which the refuse collected in the refuse container 1 is dropped into the hold 24.

[0029] By reversing the movements of the lifting device 19, the refuse collection container is swung back and repositioned on the ground surface 23. During all these movements, the bayonet type coupling means in combination with the support plates 10 and the counter supports 22 provide a firm grip of the lifting device 19 so as to ensure a stable and play free movement of the refuse collection container 1.

[0030] As shown in figure 4d, the refuse collection container 1 can also be accommodated in a recessed area 40, the container base being down below the ground surface 23. However, the top is still at their sufficient level above the ground surface 23, so as to enable users to dispose of their garbage in a convenient way.

[0031] The refuse collection container 1 as shown in figure 5 comprises two lids 5, which each can be equipped with an electronic access device. Furthermore, solar cells may be present as well as a battery for powering such electronic access device. By presenting a badge near the electronic access device, a customer may obtained access by either opening the lid by hand, or by means of an automatically actuated lid. A filling segment may be present beneath the lid for the purposes of the limiting the amount of refuse which can be deposited each time.

[0032] Furthermore, said refuse collection container is equipped with an emptying lid 32, provided with a tumbling lock 33. Said tumbling lock is permanently locked in the nominal position of the refuse collection container. After turning over the refuse collection container by

means of the lifting device of the refuse collection vehicle, said tumbling lock automatically disengages and releases the emptying the lid so as to depose the refuse collected in the container into the hold of the refuse collection device.

[0033] The container as shown in figures 6-8 comprises wheels 31. Although said wheels 31 are strong enough for handling the container in normal use, they are vulnerable with respect to the coupling forces which are exerted by the lifting device on top of the supporting plates 10. For the purpose of transferring these forces to the ground surface other than by the wheels 31, the displaceable reinforcements 27 are provided. These displaceable reinforcements 27 are guided in vertical direction by means of the guides 35. Through the springs 36 the reinforcements 27 are biased in upward direction. Thus, in the rest position the upper control part 28 projects above the slot 11. Moreover, the foot part 29 is at a distance above the ground surface 23.

[0034] Upon approaching the refuse collection container by means of the lifting device, the locking members 21 of the counter supports 22 come into contact with the upper surface 30 half the upper control part 28. Next, upon further lowering the lifting device, the reinforcement is 27 are pushed in downward direction, against the bias of the springs 36. Finally, the footpath 29 ends up on the ground surface 23, and the upper control parts 28 at a distance beneath the slot 11. The locking members 21 are then rotated. The forces which are generated by the lifting device at this face on the top side of the refuse collection container, are however transferred to the ground surface 23 through the reinforcements 27, in such a way that the wheels 31 are not exposed to these relatively high forces.

[0035] In the embodiments of figures 9-11, the curved slots 11 are provided in the end strips 17. As shown in figure 11, the lifting device 19 may thus approach the container 1 from the side.

[0036] Furthermore, the refuse collection containers described before may be provided with a monitoring system for monitoring the degree of filling. Such monitoring system may for instance make use of GPRS. These kind of components may be accommodated in the space behind one of the skirts.

Claims

1. Refuse collection container (1) for a refuse collection system, comprising a supporting base (2), a top (3), a circumferential wall (4) extending between the base (2) and the top (3), which base, top and circumferential wall define a refuse collection chamber (8), and a closeable opening for depositing refuse in the chamber (8), said refuse collection container (1) comprising coupling means (10, 11) to attach the refuse collection container (1) to a lifting device (19) for emptying the refuse collection container (1), the

coupling means comprising elongate slots (11) for use in a bayonet type coupling means, wherein coupling supports (10, 17) of the refuse collection container (1) are positioned on opposite sides (9) of the refuse collection chamber (8),

characterized by a skirt (16) being provided over each of these sides (9) and the coupling supports (10, 17) each extending between a side (9) and a respective skirt (16), wherein either the coupling supports (10, 17) comprise a support plate (10) each, connected to a respective side (9) of the refuse collection chamber (8) at approximately right angles with respect to said side (9) and parallel to the base (2), the slots (11) being provided in said support plates (10), or the coupling supports (10, 17) comprise an end strip each, connected to a respective side (9) of the refuse collection chamber (8) at approximately right angles with respect to said side (9) and the base (2) of the refuse collection chamber, the slots (11) being provided in said end strips (17).

2. Refuse collection container (1) according to claim 1, wherein slots (11) have a curved shape, the radius of the curvature being an order of magnitude larger than the length of said slots (11).
3. Refuse collection container (1) according to claim 1 or 2, wherein the skirts (16) have a convex outside surface.
4. Refuse collection container (1) according to any of the preceding claims 1-3, wherein fixed reinforcements (12) are provided which are each connected to the underside of a respective support plate (10) or behind the skirt (16) and to a respective side (9).
5. Refuse collection container (1) according to claim 4, wherein each reinforcement (12) comprises stiffening plates (13) one edge of which is connected to the underside of a respective support plate (10) and which extend in downwardly from said respective support plate (10).
6. Refuse collection container (1) according to claim 5, wherein the stiffening plates (13) are connected to the respective side (9) of the refuse collection chamber (8).
7. Refuse collection container (1) according to claim 5 or 6, wherein the supporting base (2) projects with respect to the sides (9) of the chamber (8), the bottom part of the stiffening plates (13) being connected to the projecting parts (26) of the supporting base (2).
8. Refuse collection container (1) according to any of claims 5-7, wherein a distance plate (14) is connected between the stiffening plates (13).

9. Refuse collection container (1) according to any of claims 5-8, wherein the stiffening plates (13) enclose the elongate slots (11).

10. Refuse collection container (1) according to any of the preceding claims 1-9, wherein the top (3) is provided with at least one of a said closeable opening for depositing refuse in the chamber (8), and at least one lid (5) for opening respectively closing said closeable opening.

11. Refuse collection container (1) according to claim 10, wherein the lid (5) extends up to a transverse side (25) of the refuse collection chamber (8), a hand grip (6) being provided at the lid near said transverse side.

12. Refuse collection container (1) according to claims 10 or 11, wherein two opposite lids (5) are provided, said lids being hingeably supported in the middle of the refuse collection chamber (8) between two opposite transverse sides (25) of the refuse collection chamber (8).

13. Refuse collection container (1) according to claim 10 or 11, wherein an emptying lid (32) is provided, said lid being in closed position by means of a tumbling lock (33), said tumbling lock (33) being locked in the nominal position of the refuse collection container (1) and being released in the turned over position thereof for emptying the contents of the refuse collection container (61).

14. Refuse collection system, comprising the refuse collection container (1) according to any of the preceding claims 1-13, a lifting device (19) and a ground surface (23), the top (5) extending above a ground level while the base (2) is supported on the ground surface (23), said refuse collection container (1) and lifting device (19) comprising coupling means (10, 11, 21, 22) which are activatable to attach the refuse collection container (1) and the lifting device (19) to each other for emptying the refuse collection container (1), **characterised in that** the lifting device (19) comprises rotatable locking members (21) having an elongated shape, said locking members (21) being insertable through a corresponding coupling support slot (11) each and being rotatable so as to hook behind the coupling supports (10, 17).

15. System according to claim 14, wherein the lifting device (19) comprises counter supports (22) which are positioned against the coupling supports (10) for providing a stiff connection between the lifting device (19) and the refuse collection container (1) when the coupling means (10, 11, 21, 22) are in the activated condition.

16. System according to claim 14, the refuse collection container (1) according to claim 4, wherein fixed reinforcements are provided which extend between opposite end strips.

17. System according to any of the preceding claims 14-16, comprising a refuse collection vehicle (18) provided with a refuse collection hold (24), wherein the lifting device (19) is mounted on the refuse collection vehicle (18).

18. System according to any of the preceding claims 14-17, wherein the ground surface (23) is level with respect to ground level.

19. System according to any of claims 14-17, wherein the ground surface is countersunk (40) with respect to ground level (23) over a distance which is at most equal to half the height of the refuse collection container (1).

Patentansprüche

1. Abfallsammelbehälter (1) für ein Abfallsammelsystem, umfassend eine tragende Basis (2), ein Oberteil (3), eine Umfangswand (4), die sich zwischen der Basis (2) und dem Oberteil (3) erstreckt, wobei die Basis, das Oberteil und die Umfangswand eine Abfallsammelkammer (8) definieren, und eine verschließbare Öffnung zum Einbringen von Abfall in die Kammer (8), wobei der Abfallsammelbehälter (1) Kopplungsmittel (10, 11) zum Befestigen des Abfallsammelbehälters (1) an einer Hebevorrichtung (19) zum Entleeren des Abfallsammelbehälters (1) umfasst, wobei die Kopplungsmittel Längsschlitze (11) zur Verwendung in einem bajonettartigen Kopplungsmittel umfassen, wobei Kopplungshalterungen (10, 17) des Abfallsammelbehälters (1) auf gegenüberliegenden Seiten (9) der Abfallsammelkammer (8) angeordnet sind, **gekennzeichnet durch** eine Schürze (16), die über jeder dieser Seiten (9) vorgesehen ist, und wobei sich die Kopplungshalterungen (10, 17) jeweils zwischen einer Seite (9) und einer entsprechenden Schürze (16) erstrecken, wobei entweder die Kopplungshalterungen (10, 17) jeweils eine Stützplatte (10) umfassen, die jeweils mit einer entsprechenden Seite (9) der Abfallsammelkammer (8) in ungefähr rechten Winkeln in Bezug auf die Seite (9) und parallel zur Basis (2) verbunden ist, wobei die Schlitze (11) in den Halterungsplatten (10) vorgesehen sind, oder wobei die Kopplungshalterungen (10, 17) jeweils einen Endstreifen umfassen, der mit einer jeweiligen Seite (9) der Abfallsammelkammer (8) unter ungefähr rechten Winkeln in Bezug auf die Seite (9) und die Basis (2) der Abfallsammelkammer verbunden ist, wobei die Schlitze (11) in den Endstreifen (17) vorgesehen sind.

2. Abfallsammelbehälter (1) nach Anspruch 1, wobei Schlitz (11) eine gekrümmte Form aufweisen, wobei der Radius der Krümmung um eine Größenordnung größer als die Länge der Schlitz (11) ist.
3. Abfallsammelbehälter (1) nach Anspruch 1 oder 2, wobei die Schürzen (16) eine konvexe Außenfläche aufweisen.
4. Abfallsammelbehälter (1) nach einem der vorhergehenden Ansprüche 1 bis 3, wobei feste Verstärkungen (12) vorgesehen sind, die jeweils mit der Unterseite einer entsprechenden Halterungsplatte (10) oder hinter der Schürze (16) und mit einer entsprechenden Seite (39) verbunden sind.
5. Abfallsammelbehälter (1) nach Anspruch 4, wobei jede Verstärkung (12) Versteifungsplatten (13) aufweist, von denen eine Kante mit der Unterseite einer jeweiligen Halterungsplatte (10) verbunden ist und die sich von der jeweiligen Halterungsplatte (10) nach unten erstrecken.
6. Abfallsammelbehälter (1) nach Anspruch 5, wobei die Versteifungsplatten (13) mit der jeweiligen Seite (9) der Abfallsammelkammer (8) verbunden sind.
7. Abfallsammelbehälter (1) nach Anspruch 5 oder 6, wobei die tragende Basis (2) in Bezug auf die Seiten (9) der Kammer (8) vorsteht, wobei der untere Teil der Versteifungsplatten (13) mit den vorstehenden Teilen (26) der tragenden Basis (2) verbunden ist.
8. Abfallsammelbehälter (1) nach einem der Ansprüche 5 bis 7, wobei eine Distanzplatte (14) zwischen den Versteifungsplatten (13) verbunden ist.
9. Abfallsammelbehälter (1) nach einem der Ansprüche 5 bis 8, wobei die Versteifungsplatten (13) die Längsschlitz (11) umschließen.
10. Abfallsammelbehälter (1) nach einem der vorhergehenden Ansprüche 1 bis 9, wobei die Oberseite (3) mit mindestens einer der genannten verschließbaren Öffnungen zum Einbringen von Abfall in die Kammer (8) und mindestens einem Deckel (5) zum Öffnen bzw. Schließen der verschließbaren Öffnung versehen ist.
11. Abfallsammelbehälter (1) nach Anspruch 10, wobei sich der Deckel (5) bis zu einer Querseite (25) der Abfallsammelkammer (8) erstreckt, wobei ein Handgriff (6) am Deckel nahe der Querseite vorgesehen ist.
12. Abfallsammelbehälter (1) nach Anspruch 10 oder 11, wobei zwei gegenüberliegende Deckel (5) vorgesehen sind, wobei die Deckel in der Mitte der Abfallsammelkammer (8) zwischen zwei gegenüberliegenden Querseiten (25) der Abfallsammelkammer (8) schwenkbar gelagert sind.
13. Abfallsammelbehälter (1) nach Anspruch 10 oder 11, wobei ein Entleerungsdeckel (32) vorgesehen ist, wobei der Deckel mittels eines Zylinderschlusses (33) in geschlossener Position ist, wobei das Zylinderschloss (33) in der Nennposition des Abfallsammelbehälters (1) verriegelt ist und in seiner umgedrehten Position zum Entleeren des Inhalts des Abfallsammelbehälters (61) freigegeben ist.
14. Abfallsammelsystem, umfassend den Abfallsammelbehälter (1) gemäß einem der vorhergehenden Ansprüche 1 bis 13, eine Hebevorrichtung (19) und eine Bodenfläche (23), wobei sich das Oberteil (5) über ein Bodenniveau erstreckt, während die Basis (2) auf der Bodenfläche (23) gelagert ist, wobei der Abfallsammelbehälter (1) und die Hebevorrichtung (19) Kopplungsmittel (10, 11, 21, 22) umfassen, die aktivierbar sind, um den Abfallsammelbehälter (1) und die Hebevorrichtung (19) zum Entleeren des Abfallsammelbehälters (1) aneinander zu befestigen, **dadurch gekennzeichnet, dass** die Hebevorrichtung (19) drehbare Verriegelungselemente (21) mit einer länglichen Form aufweist, wobei die Verriegelungselemente (21) jeweils durch einen entsprechenden Kopplungshalteschlitz (11) einführbar sind und drehbar sind, so dass sie sich hinter den Kopplungshalterungen (10, 17) verhaken.
15. System nach Anspruch 14, wobei die Hebevorrichtung (19) Gegenlager (22) umfasst, die gegen die Kopplungshalterungen (10) positioniert sind, um eine steife Verbindung zwischen der Hebevorrichtung (19) und dem Abfallsammelbehälter (1) bereitzustellen, wenn sich die Kopplungsmittel (10, 11, 21, 22) im aktivierten Zustand befinden.
16. System nach Anspruch 14, Abfallsammelbehälter (1) nach Anspruch 4, wobei feste Verstärkungen vorgesehen sind, die sich zwischen gegenüberliegenden Endstreifen erstrecken.
17. System nach einem der vorhergehenden Ansprüche 14 bis 16, umfassend ein Müllabfuhrfahrzeug (18), das mit einem Abfallsammelraum (24) versehen ist, wobei die Hebevorrichtung (19) an dem Müllabfuhrfahrzeug (18) montiert ist.
18. System nach einem der vorhergehenden Ansprüche 14 bis 17, wobei die Bodenfläche (23) in Bezug auf die Bodenhöhe eben ist.
19. System nach einem der Ansprüche 14 bis 17, wobei die Bodenfläche in Bezug auf die Bodenhöhe (23) über eine Distanz versenkt (40) ist, die höchstens

gleich der halben Höhe des Abfallsammelbehälters (1) ist.

Revendications

1. Conteneur de collecte de déchets (1) pour un système de collecte de déchets, comprenant une base de support (2), une partie supérieure (3), une paroi circonférentielle (4) s'étendant entre la base (2) et la partie supérieure (3), ladite base, ladite partie supérieure et ladite paroi circonférentielle définissant une chambre de collecte de déchets (8), et une ouverture refermable pour déposer des déchets dans la chambre (8), ledit conteneur de collecte de déchets (1) comprenant des moyens de couplage (10, 11) pour fixer le conteneur de collecte de déchets (1) à un dispositif de levage (19) pour vider le conteneur de collecte de déchets (1), les moyens de couplage comprenant des fentes allongées (11) destinées à être utilisées dans des moyens de couplage de type à baïonnette, des supports de couplage (10, 17) du conteneur de collecte de déchets (1) étant positionnés sur des côtés opposés (9) de la chambre de collecte de déchets (8), **caractérisé par** une jupe (16) qui est prévue sur chacun de ces côtés (9) et les supports de couplage (10, 17) s'étendant chacun entre un côté (9) et une jupe respective (16), soit les supports de couplage (10, 17) comprenant chacun une plaque de support (10) reliée à un côté respectif (9) de la chambre de collecte de déchets (8) à angles approximativement droits par rapport audit côté (9) et parallèlement à la base (2), les fentes (11) étant prévues dans lesdites plaques de support (10), soit les supports de couplage (10, 17) comprenant chacun une bande d'extrémité reliée à un côté respectif (9) de la chambre de collecte de déchets (8) à angles approximativement droits par rapport audit côté (9) et la base (2) de la chambre de collecte de déchets, les fentes (11) étant prévues dans lesdites bandes d'extrémité (17).
2. Conteneur de collecte de déchets (1) selon la revendication 1, dans lequel des fentes (11) ont une forme incurvée, le rayon de courbure étant d'un ordre de grandeur plus grand que la longueur desdites fentes (11).
3. Conteneur de collecte de déchets (1) selon la revendication 1 ou 2, dans lequel les jupes (16) ont une surface extérieure convexe.
4. Conteneur de collecte de déchets (1) selon l'une quelconque des revendications 1 à 3, dans lequel des renforts fixes (12) sont prévus, lesquels sont chacun reliés au dessous d'une plaque de support respective (10) ou derrière la jupe (16) et à un côté respectif (39).
5. Conteneur de collecte de déchets (1) selon la revendication 4, dans lequel chaque renfort (12) comprend des plaques de raidissement (13) dont un bord est relié au dessous d'une plaque de support respective (10) et qui s'étendent vers le bas à partir de ladite plaque de support respective (10).
6. Conteneur de collecte de déchets (1) selon la revendication 5, dans lequel les plaques de raidissement (13) sont reliées au côté respectif (9) de la chambre de collecte de déchets (8).
7. Conteneur de collecte de déchets (1) selon la revendication 5 ou 6, dans lequel la base de support (2) fait saillie par rapport aux côtés (9) de la chambre (8), la partie inférieure des plaques de raidissement (13) étant reliée aux parties en saillie (26) de la base de support (2) .
8. Conteneur de collecte de déchets (1) selon l'une quelconque des revendications 5 à 7, dans lequel une plaque d'écartement (14) est reliée entre les plaques de raidissement (13).
9. Conteneur de collecte de déchets (1) selon l'une quelconque des revendications 5 à 8, dans lequel les plaques de raidissement (13) entourent les fentes allongées (11) .
10. Conteneur de collecte de déchets (1) selon l'une quelconque des revendications 1 à 9, dans lequel la partie supérieure (3) comporte au moins un parmi une ouverture refermable précitée pour déposer des déchets dans la chambre (8), et au moins un couvercle (5) pour ouvrir et fermer, respectivement, ladite ouverture refermable.
11. Conteneur de collecte de déchets (1) selon la revendication 10, dans lequel le couvercle (5) s'étend jusqu'à un côté transversal (25) de la chambre de collecte de déchets (8), une poignée (6) étant prévue au couvercle, près dudit côté transversal.
12. Conteneur de collecte de déchets (1) selon la revendication 10 ou 11, dans lequel deux couvercles opposés (5) sont prévus, lesdits couvercles étant supportés de manière articulée au milieu de la chambre de collecte de déchets (8) entre deux côtés transversaux opposés (25) de la chambre de collecte de déchets (8).
13. Conteneur de collecte de déchets (1) selon la revendication 10 ou 11, dans lequel un couvercle de vidage (32) est prévu, ledit couvercle étant en position fermée au moyen d'un verrou à culbute (33), ledit verrou à culbute (33) étant verrouillé dans la position nominale du conteneur de collecte de déchets (1) et étant libéré dans la position retournée de celui-ci

pour vider le contenu du conteneur de collecte de déchets (1).

14. Système de collecte de déchets, comprenant le conteneur de collecte de déchets (1) selon l'une quelconque des revendications 1 à 13, un dispositif de levage (19) et une surface de sol (23), la partie supérieure (5) s'étendant au-dessus d'un niveau du sol tandis que la base (2) est supportée sur la surface de sol (23), ledit conteneur de collecte de déchets (1) et ledit dispositif de levage (19) comprenant des moyens de couplage (10, 11, 21, 22) qui sont aptes à être activés pour fixer le conteneur de collecte de déchets (1) et le dispositif de levage (19) l'un à l'autre pour vider le conteneur de collecte de déchets (1), **caractérisé par le fait que** le dispositif de levage (19) comprend des éléments de verrouillage rotatifs (21) ayant une forme allongée, lesdits éléments de verrouillage (21) étant chacun aptes à être introduits à travers une fente de support de couplage correspondante (11) et aptes à tourner de façon à s'accrocher derrière les supports de couplage (10, 17). 5
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15. Système selon la revendication 14, dans lequel le dispositif de levage (19) comprend des contre-supports (22) qui sont positionnés contre les supports de couplage (10) pour assurer une liaison rigide entre le dispositif de levage (19) et le conteneur de collecte de déchets (1) lorsque les moyens de couplage (10, 11, 21, 22) sont dans l'état activé. 25
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16. Système selon la revendication 14, le conteneur de collecte de déchets (1) selon la revendication 4, dans lesquels des renforts fixes sont prévus, lesquels s'étendent entre des bandes d'extrémité opposées. 35
17. Système selon l'une quelconque des revendications 14 à 16, comprenant un véhicule de collecte de déchets (18) comportant une soute de collecte de déchets (24), le dispositif de levage (19) étant monté sur le véhicule de collecte de déchets (18). 40
18. Système selon l'une quelconque des revendications 14 à 17, dans lequel la surface de sol (23) est alignée par rapport au niveau du sol. 45
19. Système selon l'une quelconque des revendications 14 à 17, dans lequel la surface de sol est renforcée (40) par rapport au niveau du sol (23) sur une distance qui est au plus égale à la moitié de la hauteur du conteneur de collecte de déchets (1). 50

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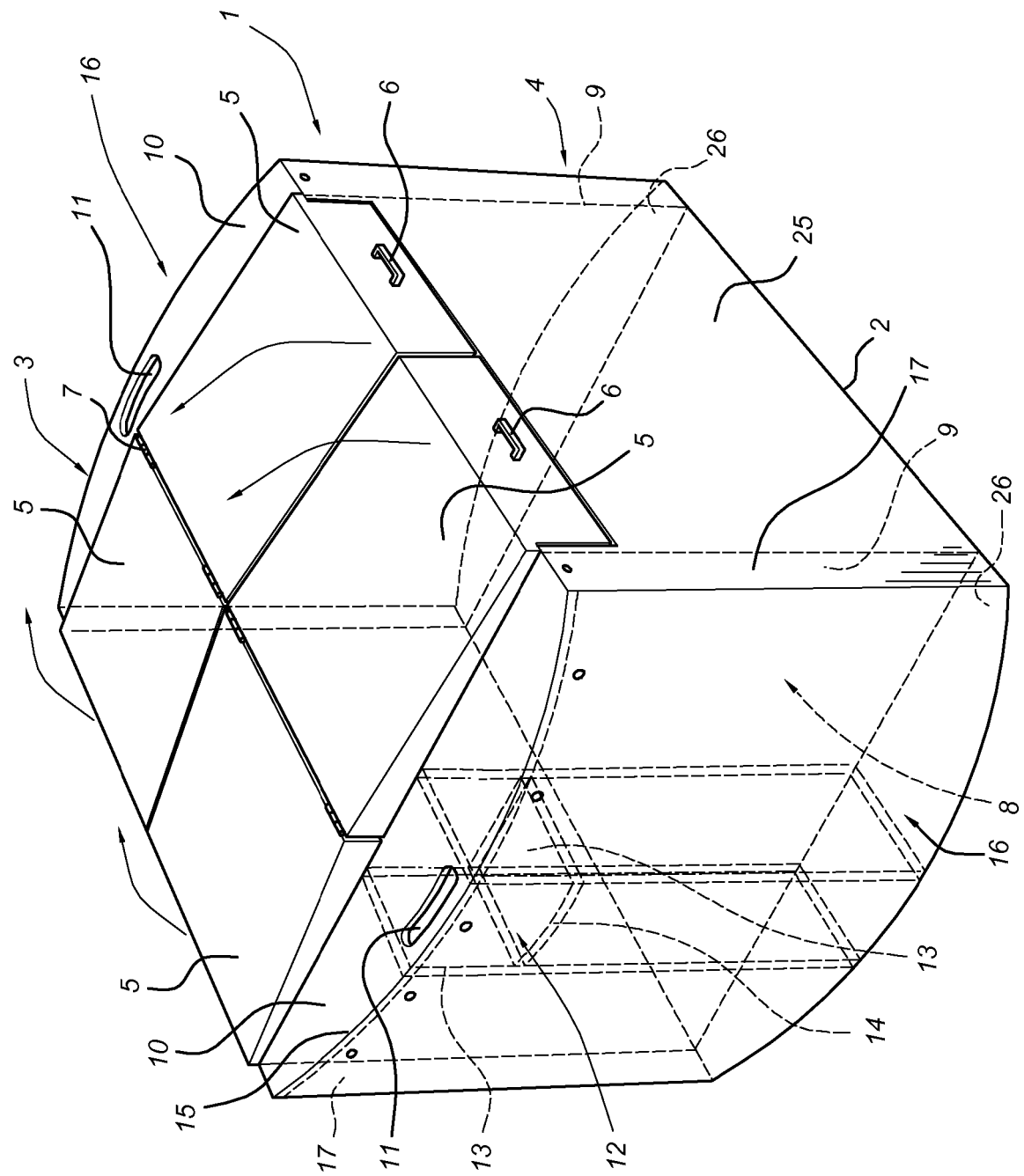


Fig 1

Fig 2

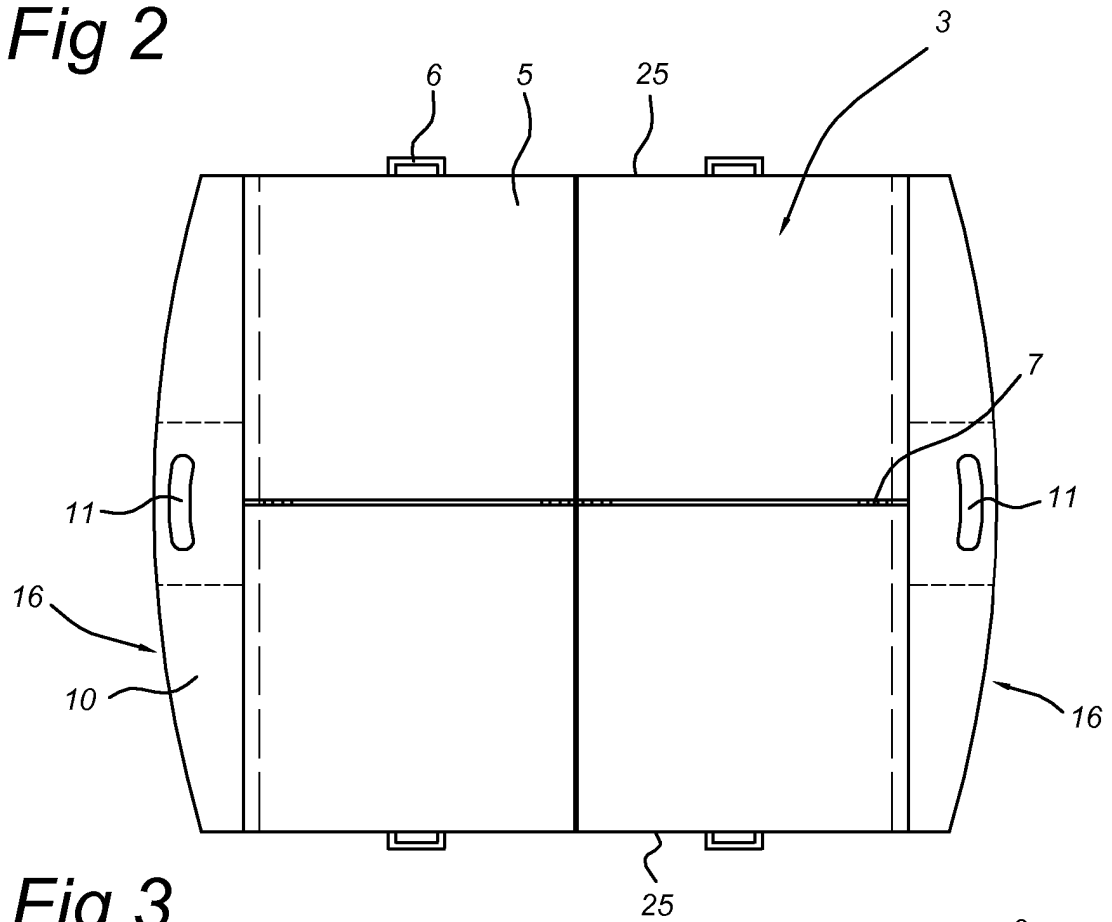
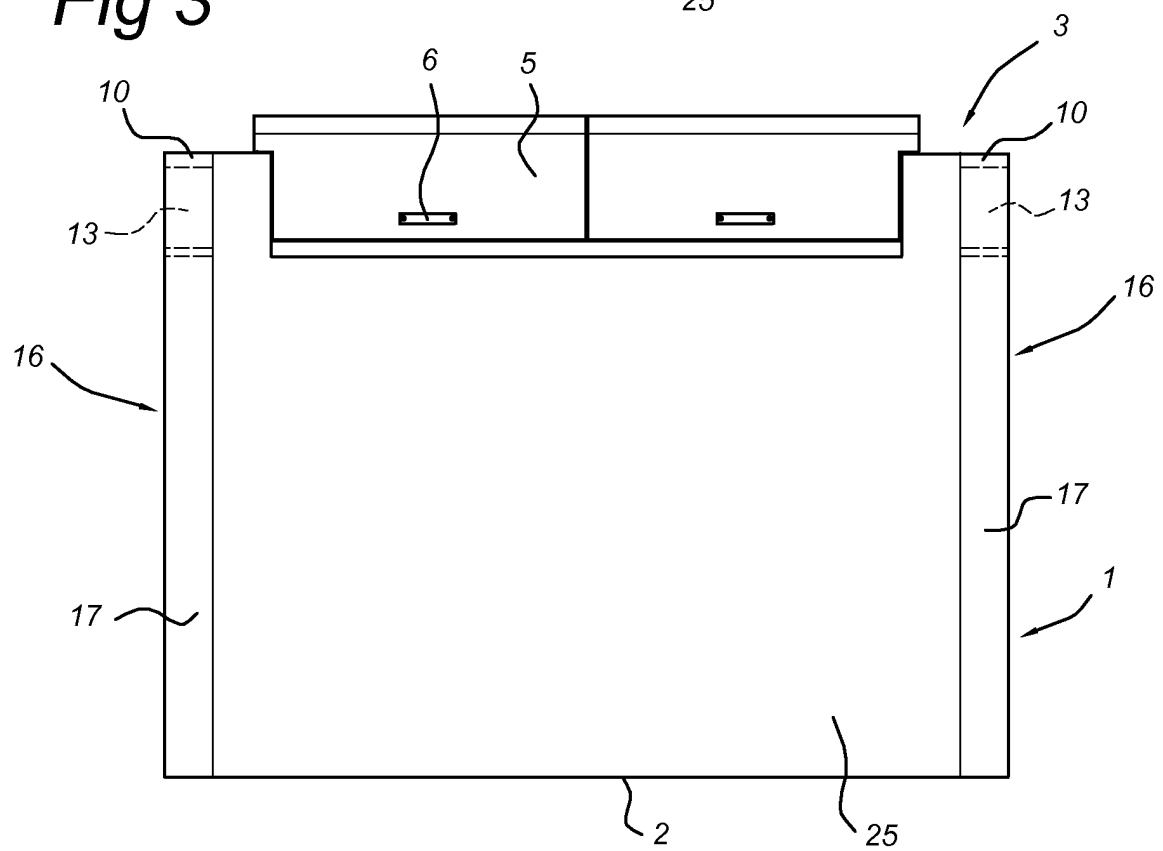


Fig 3



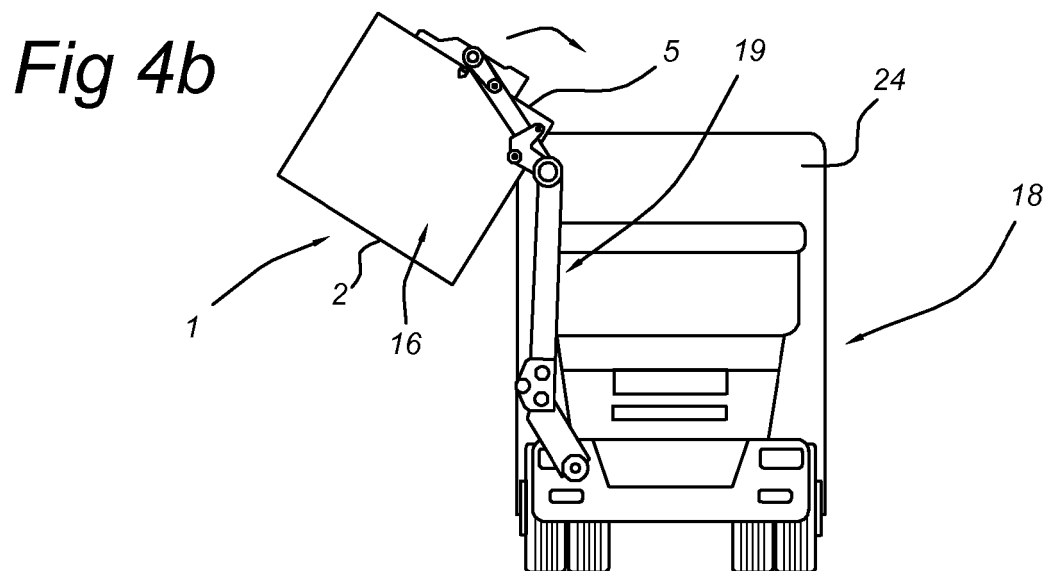
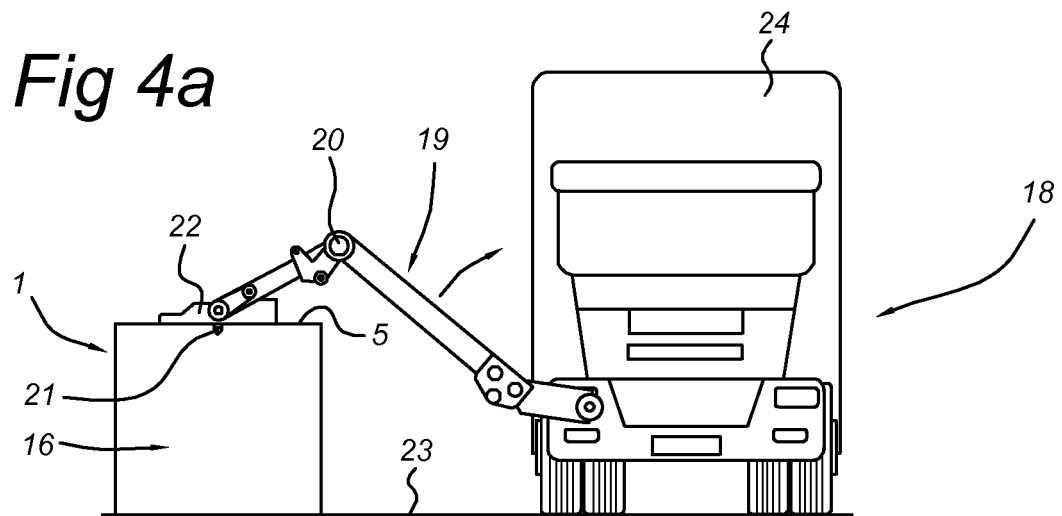


Fig 4c

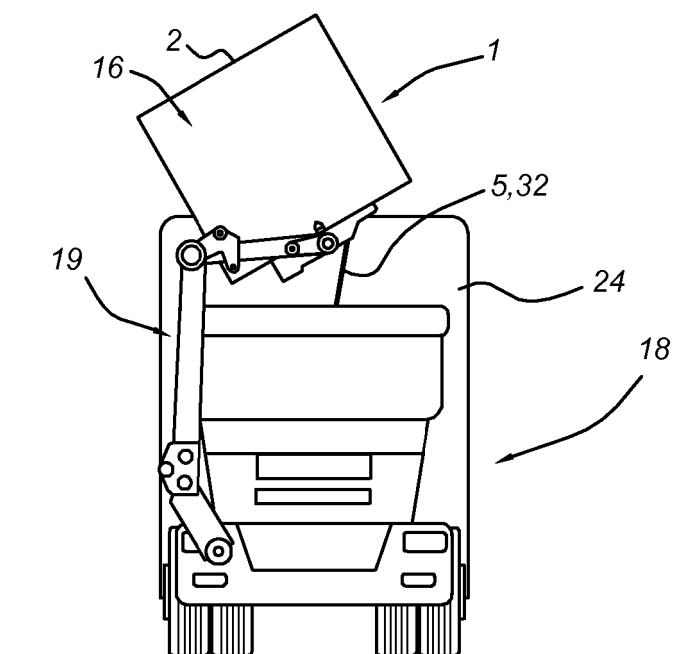
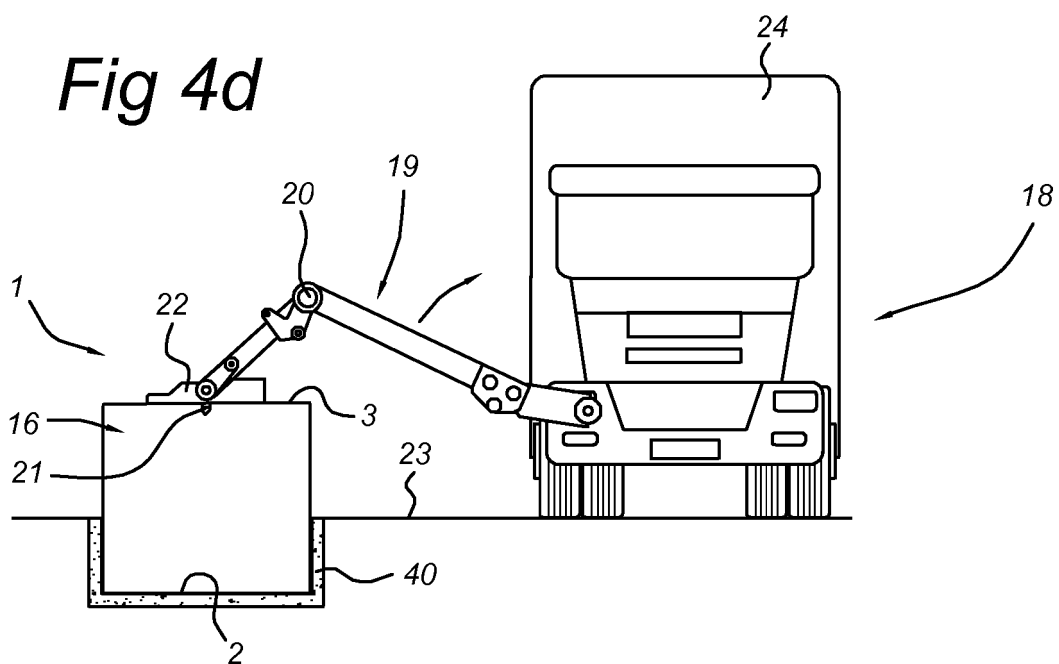


Fig 4d



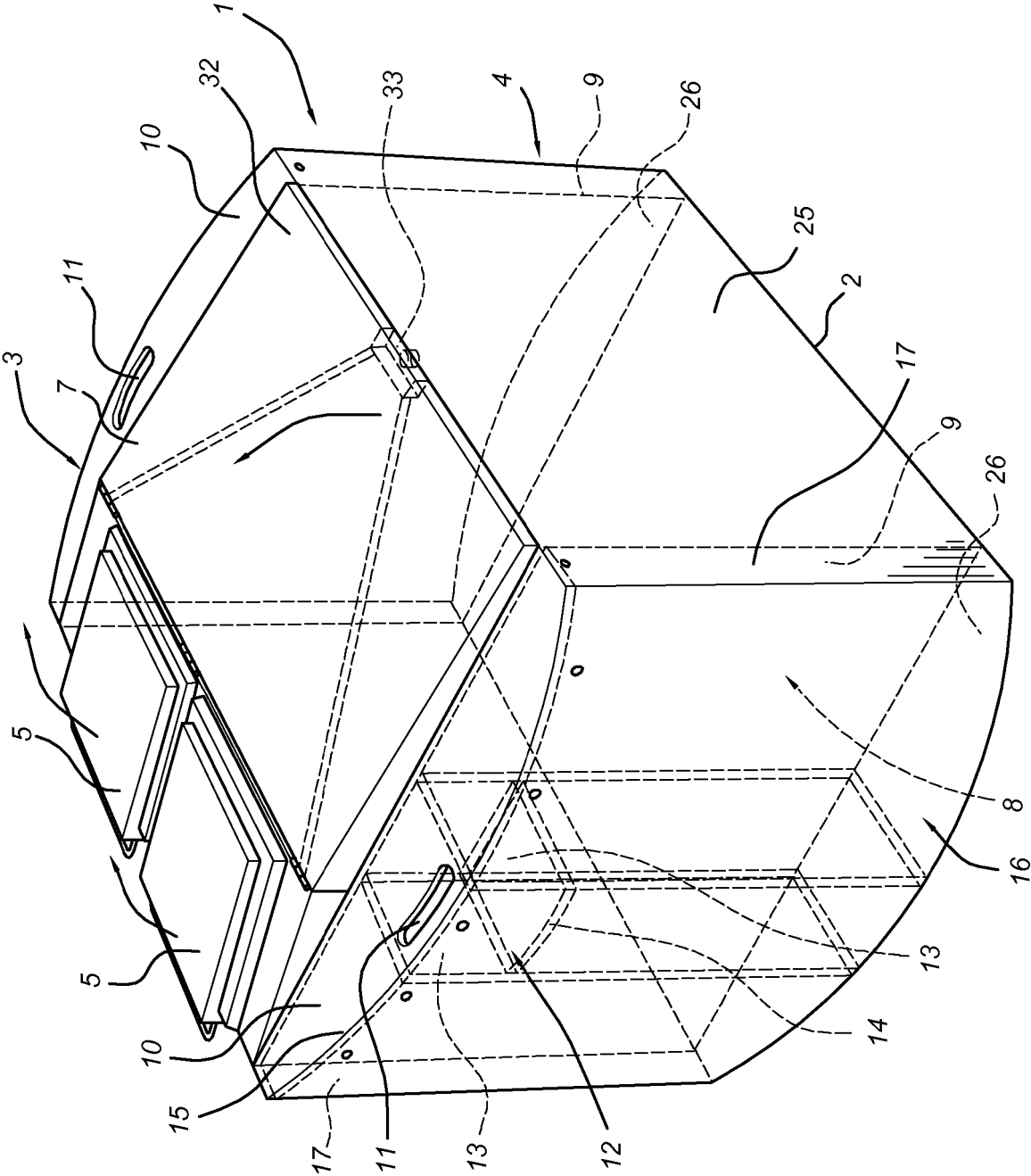


Fig 5

Fig 6

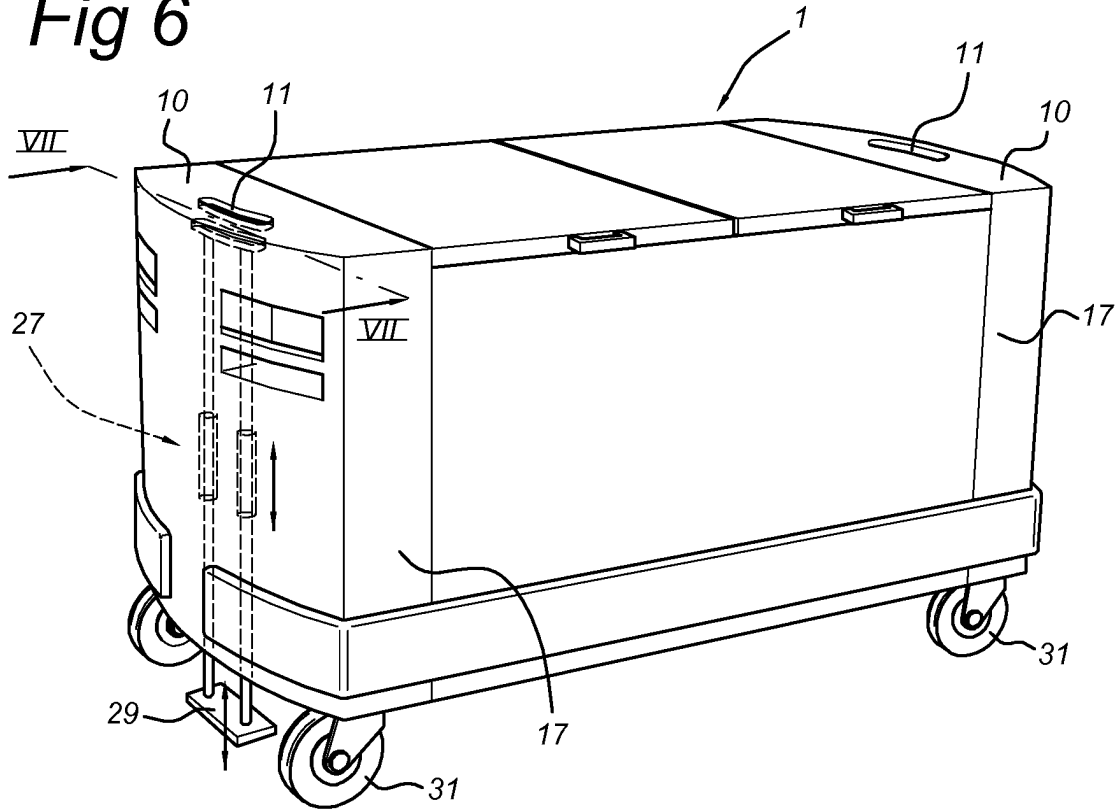


Fig 7

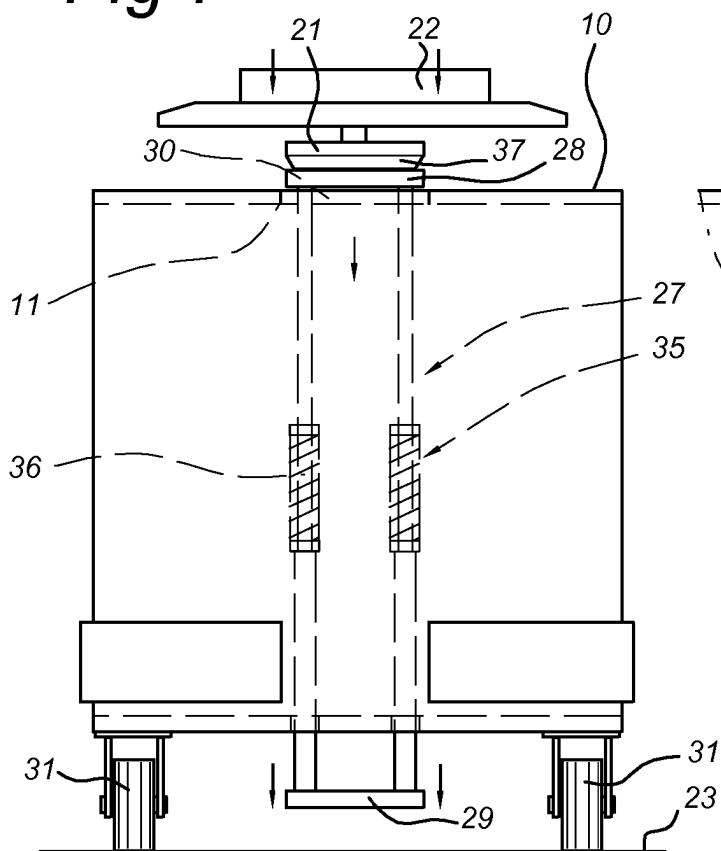
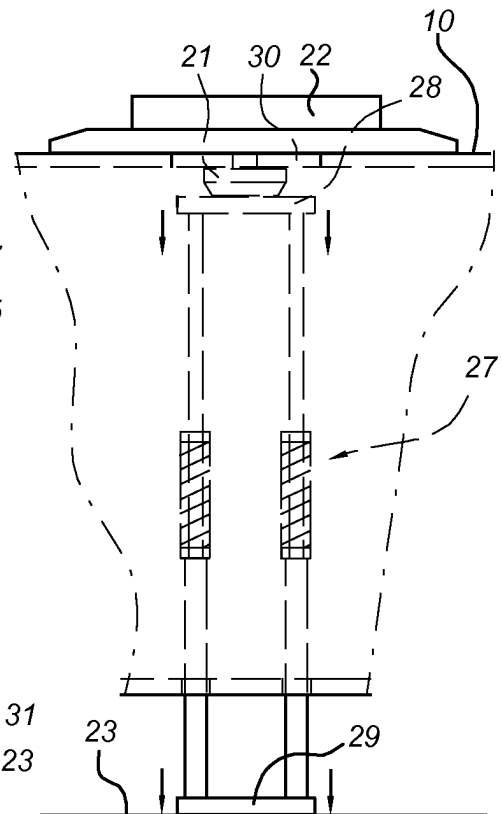


Fig 8



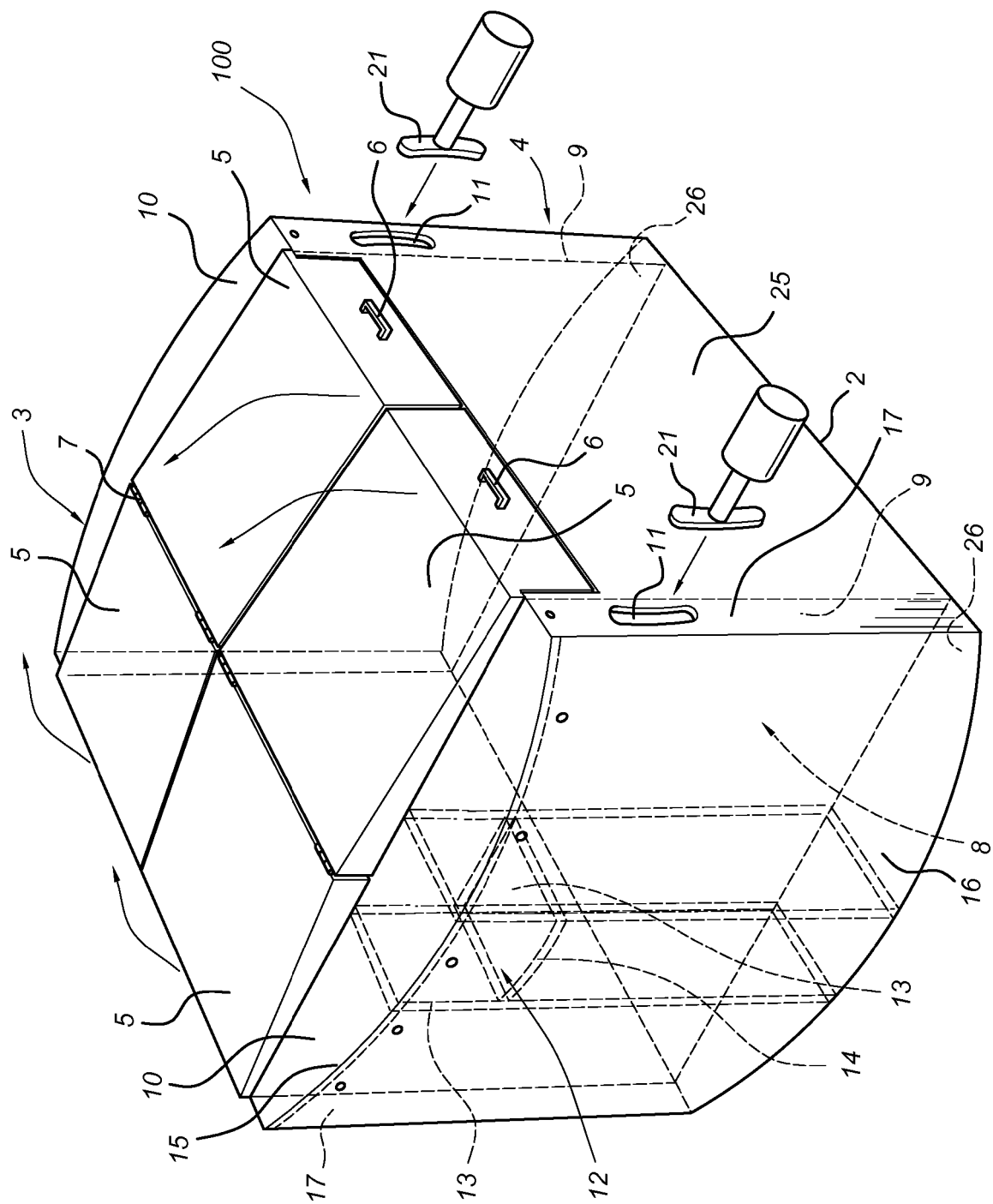


Fig 9

Fig 10

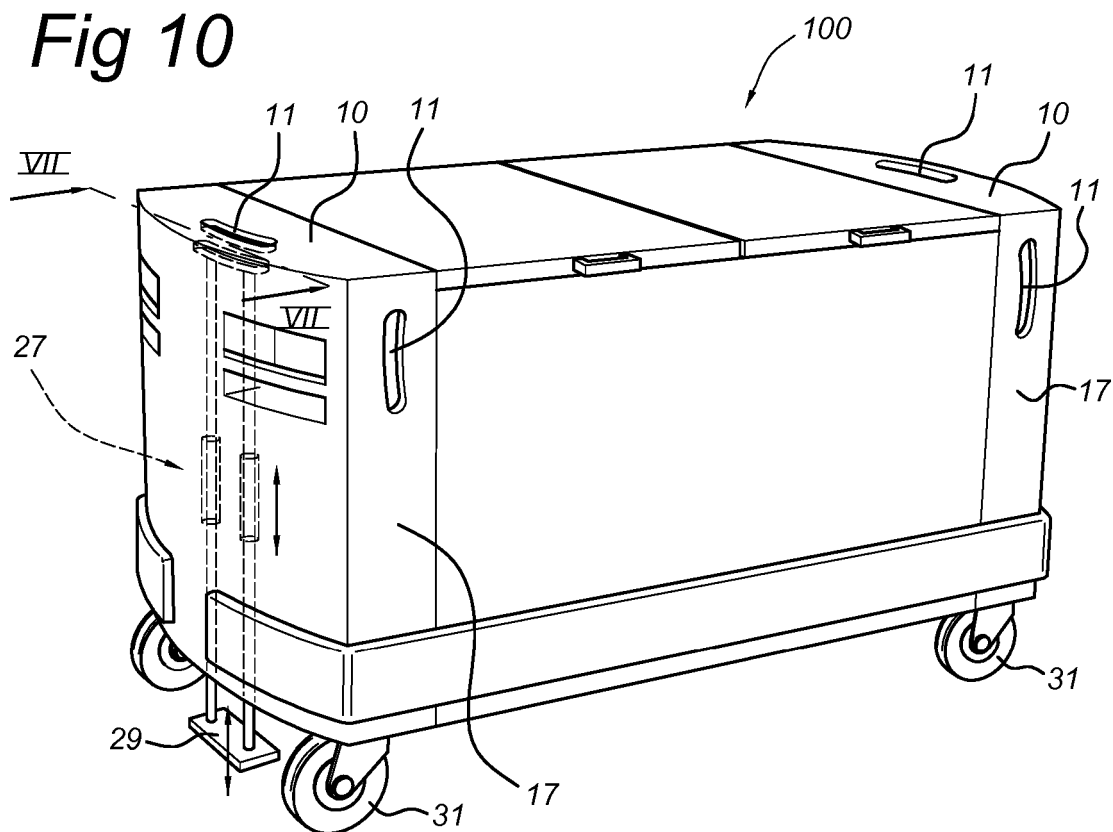
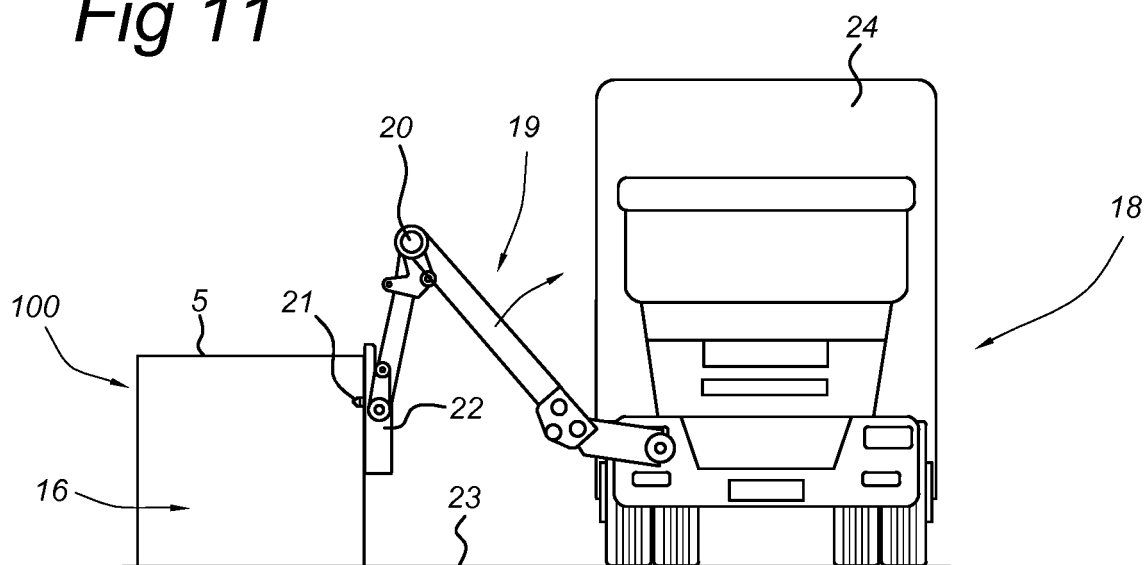


Fig 11



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1679271 A [0003] [0021]