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(54) UNDERGROUND WASTE COLLECTING SYSTEM

(57) The present invention relates to waste collecting system comprising a waste collection container. It is an object of the invention to provide waste collection system and a method for compressing waste inside a waste collection system, which addresses this problem and additionally provides a number of further advantages. The present invention addresses this by providing a waste collection system, wherein the waste collection system has a waste collection container comprising a volume configured to receiving waste, wherein the waste collection container comprises:

- an upper container, wherein the upper container member partly encloses an upper volume, and the upper container member has an upper volume opening and an inner cross-sectional circumference of the upper volume opening, wherein at least one receiving passage is arranged in the upper container member, such that the upper volume is in communication with the ambient surroundings and the receiving passage is configured to receiving waste, such that the waste enters the volume, wherein at least one cover is arranged onto the upper shell, such that the cover is capable of covering the receiving passage or part of the receiving passage,
- a lower container member enclosing a lower volume, wherein said lower container member has a top opening adaptable to the upper volume opening, such that said upper volume is in communication with said lower volume,
- a pressing device arranged in a top part of the upper container member in a first position between the top part and the receiving passage, wherein the pressing device comprises a pressing plate and a pressing means for compressing waste in waste collection container, wherein the pressing means is arranged between a top part of the upper container member and said pressing plate, wherein the pressing means is configured to compressing waste inside the waste collection container by displacing the pressing plate from the first position to a second position inside the waste collection container, such that the pressing plate moves away from the top part of the upper container member towards a bottom part of the lower container member or vice versa, and the pressing plate passes the waste receiving aperture when being displaced.

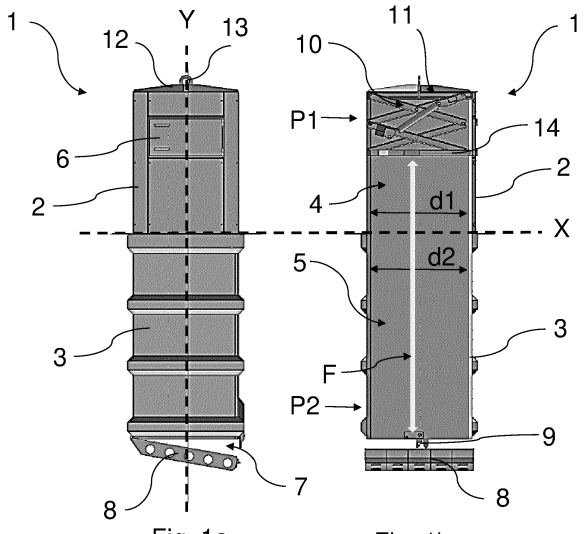

Fig. 1a Fig. 1b

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Description

Field of the Invention

[0001] The present invention relates to waste collecting system comprising a waste collection container.

Background of the Invention

[0002] A waste collection container may be a substantially closed container comprising a waste receiving opening, where the waste collection container may be fully sunken or half-sunken waste container or arranged fully on the ground. The storage capacity may in some cases be situated underground and/or above ground. The waste collection container is suitable for collecting separated waste fractions, such as paper, glass, organic waste, textiles, refuse, drink cartons, and synthetic packaging. It fits all standard lifting systems including round-headed and three-point hooks.

[0003] The waste collection container is suitable for collecting separated waste fractions, such as paper, glass, organic waste, textiles, refuse, drink cartons, and synthetic packaging. Even though the storage capacity in the underground waste container may be large, the waste takes up a lot of storage capacity per unit. The waste collection container must be emptied often according to a maintenance schedule, which is costly and often a difficult task in cities. The waste collection vehicle is often parked, when emptying the waste collection container, in such way that the truck poses a problem to the rest of the traffic.

[0004] WO 2016/120522 discloses a compactor for compacting waste material to be entered in an underground collection container and an underground collection container comprising a compactor. Waste enters the compressing space inside the compactor through a filling opening with a hatch. A press member is provided above the compressing space configured to press the waste material against the bottom plate of the compactor to create a bale. Afterwards, the bottom plate opens, and the compacted bale is dropped into the underground waste collection container configured for storing a plurality of compacted bales.

Object of the Invention

[0005] It is an object of the invention to provide waste collection system and a method for compressing waste inside a waste collection system, to reduce the volume of waste inside a container, and thereby reducing maintenance costs and traffic problems. This invention addresses this issue and additionally provides a number of further advantages.

Description of the Invention

[0006] The present invention addresses this by providing a waste collection system, wherein the waste collection system has a waste collection container comprising a volume configured to receiving waste, wherein the waste collection container comprises:

- an upper container member, wherein the upper container member partly encloses an upper volume, and the upper container member has an upper volume opening and an inner cross-sectional circumference of the upper volume opening, wherein at least one receiving passage is arranged in the upper container member, such that the upper volume is in communication with the ambient surroundings and the receiving passage is configured to receiving waste, such that the waste enters the volume, wherein at least one cover is arranged onto the upper shell, such that the cover is capable of covering the receiving passage or part of the receiving passage,
- a lower container member enclosing a lower volume, wherein said lower container member has a top opening adaptable to the upper volume opening, such that said upper volume is in communication with said lower volume,
- a pressing device arranged in a top part of the upper container member in a first position, wherein the pressing device comprises a pressing plate and a pressing means for compressing waste in waste collection container, wherein the pressing means is arranged between a top part of the upper container member and said pressing plate, wherein the pressing means is configured to compress waste inside the waste collection container by displacing the pressing plate from the first position to a second position inside the waste collection container, such that when the pressing plate is being displaced, the pressing plate passes the waste receiving aperture when being displaced.

[0007] A waste collection container is a solution for integrating a large storage in a stylish manner and at the same time creating a hygienic environment to deposit waste. The waste collection container is suitable for collecting waste, such as paper, glass, organic waste, textiles, refuse, drink cartons and synthetic packaging.

[0008] The waste collection system comprises a waste collection container having a volume configured to receiving waste. The waste collection container may be arranged in an erected, reclining or horizontal position. The waste collection container comprises an upper container member and a lower container member. The upper container member may be arranged above the ground level. The lower container member may be arranged below or partly below ground level. The upper container member comprises lifting means for lifting the waste collection container out from the ground, such that the waste collection container can be emptied.

[0009] The upper container member and the lower container member forms a tube-shaped waste collection

container, having an equal inner cross-sectional circumference in the entire waste collection container. The tube-shape may be quadrangular, oval, or circular. The upper container member and the lower container member may be provided with different shapes e.g. different heights and outer shape.

[0010] The upper container member encloses an upper volume. The upper container member has an inner cross-sectional circumference and inner cross-sectional shape. The upper container member has an upper volume opening with an inner cross-sectional circumference. The upper volume opening is also provided with an inner cross-sectional shape.

[0011] At least one receiving passage is arranged in the upper container member, such that the upper volume is in communication with the ambient surroundings and the receiving passage is configured to receiving waste. The lower container member encloses a lower volume. The lower container member has a top opening adaptable to the upper volume opening. The upper volume is in communication with said lower volume, such that the waste may enter the volume of the upper container member and fall into the volume of the lower container member.

[0012] The waste, when entering the volume of the waste collection container, may pile up from the lower volume and then up to the upper volume. Waste such as paper, glass, organic waste, textiles, refuse, drink cartons and synthetic packaging takes up a lot of space inside the waste collector container.

[0013] A cover or covers, lids, doors etc. are provided to cover the receiving passage.

[0014] The pressing device is arranged in a top part of the upper container member in a first position, which is where the pressing device is in a collapsed position. The pressing device is attached in a first end to the top part of the upper container device. In a collapsed position, the pressing device is configured to be arranged between the top part and the receiving passage. The pressing device comprises a pressing plate. The pressing device also comprises pressing means for compressing waste in the waste collection container. The pressing means may be arranged between a top part of the upper container member and said pressing plate. The pressing plate may be arranged such that the pressing plate is parallel to the ground level. The pressing plate may be arranged in a horizontal plane, such that the pressing plate is capable of cover the upper volume opening. The pressing plate may for example move away from the top part of the upper container member towards a bottom part of the lower container member and/or vice versa.

[0015] The pressing means is configured to compress waste inside the waste collection container by displacing the pressing plate from the first position to a second position inside the waste collection container, when the waste collection container is in use. The displacing of the pressing plate may be substantially vertical, substantially horizontal and/or substantially sideward. The pressing plate is moved away from the top part of the upper container member towards a bottom part of the lower container member, or vice versa. Alternatively, the pressing plate is moved away from a first position at a first side part of the upper container member to a second position at a second side part of the upper container or vice versa. the first position at the first side part of the upper container member may be arranged opposite to the receiving opening. The second position at a second side part of the upper container may be arranged at the same side part as the receiving opening. Alternatively, the pressing plate is moved away from a first side part of the lower container member to a second side part of the lower container or vice versa. The pressing plate passes the waste receiving passage when being displaced. The receiving passage is preferably covered to prevent accidents from happening when the pressing device is activated.

[0016] One effect of the waste collection system is that the waste can pile up from the bottom of the lower volume and upward toward the upper volume while being compressed periodically. After each compression, waste load on top of the compressed waste and the new waste again piles up from the lower volume and upward toward the upper volume, such that the waste is continuously compressed on top of already compressed waste for optimized utilization of the volume of the waste collection system.

[0017] The waste collection system considerably increases the collection capacity. The collection frequency is reduced, leading to lower costs and negative impacts on the environment such as reduction of emissions, noise, and traffic.

[0018] The pressing device may easily be integrated into existing waste collection containers. The upper container member and the lower container member may be arranged in a horizontal plane relative to each other. The pressing device is attached in a first end to the top part of the upper container device, wherein the top part is arranged in the opposite end of the upper volume opening.

[0019] When placing the pressing device in top of the upper container member, away from the ground level and above the receiving passage, ensures that the waste is always below the pressing device and the waste will be compressed when the pressing device is activated. The waste collection system thereby reduces the volume of waste inside the waste collection container, and thereby reducing maintenance costs and traffic problems, due to larger interval for emptying the waste collection container.

[0020] Lower container member may in the following also be referred to as lower container part or bottom container member.

[0021] In an advantageous embodiment of the invention the cross-sectional circumference of the upper volume opening is equal to or smaller than an inner cross-sectional circumference of the bottom container member.

[0022] The lower container member encloses a lower

volume. The lower container member has an inner cross-sectional circumference and inner cross-sectional shape. The lower container member has a top opening with a cross-sectional circumference. The top opening is also provided with a cross-sectional shape.

[0023] The upper container member may have an inner cross-sectional circumference equal to the bottom container member. The inner cross-sectional circumference of the upper container member may be equal to the cross-sectional circumference of the upper volume opening. The cross-sectional circumference of the top opening of the lower container member may be equal to the inner cross-sectional circumference of the bottom container member. The cross-sectional shape of the top opening of the lower container member may be equal to the inner cross-sectional shape of the bottom container member. The upper container member and the lower container member may form a substantially uniform tube-shaped waste collection container, having an equal inner cross-sectional circumference in the entire waste collection container.

[0024] Since the upper container member and the lower container member are provided with a similar inner cross-sectional circumference, and the similar cross-sectional shape, the pressing device may be configured to compress waste inside the waste collection container by substantially vertically displacing the pressing plate from the first position to a second position inside the waste collection container, such that the pressing plate is capable of being displaced systematically upwards or downwards in the upper container member and the lower container member.

[0025] The upper volume opening may be smaller than an inner cross-sectional circumference of the bottom container. The upper container member and the lower container member may form a substantially non-uniform tube-shaped waste collection container, so that the waste collection container has more than one inner cross-sectional circumference. The upper container member and the lower container member may form a substantially non-uniform tube-shaped waste collection container, so that the waste collection container has more than one inner cross-sectional shape.

[0026] In a further advantageous embodiment of the invention the second position inside the waste collection container is the upper volume opening, such that the pressing plate is displaced from the first position to the second position at the upper volume opening, such that the pressing plate is displaced inside the upper container member of the waste collection container.

[0027] The inner cross-sectional circumference of the upper member may be smaller than the inner cross-sectional circumference of the bottom container member. The inner cross-sectional shape of the upper member may be different than the inner cross-sectional shape of the bottom container member. If upper container member has an inner cross-sectional circumference and/or inner cross-sectional shape compared to the bottom container member inner cross-sectional circumference and shape, the pressing device may only operate within the upper container member.

[0028] The pressing device may still be arranged in a collapsed position the top part of the upper container member. The pressing device may be configured to compress waste by substantially vertically displacing the pressing plate from the first position to a second position inside the upper container member. The second position inside the waste collection container may be limited to the upper volume opening. The second position may be a predetermined position, preferably a position between the receiving passage and the upper volume opening in the upper container member. If the pressing device enters the lower container member the waste may risk entering the frame side of the pressing plate, such that the pressing device gets stocked. It is the advantages of the waste collection system to prevents the waste to access the opposite side of the pressing plate, wherein the opposite side of the pressing plate is the side opposite to the pressing side.

[0029] In a still further advantageous embodiment of the invention the pressing means comprises a moveable frame, which is arranged between a top part of the upper container member and said pressing plate, wherein at least one moving means attached to the moveable frame, such that the moveable frame is capable of substantially vertically displacing the pressing plate from a first position to a second position inside the waste collection container.

[0030] The pressing device comprises a pressing plate and a pressing means for compressing waste in the waste collection container. The pressing means may be arranged between a top part of the upper container member and the pressing plate. The pressing means may comprise a moveable frame or similar. The frame may be collapsed or extended.

[0031] When the frame is collapsed the pressing plate is arranged in a first position. When the frame is more or less extended the pressing plate is arranged in a second position. At least one moving means attached to the moveable frame, such that the moveable frame is capable of substantially vertically displacing the pressing plate from a first position to a second position inside the waste collection container. The top part may comprise a removeable top plate. A first end of the frame may be attached to the removeable top plate. The pressing plate is attached to a second end of the frame. The pressing plate may be displaceable relative to the top part when activating the moving means. The moving means may be actuators. The actuators may be operated electrically, hydraulically and/or pneumatically.

[0032] In a further advantageous embodiment of the invention the pressing plate has a circumference and shape which correspond to the inner cross-sectional circumference and inner cross-sectional shape of the upper volume opening and/or to the inner cross-sectional circumference and inner cross-sectional shape of the upper container member, such that when compressing the

waste, the waste is pressed towards the bottom part of the lower container member.

[0033] The upper container member has an inner cross-sectional circumference and/or inner cross-sectional shape. The pressing plate has a circumference and shape, which correspond to the inner cross-sectional circumference and inner cross-sectional shape of the upper volume opening and/or to the inner cross-sectional circumference and inner cross-sectional shape of the upper container member, such that when compressing the waste, the waste is pressed towards the bottom part of the lower container member.

[0034] The pressing plate corresponds to the shape and size of the inner cross-sectional dimensions. If the rim of the pressing plate extends to the inner side of the upper container member, the pressing plate will prevent the risk of waste entering the frame side of the pressing plate, such that the pressing device doesn't get stuck. It is the advantages of the waste collection system to prevent the waste accessing the opposite side of the pressing plate, wherein the opposite side of the pressing plate is the side opposite to the pressing side.

[0035] In a still further advantageous embodiment of the invention the bottom part of the lower container member is releasable attached to the lower container, a circumference of the bottom part is substantially equal to an inner cross-sectional circumference of the bottom container, such that the waste can be removed through the bottom part of the lower container member by releasing the bottom part from the lower container.

[0036] The pressing plate has a circumference and shape, which correspond to the inner cross-sectional circumference of the tube-shaped waste collection container. When compressing the waste, the waste is pressed towards the bottom part of the lower container member. The bottom part of the lower container member may be pivotally, releasably attached or slidably attached to the lower container member. The bottom part may be fastened by the use of releasable locking means. The circumference of the bottom part may be substantially equal to an inner cross-sectional circumference of the bottom container member. The waste can easily be removed through an opening provided in the bottom by releasing the releasable locking means. An opening in the bottom of the lower container member will release the waste from the waste collection container.

[0037] In a still further advantageous embodiment of the invention the waste collection system comprises a control system, wherein the control system controls the pressing means, such that the pressing means displaces the pressing plate from a first position to a second position or visa verse inside the waste collection container.

[0038] The waste collection system also comprises a control system which is not showed in the figures. The control system controls the pressing means, such that the pressing means displaces the pressing plate from a first position to a second position and vice versa inside the waste collection container. The control system comprises sensing means for sensing the cover's position relative to the waste receiving aperture. The pressing means is configured to displace the pressing plate from a first position to a second position inside the waste collection container, when the waste receiving aperture is covered.

[0039] In a further advantageous embodiment of the invention the control system comprises sensing means for sensing the cover position relative to the waste receiving aperture, such that the pressing means is configured to displace the pressing plate from a first position to a second position inside the waste collection container, when the waste receiving aperture is covered.

[0040] The control system comprises sensing means for sensing the cover position relative to the waste receiving aperture. The pressing means may be configured to displace the pressing plate from a first position to a second position inside the waste collection container, when the waste receiving passage is covered. If the receiving passage is not covered, the control system is waiting to start the pressing process until the waste receiving passage is covered.

[0041] The invention also provides a method of compressing waste inside a waste collection system, wherein the waste collection system comprises a waste collection container having an upper container member and a lower container part, comprising following steps:

- arranging said upper container member above the ground level, and arranging the lower container member fully or partly below ground level,
- entering waste into upper container member through a receiving passage,
- displacing the pressing plate from the first position between a top part of the upper container member and the receiving passage, to a second position between the receiving passage and the bottom part of the lower container member inside the waste collection container.

[0042] The invention also provides a method of compressing waste inside a waste collection system. The waste collection system comprises a waste collection container having an upper container member and a lower container part. An upper container member is arranged above the ground level. The lower container member may be fully or partly arranged below ground level. The waste is entered through a receiving passage which is arranged in the upper container member. The pressing plate is displaced substantially vertically from the first position between a top part of the upper container member and the receiving passage, to a second position between the receiving passage and the bottom part of the lower container member inside the waste collection container. The waste is compressed and leaving further space for more waste.

[0043] In an advantageous method comprising further steps of displacing the pressing plate from the first posi-

tion between a top part of the upper container member and the receiving passage, to a second position between the receiving passage and the bottom part of the lower container member inside the waste collection container.

[0044] The invention also provides a method of compressing waste inside a waste collection system. The waste collection system comprises a waste collection container having an upper container member and a lower container part. An upper container member is arranged above the ground level. The lower container member may be fully or partly arranged below ground level. The waste is entered through a receiving passage which is arranged in the upper container member. The pressing plate is displaced from the first position between a top part of the upper container member and the receiving passage, to a second position between the receiving passage and the upper volume opening inside the waste collection container. The waste is compressed and leaving further space for more waste.

[0045] Alternatively, the second position is between the receiving passage and the upper volume opening in the upper container member.

[0046] The invention has now been explained with reference to a few embodiments which have only been discussed in order to illustrate the many possibilities and various design possibilities achievable with the waste collection system according to the present invention.

Description of the Drawing

[0047] The embodiments of the invention are described in the following with reference to:

Fig. 1a,b: Showing an embodiment of a waste collection system.
Fig. 2: Showing an embodiment of a pressing device.
Fig. 3a,b: Showing a further embodiment of a waste collection system.

[0048] In the explanation of the figures, identical or corresponding elements will be provided with the same designations in different figures. Therefore, no explanation of all details will be given in connection with each single figure/embodiment.

Detailed Description of the Invention

[0049] An embodiment of the invention is explained in the following detailed description. It is to be understood that the invention is not limited in its scope to the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced or carried out in various ways.

[0050] Fig. 1a,b shows an embodiment of a waste collection system 1. The waste collection system 1 has a waste collection container comprising a volume configured to receiving waste. The waste collection container comprises an upper container member 2 and a lower container member 3. The upper container member 2 is arranged above the ground level X. The lower container member 3 is arranged below ground level X. The upper container member 2 comprises a top part 11 and a hook for lifting the waste collection container out from the ground, such that the waste collection container can be emptied.

[0051] The upper container member 2 encloses an upper volume 4. The upper container member 2 has an upper volume opening arranged substantially adjacent to a top opening of the lower container member 3, such that the upper container member 2 and the lower container member 3 forms a waste collection container comprising a total volume. The total volume is divided into an upper volume 4 and a lower volume 5, wherein the upper volume is in communication with said lower volume.

[0052] The upper container member 2 has an inner cross-sectional circumference d1. The bottom container member 3 has an inner cross-sectional circumference d2. The inner cross-sectional circumference d1 of the upper member 2 is equal to the cross-sectional circumference of the upper volume opening and the cross-sectional circumference of the top opening of the lower container member 3 and the inner cross-sectional circumference d2 of the bottom container member 3. The upper container member 2 and the lower container member 3 forms a tube-shaped waste collection container, having an equal inner cross-sectional circumference in the entire waste collection container.

[0053] A receiving passage 6 is arranged in the upper container member 2. The upper volume 4 is in communication with the ambient surroundings through receiving passage 6. The receiving passage is configured to receiving waste. The waste enters the total volume inside the waste collection container. The waste may pile up in first the lower volume 5 and then the upper volume 4. A cover 6, such as a lid or a door or similar may be provided to cover the receiving passage. The lid or door may be pivotally attached to the upper container member 2.

[0054] A pressing device 10 is arranged in the top part 11 of the upper container member 2 in a first position between the top part and the receiving passage. The pressing device 10 is configured to compress waste inside the waste collection container by substantially vertically displacing F the pressing plate 14 from the first position P1 to a second position P2 inside the waste collection container. The pressing plate 14 is displaced using actuation means, such as using at least one actuator 16. The pressing plate is arranged in a horizontal plane, such that the pressing plate is parallel to the ground level. The pressing plate 14 moves away from the top part 11 towards the bottom part 8 of the lower container member. Or the pressing plate 14 moves towards the top part 11 away from the bottom part 8 of the lower container member. The pressing plate 14 passes the receiving passage, when being displaced upwards or downwards.

[0055] The pressing plate 14 has a circumference which correspond to the inner cross-sectional circumfer-

ence of the tube-shaped waste collection container. When compressing the waste, the waste is pressed towards the bottom part of the lower container member. The bottom part 8 of the lower container member is pivotally releasable attached to the lower container member 3 by the use of releasable locking means 9. The circumference of the bottom part 8 is substantially equal to an inner cross-sectional circumference of the bottom container member. The waste can easily be removed through the pivotally attached bottom part 8 by releasing the releasable locking means 9 from the bottom part 8. An opening 7 in the bottom of the lower container member 3 will release the waste from the waste collection container.

[0056] Fig 2. shows an embodiment of a pressing device 10. The pressing device 10 comprises a pressing plate 14 and a pressing means 15 for compressing waste in the waste collection container. The pressing means 15 is arranged between a top part 11 and the pressing plate 14. The top part may be a removeable top plate. The top plate may comprise a hook 12 for lifting and lowering the waste collection container. The pressing means 15 is a collapsible frame. A first end of the frame is attached to the top part 11. The pressing plate 14 is attached to a second end of the frame, such that the pressing plate is displaceable relative to the top part 11. The pressing plate 14 is displaced relative to the top part 11 using at least one actuator 16.

[0057] Fig. 3a,b shows a further embodiment of a waste collection system 1. Fig. 3a shows the waste collection system 1 has a waste collection container comprising an upper container member 2 and a lower container member 3. The upper container member 2 is arranged above the ground 17. The lower container member 3 is arranged below ground in an outer container 18 adapted for receiving the lower container member 3. A pedestrian platform 19 is provided between and/or around the upper container member adjacent to the lower container member. The pedestrian platform 19 may cover any unsafe or unwanted space around the waste collection system 1. The upper container member 2 comprises a hook for lifting the waste collection container out from the outer container 18, such that the waste collection container can be emptied.

[0058] Fig. 3b shows a further embodiment of a waste collection system 1 in a cross-sectional view comprising a pressing device 10. The waste collection system 1 has a waste collection container comprising an upper container member 2 and a lower container member 3. The upper container member 2 encloses an upper volume 4. The upper volume opening is arranged substantially adjacent to the top opening of the lower container member 3, such that the upper container member 2 and the lower container member 3 forms a waste collection container comprising a total volume. The total volume is divided into an upper volume 4 and a lower volume 5, wherein the upper volume is in communication with said lower volume.

[0059] The upper container member 2 has an inner cross-sectional circumference d1. The bottom container member 3 has an inner cross-sectional circumference d2. The inner cross-sectional circumference d1 of the upper member 2 is smaller than the inner cross-sectional circumference d2 of the bottom container member 3. The cross-sectional circumference of the top opening is smaller than the inner cross-sectional circumference d2 of the bottom container member 3.

[0060] A pressing device 10 is arranged in the top part 11 of the upper container member 2, positioned in a first position. The pressing device 10 is configured to compress waste by substantially vertically displacing F the pressing plate 14 from the first position P1 to a second position inside the upper container member 2. The second position P2 inside the waste collection container is the upper volume opening. The pressing plate is displaced from the first position to the second position P2 at the upper volume opening, such that the pressing plate is displaced only inside the upper container member of the waste collection container. The second position P2 is a position between the receiving passage and the upper volume opening in the upper container member 2. If the pressing device 10 enters the lower container member 3 the waste may risk entering the frame side of the pressing plate 14, such that the pressing device 10 gets stuck.

[0061] The pressing plate 14 is displaced using actuation means, such as using at least one actuator 16. The pressing plate 14 moves away from the top part 11 towards the bottom part 8 of the lower container member 3 but stops at the upper volume opening. Or the pressing plate 14 moves towards the top part 11 away from the bottom part 8 of the lower container member. The pressing plate 14 passes the receiving passage, when being displaced upwards or downwards.

[0062] The waste collection system also comprises a control system which is not showed in the figures. The control system controls the pressing means, such that the pressing means displaces the pressing plate from a first position to a second position and vice versa inside the waste collection container. The control system comprises sensing means for sensing the cover's position relative to the waste receiving passage. The pressing means is configured to displace the pressing plate from a first position to a second position inside the waste collection container, when the waste receiving passage is covered.

Claims

1. A waste collection system (1) configured to be arranged with a lower container member (3) fully or partly below a ground level, wherein the waste collection system (1) has a waste collection container comprising a volume configured to receiving waste, wherein the waste collection container comprises:

- an upper container member (2) with lifting means for lifting the waste collection container out from the ground such that the waste collection container can be emptied, wherein the upper container member (2) encloses an upper volume (4), and the upper container member (2) has an upper volume opening and an inner cross-sectional circumference (d1) of the upper volume opening, wherein at least one receiving passage (6) is arranged in the upper container member (2), such that the upper volume (4) is in communication with ambient surroundings, and wherein the receiving passage (6) is configured for receiving waste, wherein at least one cover (6) is arranged onto the upper container member (2), such that the cover (6) is capable of covering the receiving passage (6) or part of the receiving passage (6),
- the lower container member (3) enclosing a lower volume (5), wherein said lower container member (3) has a top opening adaptable to the upper volume opening, such that said upper volume (4) is in communication with said lower volume (5),
- a pressing device (10) arranged in a top part (11) of the upper container member (2) in a first position (PI), wherein the pressing device (10) comprises a pressing plate (14) and a pressing means (15) for compressing waste in waste collection container, wherein the pressing means (15) is arranged between the top part (11) of the upper container member (2) and said pressing plate (14),

wherein the volume configured to receiving waste comprises the upper volume (4) and the lower volume (5) for the waste to pile up in the lower volume (5) and upward toward the upper volume (4), and wherein the pressing means (15) is configured to compress the waste inside the waste collection container by displacing the pressing plate (14) from the first position (P1) to a second position (P2) inside the waste collection container, such that when the pressing plate (14) is being displaced, the pressing plate (14) passes the receiving passage (6) when being displaced.

2. Waste collection system (1) according to claim 1, wherein a cross-sectional circumference (d1) of the upper volume opening is equal to or smaller than an inner cross-sectional circumference (d2) of the lower container member (3).

3. Waste collection system (1) according to claim 1 and 2, wherein the second position (P2) inside the waste collection container is the upper volume opening, such that the pressing plate (14) is displaced from the first position (PI) to the second position (P2) at the upper volume opening, such that the pressing plate (14) is displaced inside the upper container member (2) of the waste collection container.

4. Waste collection system (1) according to any one of the preceding claims, wherein the pressing means (15) comprises a moveable frame, which is arranged between a top part (11) of the upper container member (2) and said pressing plate (14), wherein at least one moving means attached to the moveable frame, such that the moveable frame is capable of substantially vertically displacing (F) the pressing plate (14) from a first position (P1) to a second position (P2) inside the waste collection container.

5. Waste collection system (1) according to any one of the preceding claims, wherein the pressing plate (14) has a circumference and shape, which correspond to the inner cross-sectional circumference (d1) and inner cross-sectional shape of the upper volume opening and/or to the inner cross-sectional circumference (d1) and inner cross-sectional shape of the upper container member (2), such that when compressing the waste, the waste is pressed towards a bottom part (8) of the lower container member (3).

6. Waste collection system (1) according to any one of the preceding claims, wherein the bottom part (8) of the lower container member (3) is releasably attached to the lower container, a circumference of the bottom part (8) is substantially equal to an inner cross-sectional circumference (d2) of the lower container member (3), such that the waste can be removed through the bottom part (8) of the lower container member (3) by releasing the bottom part (8) from the lower container member (3).

7. Waste collection system (1) according to any one of the preceding claims, wherein the waste collection system (1) comprises a control system, wherein the control system controls the pressing means (15), such that the pressing means (15) displaces the pressing plate (14) from a first position (P1) to a second position (P2) or vice versa inside the waste collection container.

8. Waste collection system (1) according to claim 7, wherein the control system comprises sensing means for sensing the cover (6) position relative to the waste receiving passage (6), such that the pressing means (15) is configured to displace the pressing plate (14) from a first position (P1) to a second position (P2) inside the waste collection container, when the waste receiving passage (6) is covered.

9. A method for compressing waste inside a waste collection system (1) according to any one of the claims 1-8, wherein the waste collection system (1) com-

prises a waste collection container having an upper container member (2) and a lower container member (3), comprising following steps:

- arranging said upper container member (2) above the ground level (X), and arranging the lower container member (3) fully or partly below ground level (X),
- entering waste into upper container member (2) through a receiving passage (6),
- displacing the pressing plate (14) from the first position (P1) to a second position (P2) inside the waste collection container.

10. Method according to claim 9, comprising further acts of: displacing the pressing plate (14) from the first position (P1) between a top part (11) of the upper container member (2) and the receiving passage (6), to a second position (P2) between the receiving passage (6) and the bottom part (8) of the lower container member (3) inside the waste collection container.

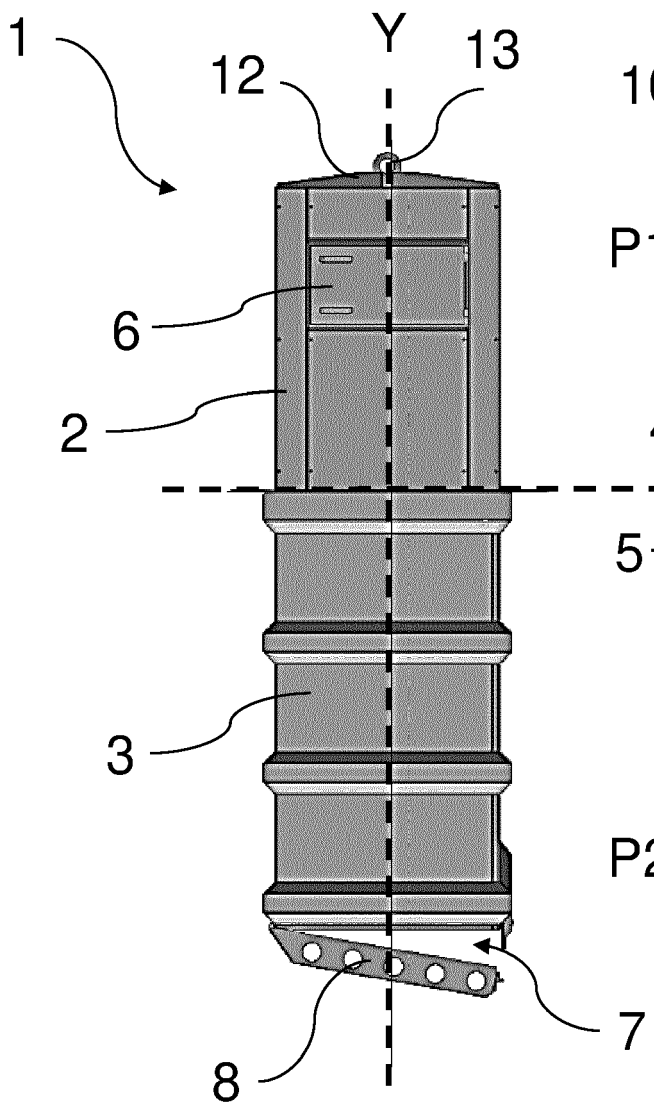

Fig. 1a

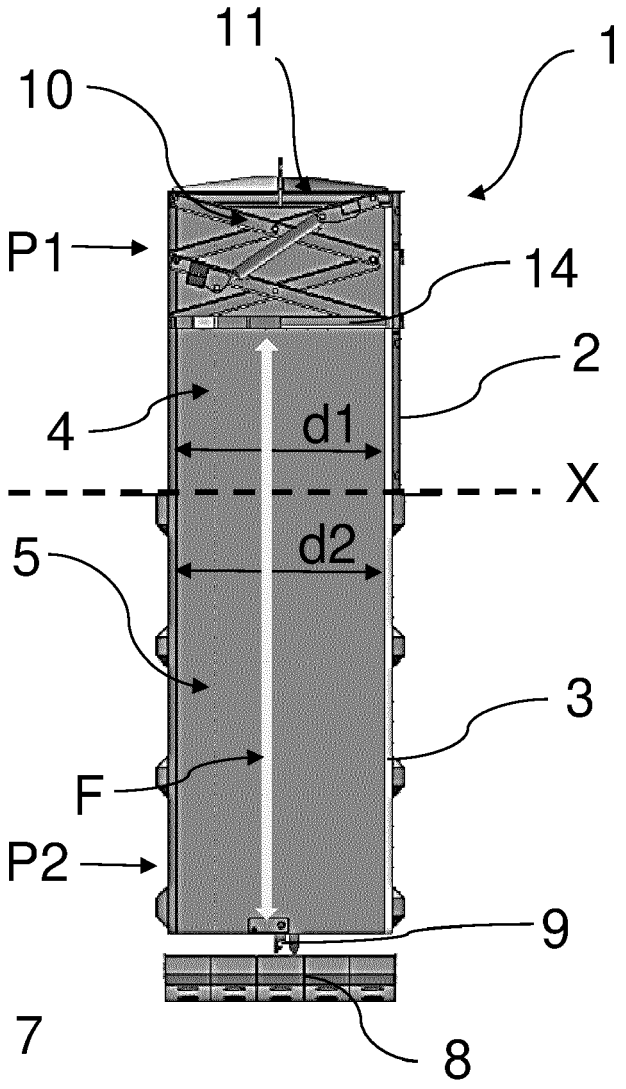

Fig. 1b

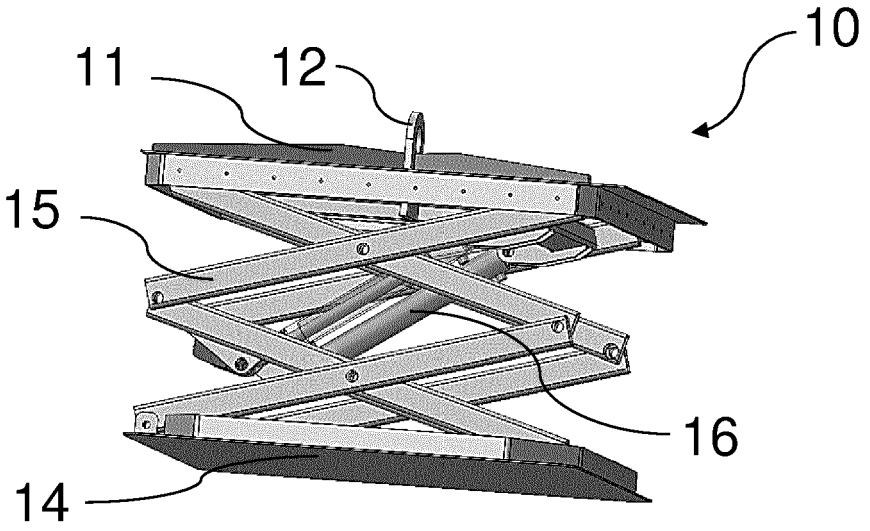

Fig. 2

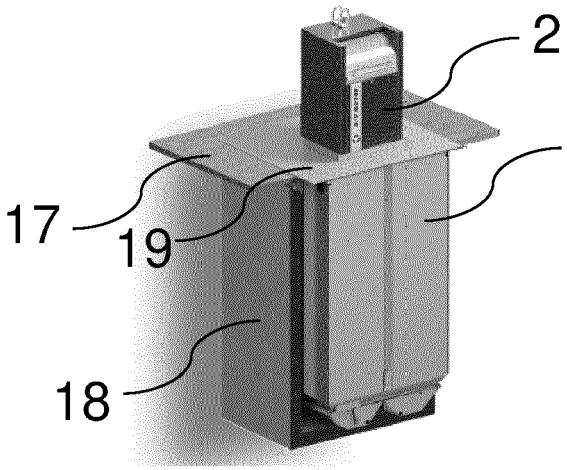

Fig. 3a

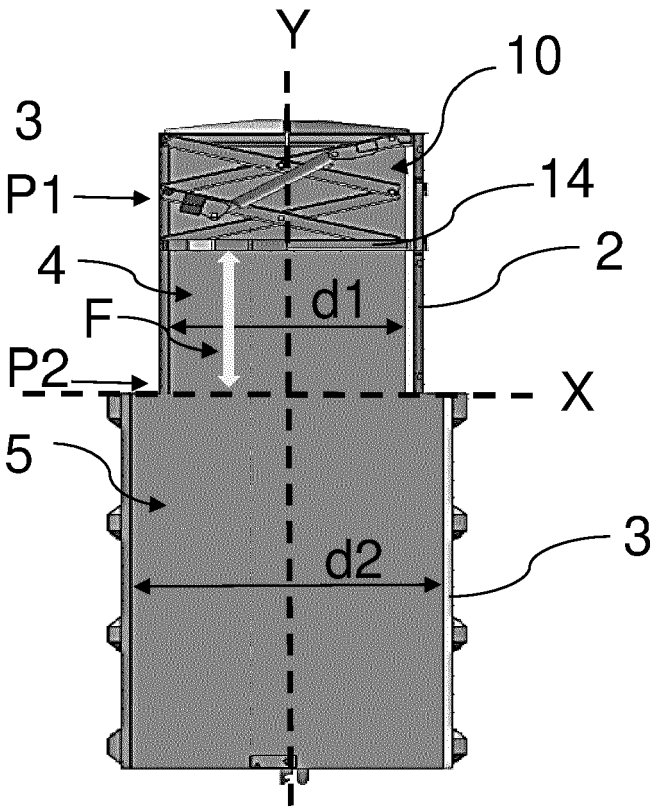

Fig. 3b

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EUROPEAN SEARCH REPORT

Application Number
EP 22 20 7129

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	15 March 2023	de Miscault, Xavier

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