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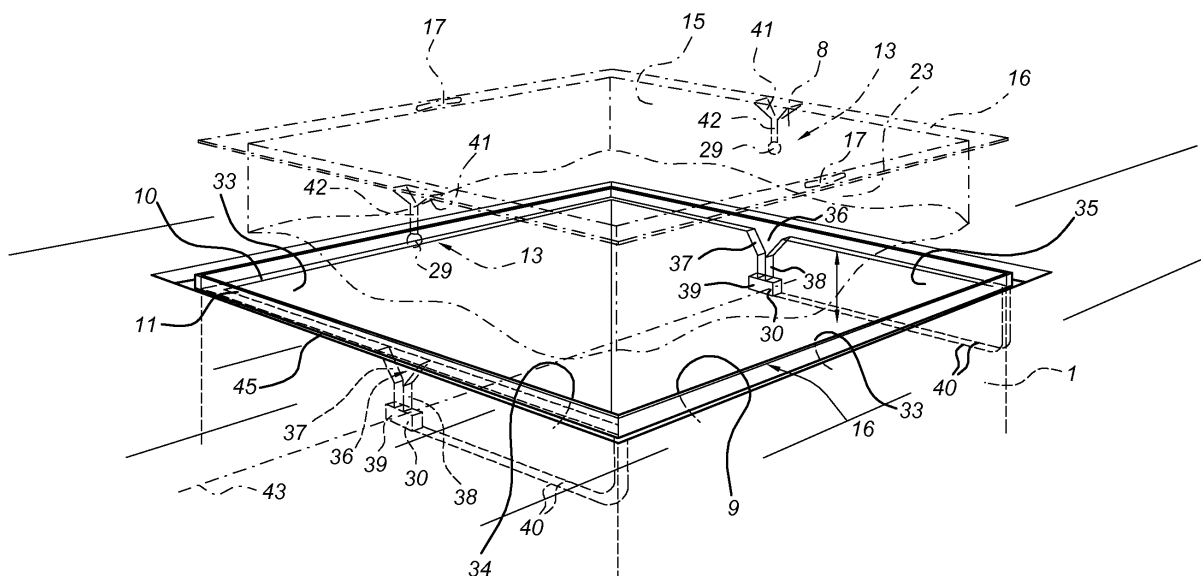
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(54) **Refuse collection system for sloping ground surfaces**

(57) A refuse collection system comprises a chamber (1) which is permanently located in the ground (2) and which opens at ground level or above ground level at the top; a cover (3) for opening and closing off the chamber (1), a container (14), open at the top and supports (36) by means of which the container (14) is supported in the chamber (1) for collecting refuse via a deposit opening (5) in the cover (3). The refuse collection system comprises also a vehicle (18) that is provided with lifting gear (20) for lifting said container (14) out of the chamber (1) respectively lowering the container (14) into the chamber

(1). Said container (14) and lifting gear (20) are provided with coupling means (17,23) for coupling the lifting gear (20) to the container (14). A ground placement location (44) is provided for placing the vehicle (18) next to a vehicle placement side (45) of the chamber (1) which faces the ground placement location (44) with the aim of lifting respectively lowering the container (14) with respect to the chamber (1). The supports (36) are located at opposite sides of the chamber (1) in such a way that the container (14) is pivotable with respect to the chamber (1) according to a pivot axis (43) defined by said supports (36).

Fig 5



Description

[0001] The invention is related to a refuse collection system comprising a chamber which is permanently located in the ground, and which opens at ground level or above ground level at the top, a cover for opening and closing off the chamber, a container, open at the top, supports by means of which the container is supported in the chamber for collecting refuse via a deposit opening in the cover, as well as a vehicle that is provided with lifting gear for lifting said container out of the chamber respectively lowering the container into the chamber, which container and lifting gear are provided with coupling means for coupling the lifting gear to the container when the cover is open, a ground placement location being provided for placing the vehicle next to a vehicle placement side of the chamber which faces the ground placement location with the aim of lifting respectively lowering the container with respect to the chamber.

[0002] Such a refuse collection system is disclosed in European patent application 1679271. By means of this prior art refuse collection system, the process of emptying a loaded container can be carried out under automatic control through the refuse collection vehicle. The lifting gear of said refuse collection vehicle is operated in such a manner that the container is lifted in a virtually vertical direction out of the chamber, after the cover has been opened. Subsequently, the lifting gear is able to tilt the container so as to empty the contents thereof in the refuse collection hold of the vehicle. After the process of emptying the container has been completed, the lifting gear is able to swing back the container to a vertical position, and to finally reposition the container within the chamber. After the cover has been closed again, the cycle of collecting refuse is complete.

[0003] The prior art refuse collection system provides satisfying and reliable results, even in case the vehicle is not placed in an optimal position with respect to the chamber and container. Thus, the prior art refuse collection system allows for some misalignment of the refuse collection vehicle, that is to say an angled position instead of the perfect position parallel to the placement side of the chamber, or an angled position as a result of some small slope of the ground level, etc.

[0004] However, in general the ground level should be virtually horizontal, or exhibit only small deviations from the horizontal. In the areas however which have a hilly character, the application of the prior art refuse collection system is less feasible. Under those circumstances, it appears to be difficult to make the lifting gear contact and couple the container. The object of the invention is therefore to provide a refuse collection system of the type described before which can also be used in combination with sloping ground surfaces. This object is achieved in that the supports are located at opposite sides of the chamber in such a way that the container is pivotable with respect to the chamber according to a pivot axis defined by said supports. In particular, the supports may

located at the placement side and an opposite side of the chamber. The other sides of the chamber and the container are lacking such supports.

[0005] In the refuse collection system according to the invention, the support is provided with the possibility to orient the container vertically, even in case the chamber would be positioned at an angle as a result of the sloping surface thereof. The top of the container would thus be in the plane of the sloping ground surface, in particular along a sloping road next to which the chamber is located.

[0006] Although the system according to the invention is particularly fit for application in circumstances where the surface is sloping, said system has also benefits in horizontally oriented surfaces. In both cases, the container may adapt its orientation, for instance in dependence of the distribution of the refuse in the container. In case for whatever reason the refuse is collected unevenly, the container will tilt with respect to the vertical. Upon retrieving the container from the chamber, the lifting apparatus can be adjusted to the position of the container, which makes the subsequent process of lifting the container easier as no unbalance will occur when removing the container from its supports.

[0007] The container may comprise attachments which cooperate with support elements of the chamber, in such a way that the container is pivotable with respect to the chamber according to a pivot axis defined by said support elements. The supports are located at two and only two opposite sides, so as to enable the pivoting movement of the container. According to a preferred embodiment, the supports are arranged in such a way that the pivot axis is oriented transverse with respect to the length of the axis of a sloping road along which the chamber has been positioned. It is an advantage that the top surface of the chamber is in the same plane as the sloping surface of the road, having regard to the fact that under such conditions no obstructions or elevated parts of the chamber protrude upwardly with respect to the road surface. In particular this represents an important advantage for pedestrians, rolled vehicles such as children's trolleys etc.

[0008] Thus, in case the ground level runs at a nonzero angle with respect to the horizontal when seen in a direction transverse with respect to the pivot axis, the height direction of the chamber runs at a similar nonzero angle with respect to the vertical as well. As mentioned before, the container, which has a bottom and a height direction defined between said bottom and the open top, may have its height direction running vertical.

[0009] Alternatively, the pivot axis may be oriented in the same direction of the longitudinal axis of a road.

[0010] The lifting gear and the container can be connected to each other by means of bayonet couplings which comprise a rotary member that can be rotated about an axis of rotation and has a shape that is not revolutionally symmetrical with respect to said axis of rotation, as well as a pick-up member into which the rotary member can be inserted in a first rotational position and

with respect to which the rotary member is locked in a second rotational position. Preferably, the rotary member has two projections protruding diametrically with respect to the axis of rotation and the pick-up member comprises an undercut slot (twist lock). These slots may be curved somewhat in the plane of the top of the container, in order to promote guiding of the rotary members into the correct position thereof with respect to said slots.

[0011] The container can have at least two flanged edges at the top, each of which is provided with a pick-up member. In this case the lifting means have two correspondingly positioned rotary members. Furthermore, the lifting means can have a head with respect to which the rotary members protrude. Stable coupling between the lifting gear and the container can be achieved with the aid of this head. This can be achieved in particular if the head has at least one stop surface with respect to which the rotary members protrude, which stop surface (s) can be brought into contact with the flanged edges. In the coupled position the flanges bear on the stop surfaces of the head in a stable manner, such that the container and the lifting gear form a rigid whole that can be controlled well when lifting and tilting the container.

[0012] In this connection, the lifting gear can, in a known manner, comprise an articulated arm as well as control means for manipulating the arm such that the container can be moved along an essentially straight, vertical path with respect to the chamber.

[0013] The vehicle can also have safety barriers that can be moved between a rest position on the vehicle and a safety position in which they extend with respect to the vehicle in order to screen off the chamber when the cover is open.

[0014] The container is provided at the top with at least two flanged edges in each of which there is a curved slot for twist lock couplings of a lifting gear.

[0015] The invention is also related to the combination of a chamber to be located in the ground, which has a bottom and a top, a cover for opening and closing off the chamber, said cover being provided with a deposit opening, the height direction extending between the bottom and the top, and a container open at the top, said container being supportable with respect to the chamber by means of supports for collecting refuse via said deposit opening in the cover. Said supports are located at opposite sides of the chamber in such a way that the container is pivotable with respect to the chamber according to a pivot axis defined by said supports.

[0016] Finally, the invention relates to a method for operating a refuse collection system as described before, comprising the steps of:

- positioning the refuse collection vehicle along the placement side of the chamber,
- opening the cover,
- making the lifting gear approach the container in the chamber,
- influencing the container by means of the lifting gear

so as to make the container tilt until the height direction thereof is oriented and an angle equal to the angle of the height direction of the chamber,

- connecting the lifting gear to the container,
- lifting the container from the chamber while maintaining the tilted position of said container.

[0017] The method according to the invention a further comprise the steps of:

- emptying the container in the refuse collection device while maintaining the tilted position of said container,
- repositioning the container in the chamber while maintaining the tilted position of said container,
- disconnecting the lifting gear from the container,
- lifting the lifting gear away from the container by the same time allowing the container to move from the tilted position to the vertical position.

[0018] The container is thus handled and emptied while the refuse collection vehicle is in a position in at an angle, similar to the angle of the slanting ground surface. The vehicle can either be positioned in climbing direction, or in descending direction along the surface. After the container has been tilted according to a similar angle with respect to the vertical, all subsequent actions can take place while maintaining said tilted position, although it is not absolutely necessary to maintain this slanting position during the subsequent stages of emptying the container. As the angle of the road surface is usually limited, the forces exerted as a result of the tilted orientation of the container on the lifting gear and on the a vehicle are maintained within acceptable magnitudes. Also, after the container has been turned upside down, the refuse still can easily slide out of the container into the hold of the refuse collection device.

[0019] The process of obtaining a tilted angle of the container under the influence of the lifting gear, can take several forms. According to a preferred process, this entails the step of pressing the lifting gear on the top side of the container so as to make said container tilt.

[0020] Alternatively, the method according to the invention comprise the steps of:

- making the container obtain a tilted orientation as a result of asymmetric filling thereof with refuse,
- positioning the refuse collection vehicle along the vehicle placement side of the chamber,
- opening the cover,
- making the lifting gear approach the container in the chamber,
- influencing the lifting gear so as to adjust its orientation to the orientation of the container,
- connecting the lifting gear to the container,
- lifting the container from the chamber while at least initially maintaining the tilted orientation of said container.

[0021] The invention will be explained in more detail below with reference to an illustrative embodiment shown in the figures.

[0022] Figure 1 shows a perspective view of the refuse collection system according to the prior art where the container has been lifted out of the chamber by a vehicle.

[0023] Figure 2 shows a bottom view of the heads of the lifting gear of the vehicle in the system according to figure 1.

[0024] Figure 3 shows a side view of a head in the system according to figure 1.

[0025] Figure 4 shows a view in perspective, partly in broken lines, of the top side of the refuse collection device for the refuse collection system according to the invention.

[0026] Figure 5 shows the chamber and the somewhat lifted container (in broken lines) of the refuse collection device according to figure 4.

[0027] Figure 6 shows a cross sectional view of the refuse collection device according to figure 4.

[0028] Figure 7 shows an embodiment of the refuse collection system according to the invention, installed on a sloping surface.

[0029] Figure 8 shows the step in the retrieval of the container of the refuse collection system as shown in figure 7.

[0030] Figure 9 shows a further step in the retrieval of the container.

[0031] Figure 10 shows a further state of the refuse collection system according to the invention.

[0032] Figure 1 shows the refuse collection system according to the prior art. It comprises a refuse collection vehicle 18, which is placed at a ground placement location 44. Furthermore, the refuse collection vehicle 18 has a refuse collection hold 19 as well as lifting means 20. Also, the refuse collection system comprises a refuse collection device consisting of the chamber 1 and the container 14. The lifting means 20 lift the container 14 out of the chamber 1 as shown in Figure 1. In addition, the container 14 can be tilted in a known manner by means of the lifting means 20 until it is above the hold 19, such that the container 14 can be emptied.

[0033] The lifting means 20 have a set of arms 21 that can be controlled by means of hydraulic piston/cylinder assembly 22 in such a way that the container 14 can initially be lifted essentially vertically upwards out of the bunker 1. Furthermore, the set of arms 21 is suitable for the tilting and emptying of the container mentioned above. The set of arms 21 bears, by means of joints 29, the heads indicated in their entirety by 23, the bottom of which is shown in Figure 2 and the side view of which is shown in Figure 3. This bottom has two hydraulic rams 24, 25, the function of which will be described below. The rotary members 26 protrude downwardly with respect to these rams 24, 25. These rotary members 26 are constructed as so-called "twistlocks" and comprise a rotary pin 27 at the end of which an elongated locking piece 28 is fitted. The rotary members 26 can each be driven by

means of their own hydraulic motor.

[0034] During the process of coupling, the elongated locking pieces 28 are introduced into the openings 17 in the collar 16 of the container 14. The locking pieces 28 are then turned through approximately 90°, such that they hook underneath the collar 16. In this position the rams 24, 25 are actuated, which as a result are each pressed into contact with the relevant edge of the collar 16. A rigid, stable coupling between the lifting means 20 and the container 14 is obtained in this way. Although a sunk chamber is shown in the figures, the invention can also be used with a chamber installed partly or fully above ground.

[0035] As a safety feature for the open chamber 1, arms 32 are fitted on the refuse collection vehicle 18 which can be folded out on either side of the chamber. These arms 32 are provided with acoustic and/or visual warning elements 31.

[0036] The refuse collection device according to the invention as shown in Figures 4-6 comprises a chamber 1 permanently installed below ground 2, which opens at the top at ground level. Said chamber 1 has a vehicle placement side 45, along which the refuse collection vehicle 18 is positioned at the ground placement location 44. The cover 3 is mounted on the chamber 1 such that it can hinge. Said cover has a deposit shaft 4 with a deposit opening 5 that is closed off by a spring-loaded lid 6. It is possible to use an electromechanical actuator 46, for example a screw spindle driven by an electric motor control the lid 6. Power can be supplied to this by a rechargeable battery, connected to solar cells that are mounted on the filler lid. It is also possible to supply the actuator with power from the refuse collection vehicle 18. In the latter case, said vehicle is equipped with an extendable/retractable energy contact point 48, which can contact the stationary energy contact point 47 which is connected to the actuator 46, e.g. an electro-spindle. Said spindle can thus be supplied with electrical power from the vehicle.

[0037] As shown in Figures 1 and 5, the container 14 has a container body 15 that is delimited at the top by a collar 16. This collar 16, which points outwards, is provided in a known manner with openings 17 in which the lifting gear of a refuse collection vehicle 18 can engage. Furthermore, the chamber 1 has side walls 33, a front wall 34 and a back wall 35. The chamber 1 furthermore as a bottom 9 which is carried out as a unity with said walls 33-35.

[0038] According to the invention, the front wall 34 and the back wall 35 are each provided with depressions 36 which consist, seen from above, of a V-shaped introduction part 37, a prismatic part 38 and a fitting part 39 within which weighing cells 30 can be accommodated. Furthermore, signal lines 40 are accommodated within the front wall 34 and back wall 35. As is further clear from figure 5, each V-shaped introduction part opens out in an uncovered top section 10, at the top of the walls 34, 35. The outer top section 11 borders the uncovered top section

10; said outer top section 11 is covered by a frame 12, onto which the cover 3 is pivotably connected.

[0039] The container 14 is provided with protrusions 13 on opposite side walls, which protrusions fit within the depressions 36 of the front wall 34 and the back wall 35 of the chamber 1. In particular the protrusions 13 comprise a ball-shaped lower end 29, a prismatic part 42 and a V-shaped an upper part 41. The ball-shaped lower end 29 comes to rest on a weighing cell 16, the prismatic part 21 is received in a prismatic part 38 of the depression 36, and the V-shaped upper part 41 is received in the V-shaped introduction part 37 of said depression 36. The dimensions of these parts is selected in such a way that the container 8 is able to carry out a pivoting movements about the pivot axis 43 which is shown schematically in figure 5.

[0040] Now turning to the figures 7-8, the process of emptying the container 8 according to the invention is shown. Said container 8 is accommodated in a chamber 1 which is positioned slantingly, in accordance with the slanting ground surface 2. In contrast, the container 8 obtains a vertical position under the influence of gravity, having regard to the fact that the supports 13, 36 allows a pivotal movement according to the pivot axis 43 shown in figure 5. After the cover (not shown in figure 7-8 for reasons of clarity) has been opened, the lifting gear 20 is lowered, which makes that the lifting heads approach the top side of the container 8. In the condition shown in figure 7, the lifting head 23 which is the lowest in comparison to the other lifting head 23, as a result of the slanting position of the refuse collection vehicle 18 on the ground surface 2, begins to touch the top side of the container 8.

[0041] Upon further pressing the lifting gear 20, and thus the lifting heads 23, downwardly, the container 8 is urged to swing about the supports 13, 36 towards the condition shown in figure 8. The container 8 is then aligned with respect to the lifting gear 20, and the uppermost lifting head 23 comes into contact with the top side of the container 8 as well. Subsequently, the connection as described before between the lifting gear 20 and the container 8 can be obtained by means of the twist locks. Thereafter, the container 8 can be lifted by means of the lifting gear 20 while maintaining the slanting position, as shown in figure 9. Finally, the container 8 is turned over above the hold 19 of the refuse collection device 18 (which phase is not shown). The process can be terminated by returning the refuse collection container 8, while still maintaining its tilting position, into the chamber 1. The connection between the lifting gear and the container 8 is uncoupled, and as soon as the lifting gear is moved away in upward direction, the container resumes its vertical position under the influence of gravity as shown in figure 7.

[0042] Figure 10 shows a state of the refuse collection device according to the invention, in which the refuse 8 is collected eccentrically with respect to the supports of the container 14. As a result, said container 14 has ob-

tained the somewhat tilted position, around the supports 13, 36, with respect to the chamber 1. This eccentrically loading of the container 14 may occur incidentally. Upon coupling the lifting gear 20 to the container 14, the lifting heads 23 can be adapted in such a way that the obtain the same somewhat tilted position as the container 14. In the position, the lifting heads 23 subsequently connected to the container 14. This has the advantage that, upon lifting the container 14 from the chamber, no unbalance will occur as soon as the container 14 is lifted free from the supports 13, 36.

List of reference numerals

- [0043]**
1. Chamber
 2. Ground
 3. Cover
 4. Column
 5. Opening
 6. Lid
 7. Container bottom
 8. Refuse
 9. Chamber bottom
 10. Uncovered top section
 11. Top outer section
 12. Frame
 13. Protrusions
 14. Container
 15. Container body
 16. Container collar
 17. Coupling openings
 18. Refuse collection vehicle
 19. Refuse collection hold
 20. Lifting gear
 21. Lifting arms
 22. Hydraulic piston-cylinder assembly
 23. Lifting heads
 24. Hydraulic ram
 25. Hydraulic ram
 26. Rotary members
 27. Rotary pin
 28. Locking piece
 29. Ball-shaped lower end
 30. Weighing cell
 31. Warning elements
 32. Safety elements
 33. Side walls
 34. Front wall
 35. Back wall
 36. Depression
 37. V-shaped introduction part
 38. Prismatic part
 39. Fitting part
 40. Signal lines
 41. V- shaped upper part
 42. Prismatic part

- 43. Pivot axis
- 44. Ground placement location
- 45. Vehicle placement side
- 46. Electric spindle
- 47. Stationary energy contact point
- 48. Energy contact point on vehicle

Claims

1. Refuse collection system comprising a chamber (1) which is permanently located in the ground (2), and which opens at ground level or above ground level at the top, a cover (3) for opening and closing off the chamber (1), a container (14), open at the top, supports (36) by means of which the container (14) is supported in the chamber (1) for collecting refuse via a deposit opening (5) in the cover (3), as well as a vehicle (18) that is provided with lifting gear (20) for lifting said container (14) out of the chamber (1) respectively lowering the container (14) into the chamber (1), which container (14) and lifting gear (20) are provided with coupling means (17, 23) for coupling the lifting gear to the container (14) when the cover (3) is open, a ground placement (44) location being provided for placing the vehicle (18) next to a vehicle placement side (45) of the chamber (1) which faces the ground placement location with the aim of lifting respectively lowering the container (14) with respect to the chamber (1), **characterised in that** the supports (36) are located at opposite sides of the chamber (1) in such a way that the container (14) is pivotable with respect to the chamber (1) according to a pivot axis (43) defined by said supports (36).

2. System according claim 1, wherein the supports (36) are located at the vehicle placement side (45) and an opposite side of the chamber (1).

3. System according to claim 1 or 2, wherein the container (14) comprises attachments (13) which co-operate with support elements (36) of the chamber (1),

4. System according to any of the preceding claims, wherein the ground level runs at a nonzero angle with respect to the horizontal when seen in a direction transverse with respect to the pivot axis (43), the height direction of the chamber (1) running at a similar nonzero angle with respect to the vertical.

5. System according to any of the preceding claims, wherein the container (1) has a bottom (7) and a height direction defined between said bottom (7) and its open top, said height direction of the container (14) being oriented vertically at least in case the container (14) is empty.

6. System according to any of the preceding claims, wherein opposite walls (34, 35) of the chamber (1) which e.g. are on the vehicle placement side (45) and an opposite side of said chamber (1), comprise facing internal depressions (36) which open out at the top of said opposite walls, the container (14) comprising protrusions (13) fitting in said internal depressions.

7. System according to claim 6, within the depressions (36) are diverging in upward direction.

8. System according to claim 7, wherein the depressions (36), when seen in vertical direction, have a generally V-shaped introduction part (37) as well as a weighing cell (30) beneath for cooperation with the protrusions (13) of the container (14)

9. System according to claim 10, wherein the top of the chamber (1) comprises an uncovered inner section (10) and a bordering outer section (11) covered by a frame (12), the depressions (36) emanating in the uncovered inner section (10) of the chamber (1).

10. System according to any of the preceding claims, wherein the cover (3) is hingeably supported at the side of the chamber (1) opposite the vehicle placement side (45).

11. System according to claim 9 and 10, wherein the cover (3) is hingedly connected to the frame (4) at the side of the frame (12) opposite the vehicle placement side (45).

12. System according to any of the preceding claims, wherein the coupling means (17, 23) comprise at least a bayonet coupling (17, 26) provided with a rotary member (26) that can be rotated about an axis of rotation and has a shape that is not revolutionally symmetrical with respect to said axis of rotation, as well as a pick-up member (16, 17) in which the rotary member can be inserted in a first rotational position and with respect to which the rotary member is locked in a second rotational position.

13. System according to Claim 12, wherein the rotary member (26) has two projections (28) protruding diametrically with respect to the axis of rotation.

14. System according to one of Claim 12 or 13, wherein the container (14) has at least two flanged edges (16) at the top, each of which is provided with a pick-up member (17) and the lifting gear (20) has two correspondingly positioned rotary members (26).

15. System according to Claim 14, wherein the lifting gear (20) has heads (23) with respect to which the

rotary members (26) protrude.

16. System according to Claim 15, wherein each head (23) has at least one ram (24, 25) with respect to which the rotary members (27) protrude, which rams (24, 25) can be brought into contact with the flanged edges (17).

18. System according to one of the preceding claims, wherein the lifting gear (20) comprises an articulated arm (21) as well as control means for manipulating the arm such that the container (14) can be moved along an essentially straight, vertical path with respect to the chamber (1).

19. System according to one of the preceding claims, wherein the chamber (1) comprises a concrete material.

20. System according to one of the preceding claims, wherein the vehicle (18) has safety barriers (33) that can be moved between a rest position on the vehicle (18) and a safety position in which they extend with respect to the vehicle (18) in order to screen off the chamber (1) when the cover (3) is open.

21. Method for operating a refuse collection system according to any of the preceding claims, comprising the steps of:

- positioning the refuse collection vehicle (18) along the vehicle placement side (45) of the chamber (1),
- opening the cover (3),
- making the lifting gear (20) approach the container (14) in the chamber (1),
- influencing the container (14) by means of the lifting gear (20) so as to make the container (14) tilt until the height direction thereof is oriented and an angle equal to the angle of the height direction of the chamber (1),
- connecting the lifting gear to the container (14),
- lifting the container (14) from the chamber (1) while maintaining the tilted position of said container (14).

22. Method according to claim 21, comprising the steps of:

- emptying the container (14) in the refuse collection vehicle (18) while maintaining the tilted position of said container (14),
- repositioning the container (14) in the chamber (1) while maintaining the tilted position of said container (14),
- disconnecting the lifting gear (20) from the container (14),
- lifting the lifting gear (20) away from the con-

tainer (14) by the same time allowing the container (14) to move from the tilted position to the vertical position.

23. Method according to claim 21 or 22, comprising the step of:

- pressing the lifting gear (20) on the top side of the container (14) so as to make said container (14) tilt.

24. Method for operating a refuse collection system according to any of claims 1-20, comprising the steps of:

- making the container (14) obtain a tilted orientation as a result of asymmetric filling thereof with refuse(8),
- positioning the refuse collection vehicle (18) along the vehicle placement side (45) of the chamber (1),
- opening the cover (3),
- making the lifting gear (20) approach the container (14) in the chamber (1),
- influencing the lifting gear (20) so as to adjust its orientation to the orientation of the container (14),
- connecting the lifting (20) gear to the container (14),
- lifting the container (14) from the chamber (1) while at least initially maintaining the tilted orientation of said container (14).

25. In combination, a chamber (1) to be located in the ground (2), which has a bottom (9) and a top, a cover (3) for opening and closing off the chamber (1), said cover (30) being provided with a deposit opening, the height direction extending between the bottom (9) and the top, and a container (14) open at the top, said container (14) being supportable with respect to the chamber (1) by means of supports (13, 36) for collecting refuse (8) via said deposit opening in the cover (3), **characterised in that** the supports (13, 36) are located at opposite sides of the chamber (1) in such a way that the container (14) it is pivotable with respect to the chamber (1) according to a pivot axis (43) defined by said supports (13, 36).

Fig 1

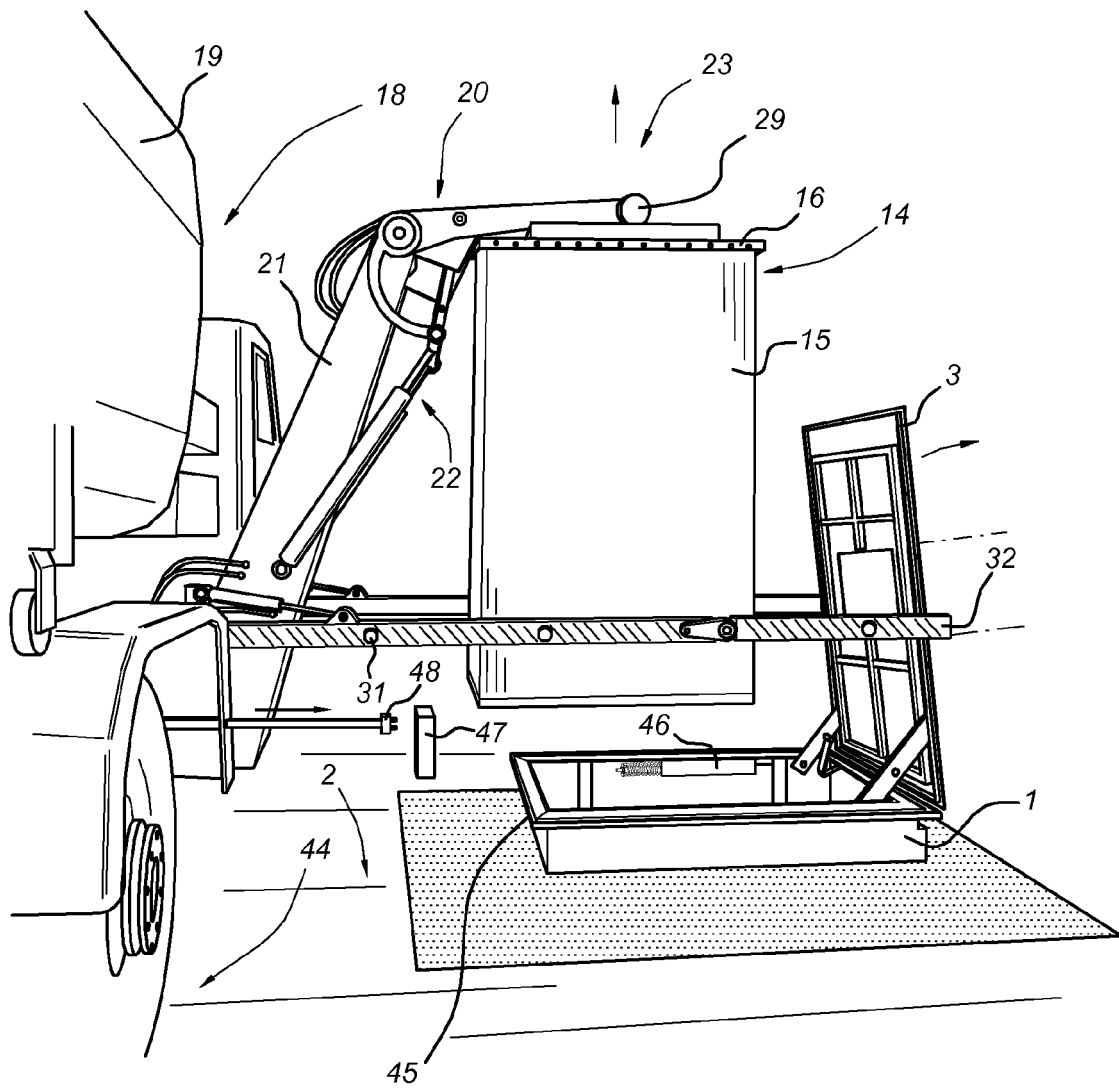


Fig 2

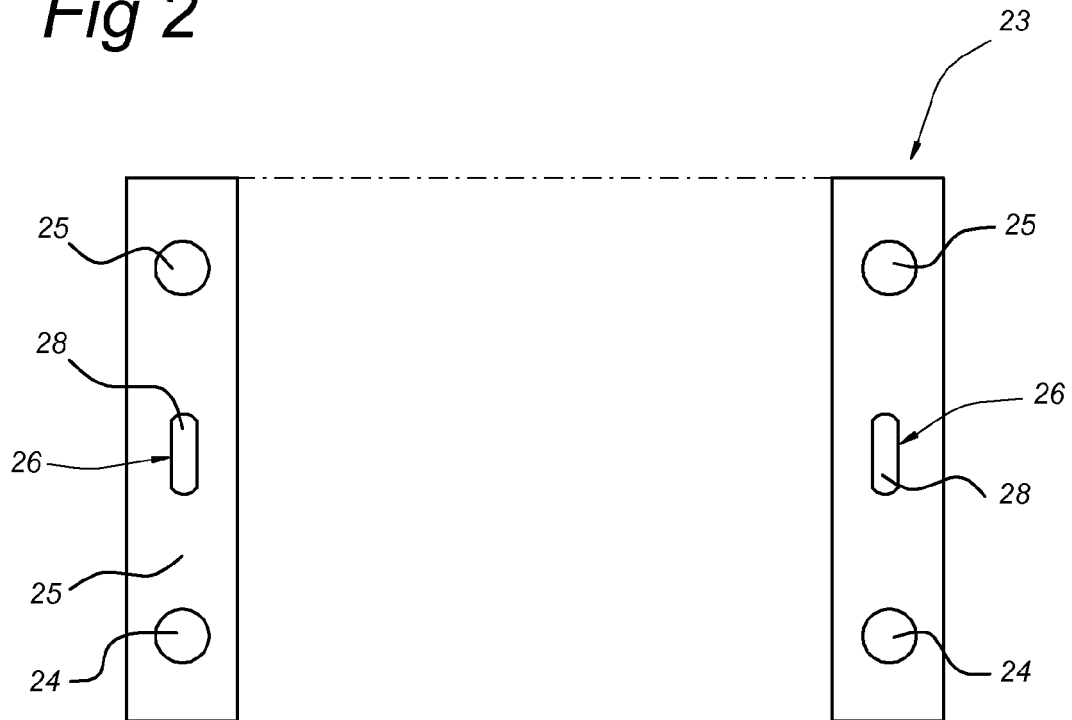
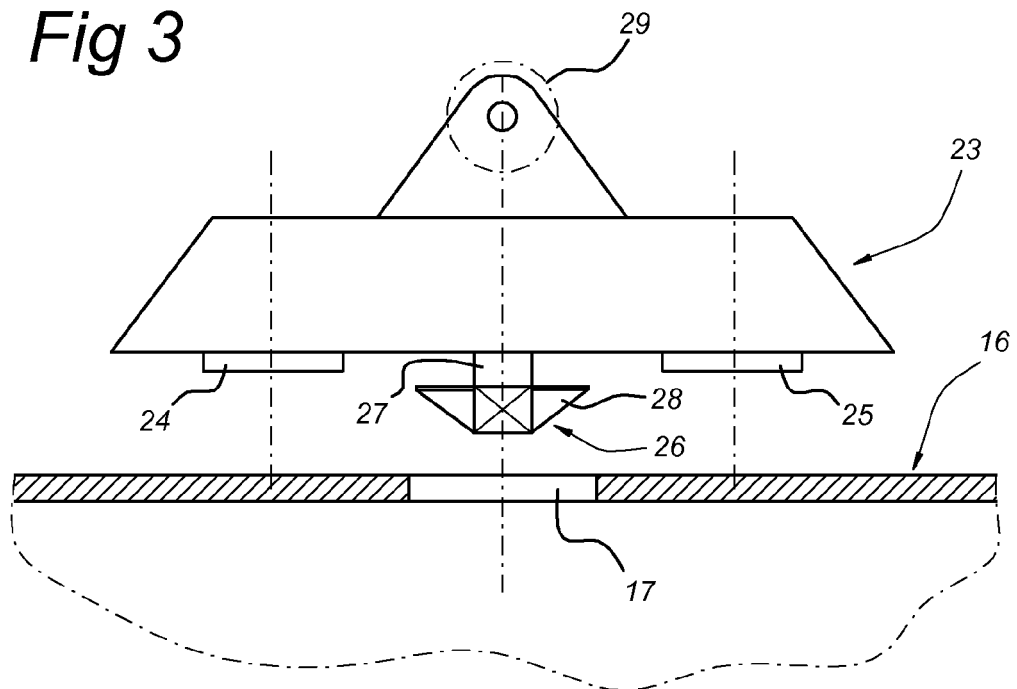


Fig 3



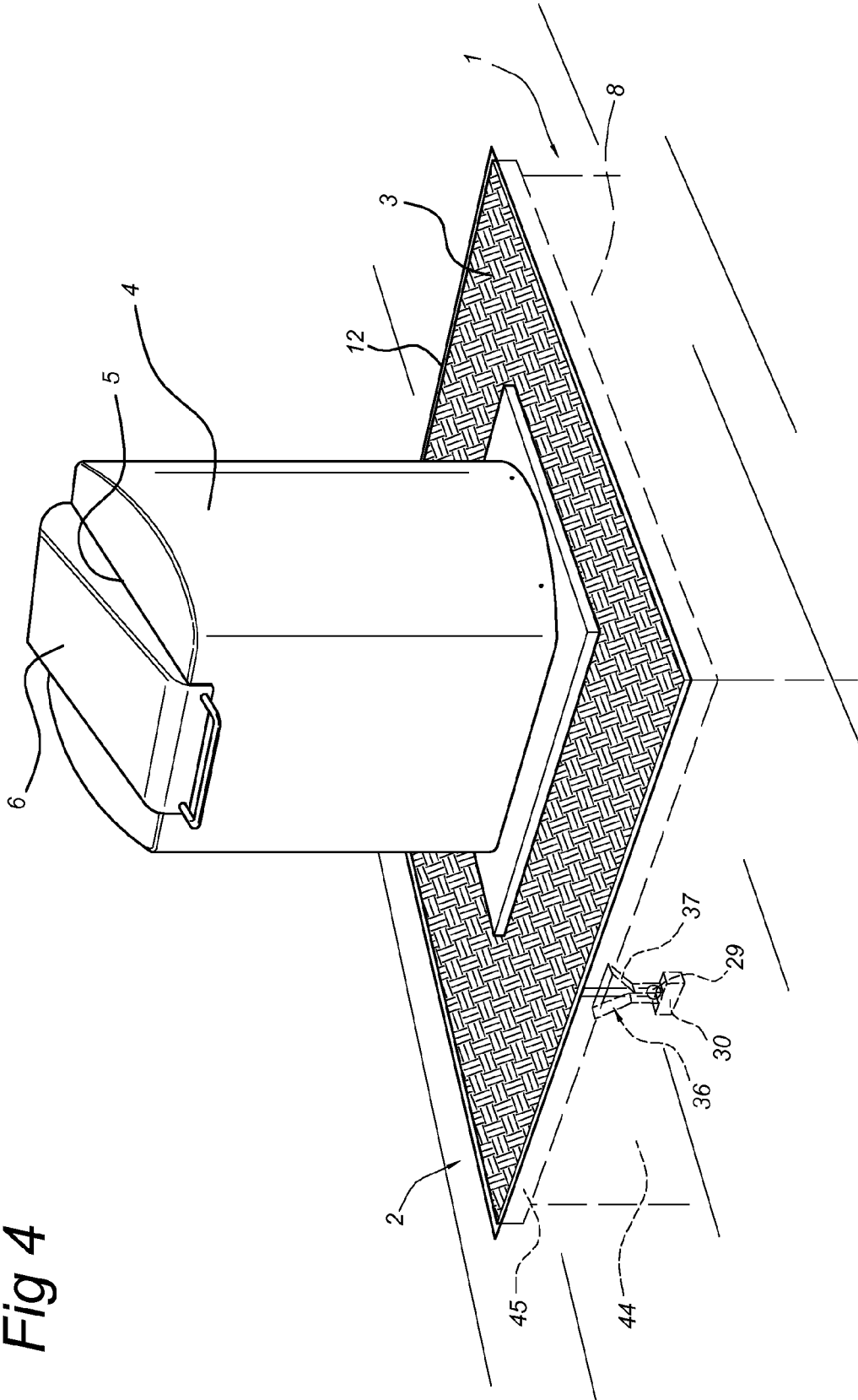
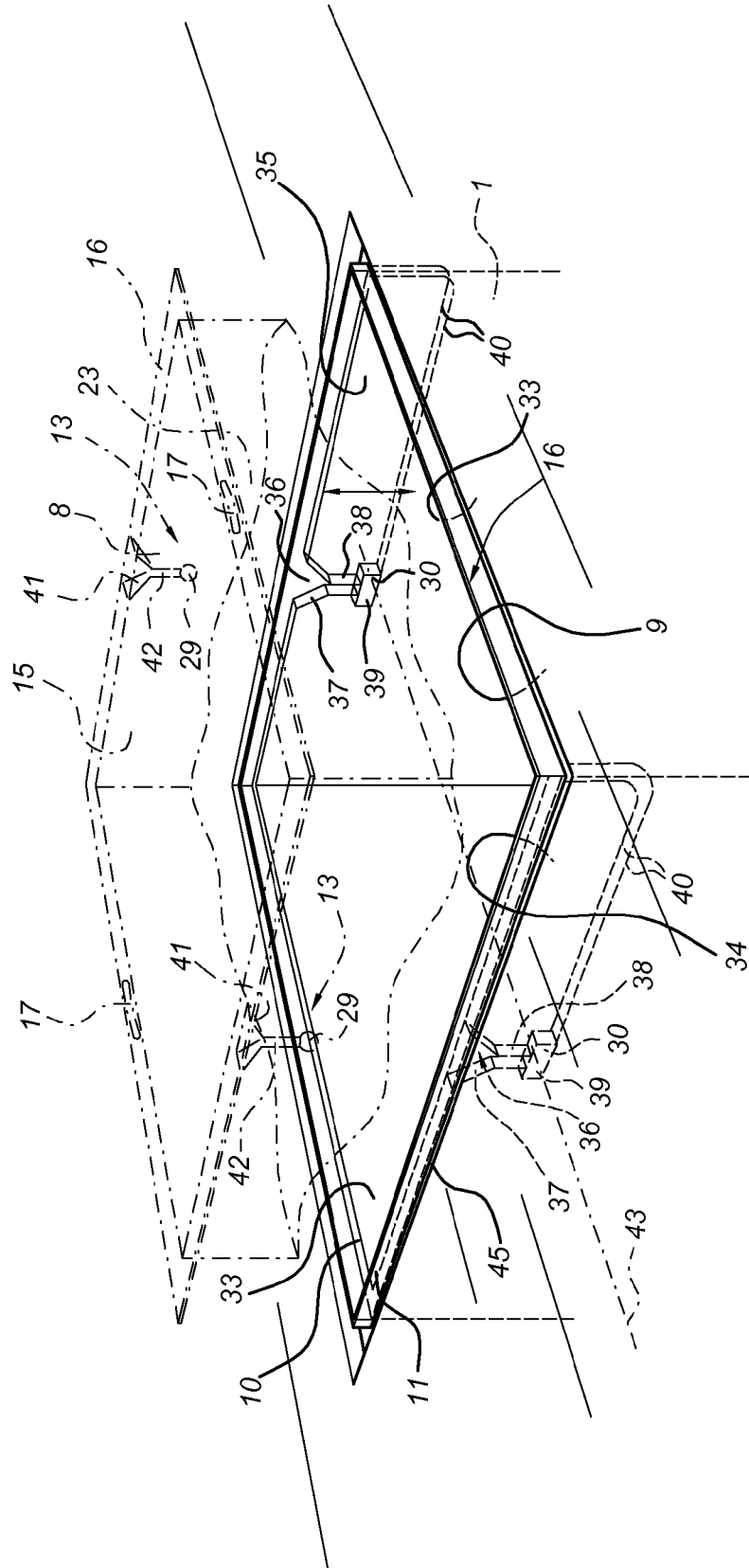


Fig 4

Fig 5



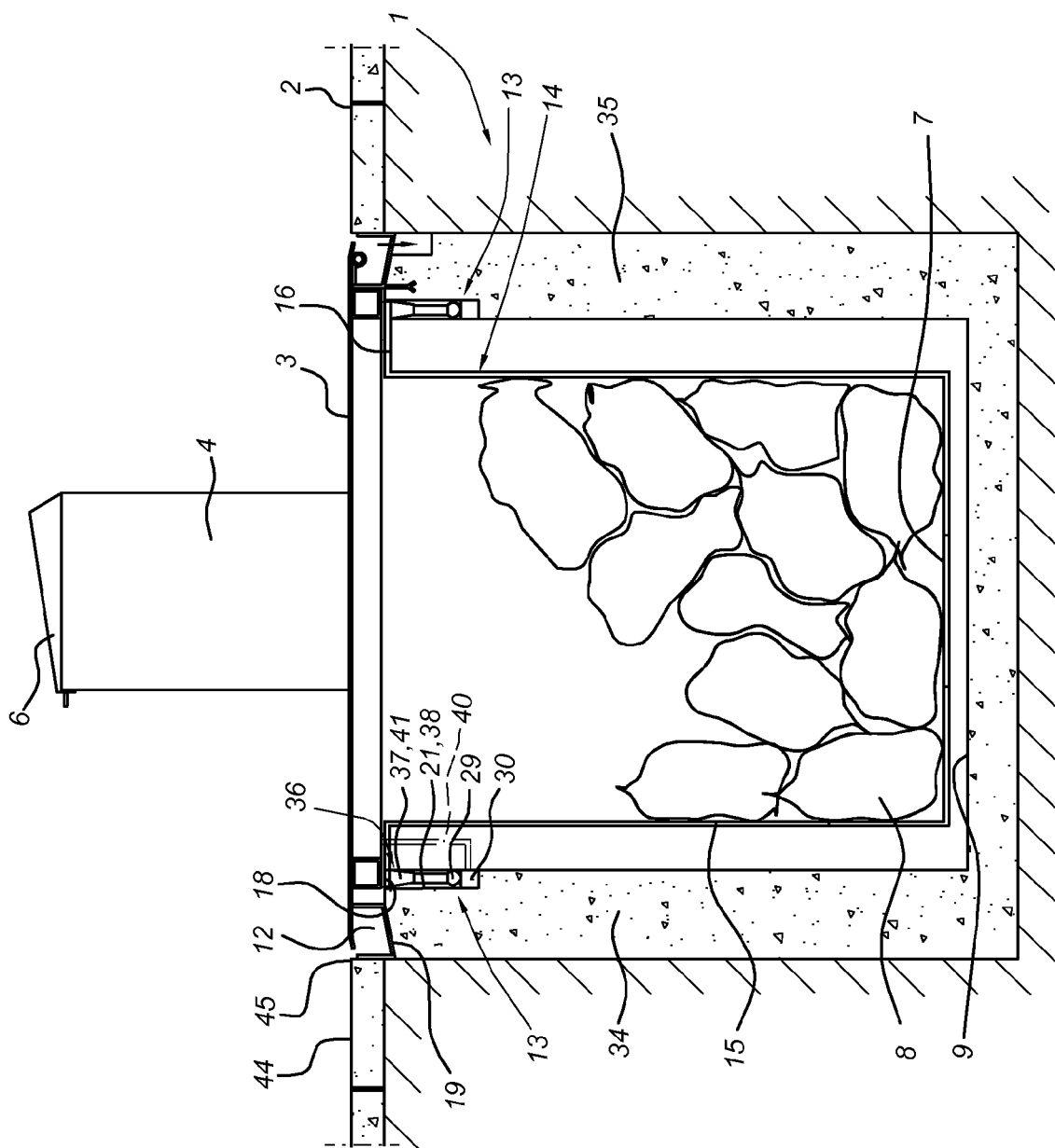


Fig 6

Fig 7

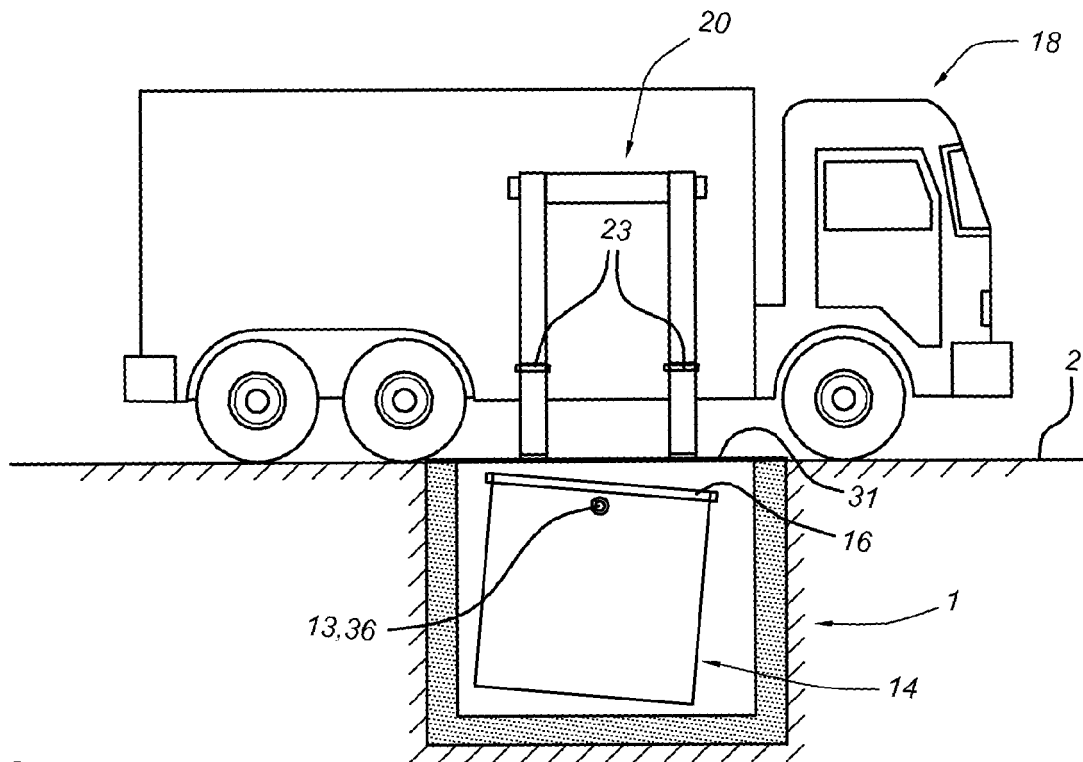


Fig 8

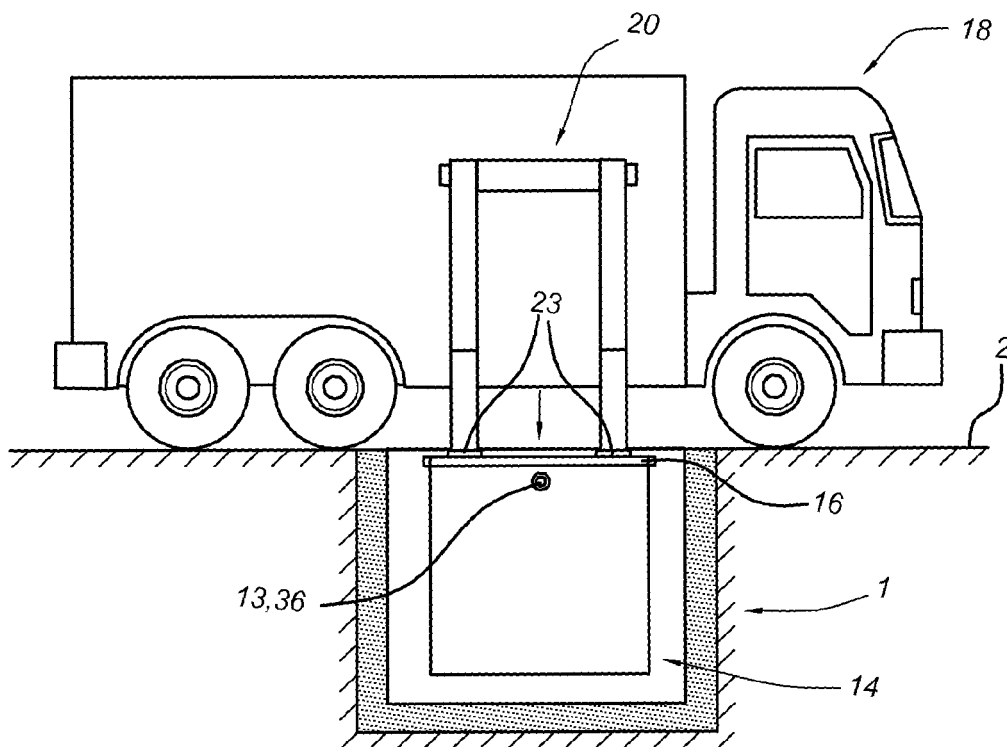


Fig 9

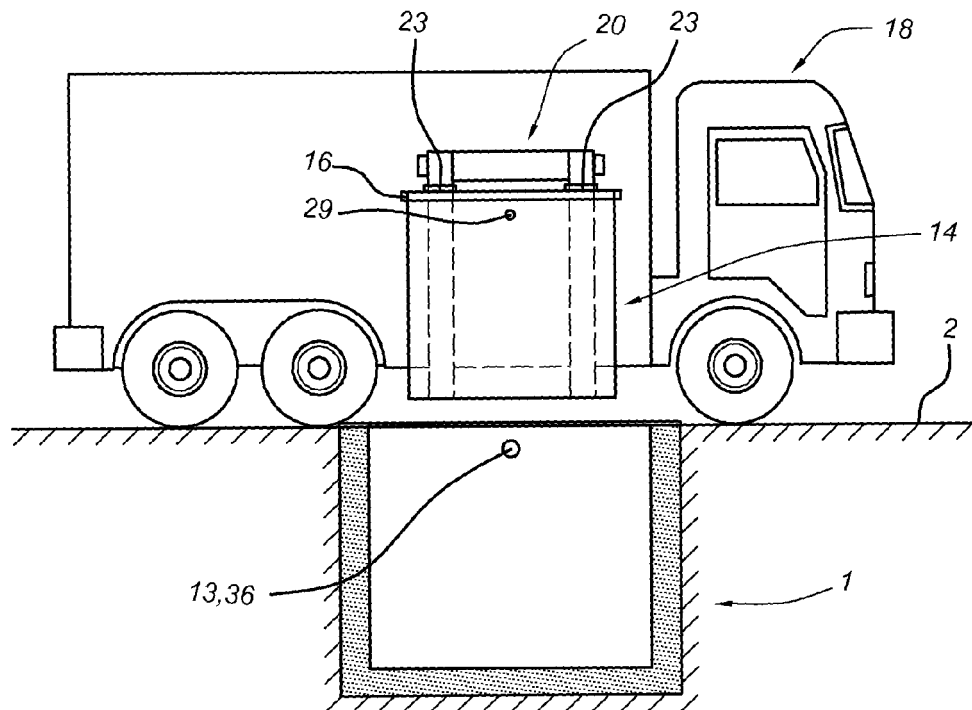
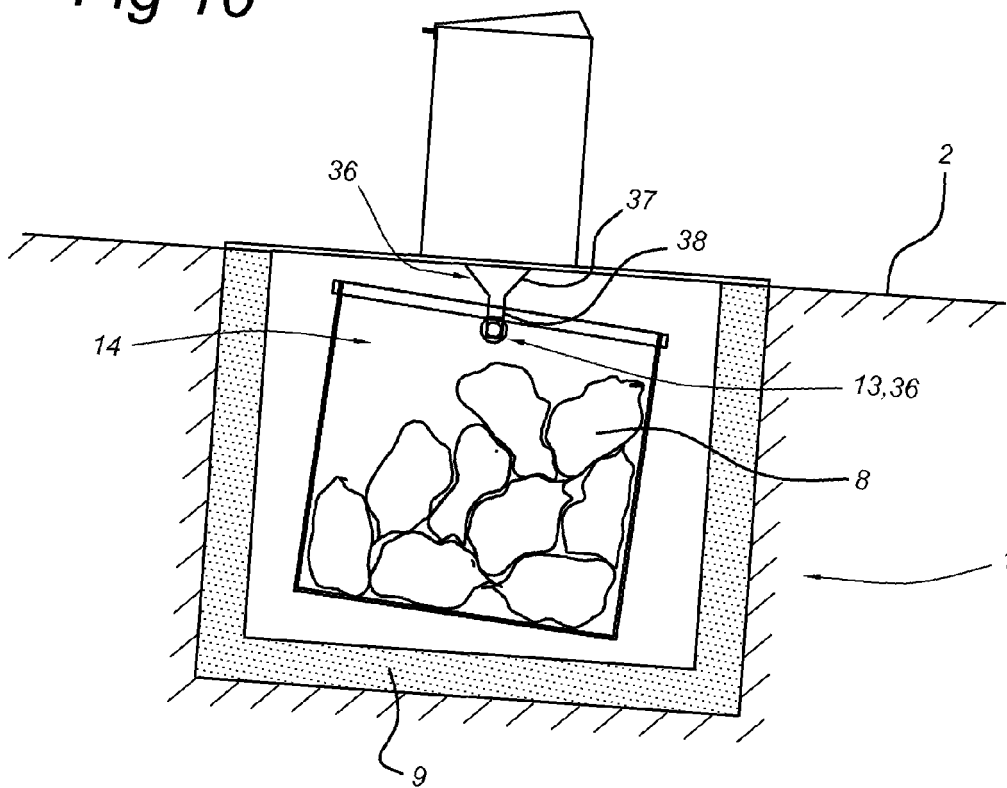


Fig 10





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Application Number
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