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(54) **EQUIPMENT FOR THE CONTAINMENT OF MATERIAL**

AUSRÜSTUNG ZUR EINDÄMMUNG VON MATERIAL

ÉQUIPEMENT DESTINÉ À CONTENIR UN MATÉRIAU

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Description

Technical Field

[0001] The present invention relates to a piece of equipment for the containment of material, in particular for waste collection or the like.

Background Art

[0002] Today the most used waste collection systems envisage the use of containers of various sizes, generally divided according to the type of waste which are intended to contain.

[0003] These containers are then emptied by means of special vehicles suitably equipped to lift the containers themselves, rotate them to allow the release of the waste contained inside and reposition them again to earth. These vehicles are therefore able to empty the containers for the collection of the same type of waste and arranged within a determined urban area and then to transport them to the collection center.

[0004] The patent EP 2432713, respectively WO 2010/133265 A1, describes a piece of equipment for the differentiated waste collection according to the preamble of claim 1. It comprises a vehicle movable on wheels having a bearing frame able to support a multi-tank structure having first actuator means able to allow the self-support relative to the ground and second actuator means able to allow the rotation of each tank for the emptying of the same within respective collection containers.

[0005] The equipment described by EP 2432713 has some drawbacks.

[0006] In particular, the multi-tank structure described by EP 2432713 through the rotation of each tank does not allow to unload the material contained in the same within any type of collection container, since the latter generally vary in height.

[0007] Moreover, the tanks described in EP 2432713 envisage the presence of a door for the introduction of the material placed on the upper face of these, thus making it difficult to introduce the material by disabled persons.

[0008] A further drawback of this multi-tank structure consists in the fact that the upper door the tanks are equipped of is used both for the introduction and for the release of the material and in this latter case it does not allow to control the direction of the outgoing flow.

Description of the Invention

[0009] The main aim of the present invention is to provide a piece of equipment for the containment of material which allows to convey the material contained of the relative containers within any collecting vessel, whatever the height of the same.

[0010] Within this aim, one object of the present invention is to provide a piece of equipment that is accessible

in an easy manner even by disabled persons.

[0011] Another object of the present invention is to facilitate the release of the material contained in the collection containers.

[0012] Another object of the present invention is to provide a piece of equipment for the containment of material which allows to overcome the mentioned drawbacks of the prior art within the ambit of a simple, rational, easy, effective to use and affordable solution.

[0013] The objects stated above are achieved by the present equipment according to claim 1.

Brief Description of the Drawings

[0014] Other characteristics and advantages of the present invention will become better evident from the description of a preferred but not exclusive embodiment of a piece of equipment for the containment of material, illustrated by way of an indicative, but non-limiting example in the accompanying drawings, in which:

Figure 1 is an axonometric view of a piece of equipment according to the invention with the bearing structure in a lifted position;

Figure 2 is an axonometric view of the equipment of Figure 1 with the bearing structure in lowered position with the doors for the introduction of the material in open configuration;

Figure 3 is a front axonometric view of the equipment of Figure 1 with the bearing structure in lowered configuration and a container in unloading position;

Figure 4 is a rear axonometric view of the equipment of Figure 3;

Figure 5 is an axonometric view of the equipment of Figure 4 with the door for the release of the material in open configuration.

Embodiments of the Invention

[0015] With particular reference to such illustrations, globally indicated with reference number 1 is a piece of equipment for the containment of material, particularly waste, waste materials and the like.

[0016] The equipment 1 comprises a bearing structure 2 which can be transported by means of a vehicle movable on wheels and which supports a plurality of containers 3 for the collection of material. The equipment 1 comprises lifting means 4 of the bearing structure 2. The lifting means 4 are operable to move the bearing structure 2 between a lowered position, wherein the containers 3 are accessible by private and/or commercial users to introduce the material within the same, and a lifted position, wherein the bearing structure 2 can be mountable onto and demountable from a vehicle movable on wheels suitable for its transport. In the embodiment represented in the illustrations, the lifting means 4 are the type of fluid-operated actuators.

[0017] According to the invention, the equipment 1

comprises simultaneous lifting and tilting means 5 of each container 3.

[0018] More in detail, between the bearing structure 2 and each container 3 are placed relative lifting and tilting means 5.

[0019] These means 5 are therefore able to move the relative container 3 between a loading position, wherein it is placed resting on the bearing structure 2, and an unloading position, wherein it is lifted and rotated with respect to the loading position so as to allow the release of the material contained inside.

[0020] According to the invention, the means 5 comprise at least a movement scissor 20 placed between the bearing structure 2 and a relative container 3, which is movable to bring the container itself from the loading to the unloading configuration and vice versa. More in detail, the scissors 20 are movable between a closed configuration, which corresponds to the loading configuration of the container 3, and an open configuration, which corresponds to the unloading configuration of the container itself.

[0021] The scissors 20 comprise at least a first lever 21 and at least a second lever 22 hinged to each other and having a different length.

[0022] The different length of the levers 21 and 22 allows to obtain the simultaneous lifting and tilting of the containers 3. By effect of the opening of the scissors 20, in fact, the relative container 3 is lifted to a higher height than that corresponding to the loading position, and it is simultaneously tilted by effect of the rotation due to the different length of the levers 21 and 22.

[0023] In the preferred embodiment shown in the illustrations, between the scissors 20 and the bearing structure 2 are placed further scissors 23 comprising two further levers 24 substantially having the same length and hinged at a median area of their longitudinal extension.

[0024] Suitably, the lifting and tilting means 5 comprise actuation means 25 of the displacement of the scissors 20 from the closed configuration to the open configuration and vice versa.

[0025] The actuation means 25 are, e.g., the type of a fluid-operated actuator having the body associated with the bearing structure 2 and the relative piston associated with the scissors 20.

[0026] Each container 3 defines a relative containment volume 6 delimited by a bottom wall 3a, a front wall 3b and a rear wall 3c opposite to each other, a pair of side walls 3d and an upper wall 3e.

[0027] The front wall 3b and the rear wall 3c are accessible from the outside, while the side walls 3d are, with the containers 3 in the loading position, arranged facing to the side walls 3d of the contiguous containers 3 or to the perimeter walls 2a of the bearing structure 2.

[0028] Advantageously, at least one of the containers 3 comprises at least a first door 7 for the introduction of the material within the containment volume defined on the front wall 3b.

[0029] More particularly, the first door 7 is of the hori-

zontally pivoted type.

[0030] Suitably, with the first door 7 is associated a containment element 7a, which is arranged transversely to the first door itself when this is in the open position, and able to limit the amount of material which can be introduced within the relative containment volume 6.

[0031] Preferably, as shown in the illustrations, at least one container 3 comprises at least a second door 8 for the introduction of the material within the relative containment volume 6 which is defined on the upper wall 3e of the container itself.

[0032] The first door 7 is therefore accessible by any user, whatever its height, while the second door 8 is accessible from above and is preferably designed for use by the operators of the sector.

[0033] Advantageously, at least one of the containers 3 comprises opening means 9, manually operable by the user, of at least one of the first and the second door 7 and 8. The opening means 9 are, e.g., the type of a pedal associated with a relative door 7, 8 by means of a lever mechanism.

[0034] In the embodiment represented in the illustrations, each container 3 has both the first and the second door 7 and 8.

[0035] More particularly, in this embodiment, each container 3 comprises a relative pedal 9 to command the opening of the corresponding second door 8.

[0036] Preferably, at least one of the containers 3 also comprises a third door 10 for the release of the material contained within the relative containment volume 6 and defined on the rear wall 3c.

[0037] More in detail, the third door 10 is defined at the lower portion of the rear wall 3c and, in open position, is arranged substantially parallel to the relative bottom wall 3a to define its extension, so as to facilitate the conveying and direction of the material outwards.

[0038] Command means 11, e.g. of the fluid-operated type, are provided of the third door 10.

[0039] Suitably, the lifting and tilting means 5 are able to rotate the relative container 3 downwards from the side of the third door 10, so as to facilitate the release of the material contained within the same.

[0040] Advantageously, within at least one container 3 are positioned compacting means 12 of the material arranged within the relative containment volume 6. As can easily be understood, the presence and operation of the compacting means 12 is independent both of that of the lifting means 4 and of the lifting and tilting means 5 of the containers 3.

[0041] More particularly, the compacting means 12 comprise at least a compacting element 13 movable within the relative containment volume 6. In the embodiment shown in the illustrations, the compacting element 13 is associated movable in rotation with the side walls 3d of the relative container 3, therefore performing an oscillatory movement within the containment volume 6, close to and away from the corresponding third door 10.

[0042] Actuator means 14 are also provided able to

move in rotation the compacting element 13 within the relative containment volume 6.

[0043] As can be seen from the illustrations, the compacting element 13 divides the relative containment volume 6 into two chambers, of which a first chamber 6a communicating with the first and/or second door 7, 8 and a second chamber 6b communicating with the third door 10.

[0044] The compacting element 13 also comprises an opening 15 that connects the first and the second chamber 6a and 6b and the compacting means 12 comprise a closing element 16 of the opening itself associated with the compacting element 13.

[0045] The closing element 16 is movable to open/close the opening 15 so as to put in communication/isolate the chambers 6a and 6b and, consequently, allow/prevent the passage of the material introduced from the first chamber 6a to the second chamber 6b.

[0046] In the embodiment represented in the illustrations, the closing element 16 is the type of a shutter movable in translation along a sliding direction and movable by an actuator (not shown in the illustrations).

[0047] Preferably, the piece of equipment 1 comprises at least a rechargeable battery (not shown in the illustrations), which is operatively connected to at least an electrical user point, such as the drive motors of the actuators able to command the opening of the third doors 10 and of the closing elements 16, and at least a solar panel (also not shown in the illustrations), operatively connected to the rechargeable battery.

[0048] The equipment 1 can also have means for detecting the weight and/or volume of the material contained within the containers 3.

[0049] Suitably, the equipment 1 comprises means for identifying the position of the equipment itself during its transport such as, e.g., at least a GPS transmitter operatively connected to a relative GPS receiver positioned remotely.

[0050] The operation of the present invention is as follows.

[0051] As mentioned above, the equipment 1 is arranged in lifted position, by operating the lifting means 4, to allow its transport by means of a vehicle movable on wheels.

[0052] Once the equipment 1 has been unloaded from the relative movable vehicle, it is brought to the lowered position.

[0053] In this work configuration and with the containers 3 in the loading position, users and/or specialized staff may introduce the material within the relative containers through the first and/or second door 7 and 8.

[0054] More particularly, users such as private or disabled persons can introduce the material by opening the first door 7 of the containers 3, whereas the specialized staff can easily open the second door 8, e.g. by means of the pedal 9 in the embodiment shown in the illustrations.

[0055] The material introduced within the containment

volume 6 of the relative container 3 collects within the first chamber 6a and then moves to the second chamber 6b through the opening 15, the closing element 16 being in the open position.

[0056] In order to compact the material introduced within the containment volume 6, the compacting means 12 are operated.

[0057] More particularly the closing element 16 is lowered so as to obstruct the opening 15 and the compacting element 13 is made to rotate.

[0058] Once you wish to unload the contents of one of the containers 3, e.g. because the predefined limit weight and/or volume has been reached, the relative lifting and tilting means 5 are operated, which lift the container itself bringing it to the unloading position, in which it is located at a greater height than that reached in the loading position and in which it is tilted from the side of the relative third door 10.

[0059] After this position is reached, the third door 10 is then brought to the open position so as to allow the release of the material contained within the relative container 3 and its conveying within a relative collecting vessel.

[0060] To facilitate the release of the material it is possible to operate the compacting means 12 again so as to push the material contained in the second chamber 6b to the outside.

[0061] Once the containment volume 6 has been emptied, the relative container 3 is brought back to the loading position.

[0062] It has in practice been ascertained how the described invention achieves the intended objects and in particular the fact is underlined that the equipment according to the invention, by lifting and simultaneously rotating each container independently, allows to empty the material contained in the same within any type of collecting vessel, whatever its height.

[0063] The equipment forming the subject of the present invention, moreover, thanks to the presence of two doors arranged on two different walls of the containers allows the easy introduction of the material within the containers by any user.

[0064] Moreover, the presence of the compacting means arranged within the containers allows to improve the loading capacity as well as to facilitate the release to the outside of the material contained in them.

Claims

1. A piece of equipment (1) for the containment of material, comprising a bearing structure (2) which can be transported by means of a vehicle movable on wheels, a plurality of containers (3) for the collection of material supported by said bearing structure (2), comprising means for the simultaneous lifting and tilting (5) of each of said containers (3), the latter being movable between a loading position, wherein

- they are placed resting on said bearing structure (2), and an unloading position, wherein they are lifted and rotated with respect to the loading position so as to allow the release of the material contained inside, **characterized in that** said lifting and tilting means (5) comprise at least a movement scissor (20) placed between said bearing structure (2) and at least one of said containers (3) and movable between a closed configuration, corresponding to the loading position of the relative container (3), and at least an open configuration, corresponding to the unloading position of the relative container (3), said scissors (20) comprising at least a first lever (21) and at least a second lever (22) hinged to each other and having a different length.
2. A piece of equipment (1) according to claim 1, **characterized by** the fact that said containers (3) define a containment volume (6) delimited by a bottom wall (3a), a front wall (3b) and a rear wall (3c) opposite to each other and accessible from the outside, a pair of side walls (3d) and at least an upper wall (3e), and **characterized by** the fact that at least one of said containers (3) comprises at least a first door (7) for the introduction of the material within said containment volume (6) defined on said front wall (3b).
 3. A piece of equipment (1) according to claim 1 or 2, **characterized by** the fact that said first door (7) is of the horizontally pivoted type.
 4. A piece of equipment (1) according to claim 2 or 3, **characterized by** the fact that said at least one container (3) comprises at least a second door (8) for the introduction of material within said containment volume (6) defined on said upper wall (3e).
 5. A piece of equipment (1) according to one or more of claims 2 to 4, **characterized by** the fact that said at least one container (3) comprises at least a third door (10) for the release of the material from said containment volume (6) and defined on said rear wall (3c).
 6. A piece of equipment (1) according to claim 5, **characterized by** the fact that said third door (10) is movable between a closing configuration and an opening configuration, wherein in the opening configuration, it is arranged substantially aligned with the bottom wall (3a) of the relative container (3) to define its extension.
 7. A piece of equipment (1) according to one or more of the preceding claims, **characterized by** the fact that at least one of said containers (3) comprises compacting means (12) of the material arranged within the relative containment volume (6).
 8. A piece of equipment (1) according to claim 7, **characterized by** the fact that said compacting means (12) comprise at least a compacting element (13) arranged movable in rotation around a relative axis within the relative containment volume (6).
 9. A piece of equipment (1) according to claim 8, **characterized by** the fact that said compacting element (13) divides the relative containment volume (6) at least into a first chamber (6a) communicating with said first and/or said second door (7, 8) and into a second chamber (6b) communicating with said third door (10).
 10. A piece of equipment (1) according to claim 9, **characterized by** the fact that said compacting element (13) has at least an opening (15) able to place in communication said first with said second chamber (6a, 6b) and that said compacting means (12) comprise at least a closing element (16) movable to open/close said opening (15).
 11. A piece of equipment (1) according to one or more of the preceding claims, **characterized by** the fact that it comprises lifting means (4) of said bearing structure (2).
 12. A piece of equipment (1) according to one or more of the preceding claims, **characterized by** the fact that it comprises at least a rechargeable battery operatively connected to at least an electrical user point and at least a solar panel operatively connected to said rechargeable battery.
 13. A piece of equipment (1) according to one or more of the preceding claims, **characterized by** the fact that it comprises at least a GPS transmitter operatively connected remotely to a relative GPS receiver.

Patentansprüche

1. Ausrüstungsteil (1) für die Aufnahme von Material, das eine tragende Struktur (2) umfasst, die mittels eines auf Rädern bewegbaren Fahrzeugs transportiert werden kann, mehrere Behälter (3) für die Sammlung von Material, die von der tragenden Struktur (2) gestützt werden, umfassend Mittel für das gleichzeitige Heben und Kippen (5) von jedem der Behälter (3), wobei die Letztgenannten zwischen einer Beladestellung, in der sie auf der tragenden Struktur (2) aufliegend angeordnet sind, und einer Entladestellung, in der sie angehoben und in Bezug auf die Beladestellung gedreht werden, beweglich sind, so dass ein Ausgeben des im Inneren enthaltenen Materials ermöglicht wird, **dadurch gekennzeichnet, dass** die Hebe- und Kippmittel (5) mindestens eine Bewegungsschere

- (20) umfassen, die zwischen der tragenden Struktur (2) und mindestens einem der Behälter (3) angeordnet ist und zwischen einer geschlossenen Konfiguration, die der Beladestellung des entsprechenden Behälters (3) entspricht, und mindestens einer offenen Konfiguration, die der Entladestellung des entsprechenden Behälters (3) entspricht, bewegbar ist, wobei die Scheren (20) mindestens einen ersten Hebel (21) und mindestens einen zweiten Hebel (22) umfassen, die gelenkig miteinander verbunden sind und eine unterschiedliche Länge aufweisen.
2. Ausrüstungsteil (1) nach Anspruch 1, **gekennzeichnet durch** die Tatsache, dass die Behälter (3) ein Aufnahmevervolumen (6) definieren, das durch eine Bodenwand (3a), eine Vorderwand (3b) und eine Rückwand (3c), die einander gegenüberliegen und von außen zugänglich sind, ein Paar Seitenwände (3d) und mindestens eine obere Wand (3e) begrenzt ist, und **gekennzeichnet durch** die Tatsache, dass mindestens einer der Behälter (3) mindestens eine erste Tür (7) zum Einführen des Materials in das Aufnahmevervolumen (6) umfasst, die an der Vorderwand (3b) definiert ist.
3. Ausrüstungsteil (1) nach Anspruch 1 oder 2, das durch die Tatsache gekennzeichnet ist, dass die erste Tür (7) horizontal schwenkbar ist.
4. Ausrüstungsteil (1) nach Anspruch 2 oder 3, das durch die Tatsache gekennzeichnet ist, dass mindestens ein Behälter (3) mindestens eine zweite Tür (8) für das Einführen von Material in das Aufnahmevervolumen (6) umfasst, die an der oberen Wand (3e) definiert ist.
5. Ausrüstungsteil (1) nach einem oder mehreren der Ansprüche 2 bis 4, das durch die Tatsache gekennzeichnet ist, dass der mindestens eine Behälter (3) mindestens eine dritte Tür (10) für die Ausgabe von Material aus dem Aufnahmevervolumen (6) umfasst, die an der Rückwand (3c) definiert ist.
6. Ausrüstungsteil (1) nach Anspruch 5, das durch die Tatsache gekennzeichnet ist, dass die dritte Tür (10) zwischen einer Schließkonfiguration und einer Öffnungskonfiguration bewegbar ist, wobei sie in der Öffnungskonfiguration im Wesentlichen mit der Bodenwand (3a) des entsprechenden Behälters (3) fluchtend angeordnet ist, um seine Erweiterung zu definieren.
7. Ausrüstungsteil (1) nach einem oder mehreren der vorhergehenden Ansprüche, das durch die Tatsache gekennzeichnet ist, dass mindestens einer der Behälter (3) Verdichtungsmittel (12) des Materials, das in dem Aufnahmevervolumen (6) angeordnet ist, umfasst.
8. Ausrüstungsteil (1) nach Anspruch 7, das durch die Tatsache gekennzeichnet ist, dass die Verdichtungsmittel (12) mindestens ein Verdichtungselement (13) umfassen, das drehbeweglich um eine relative Achse in dem entsprechenden Aufnahmevervolumen (6) angeordnet ist.
9. Ausrüstungsteil (1) nach Anspruch 8, das durch die Tatsache gekennzeichnet ist, dass das Verdichtungselement (13) das entsprechende Aufnahmevervolumen (6) mindestens in eine erste Kammer (6a), die mit der ersten und/oder der zweiten Tür (7, 8) in Verbindung steht, und in eine zweite Kammer (6b), die mit der dritten Tür (10) in Verbindung steht, unterteilt.
10. Ausrüstungsteil (1) nach Anspruch 9, das durch die Tatsache gekennzeichnet ist, dass das Verdichtungselement (13) mindestens eine Öffnung (15) aufweist, die geeignet ist, die erste mit der zweiten Kammer (6a, 6b) zu verbinden und, dass die Verdichtungsmittel (12) mindestens ein Schließelement (16) umfassen, das zum Öffnen/Schließen der Öffnung (15) bewegbar ist.
11. Ausrüstungsteil (1) nach einem oder mehreren der vorhergehenden Ansprüche, das durch die Tatsache gekennzeichnet ist, dass es Hebemittel (4) der tragenden Struktur (2) umfasst.
12. Ausrüstungsteil (1) nach einem oder mehreren der vorhergehenden Ansprüche, das durch die Tatsache gekennzeichnet ist, dass es mindestens eine aufladbare Batterie, die mindestens mit einer elektrischen Verbrauchsstelle wirkverbunden ist und mindestens ein Solarmodul, das mit der aufladbaren Batterie wirkverbunden ist, umfasst.
13. Ausrüstungsteil (1) nach einem oder mehreren der vorhergehenden Ansprüche, das durch die Tatsache gekennzeichnet ist, dass es mindestens einen GPS-Sender umfasst, der entfernt mit einem entsprechenden GPS-Empfänger verbunden ist.

Revendications

1. Équipement (1) pour contenir un matériau, comprenant une structure de support (2) qui peut être transportée au moyen d'un véhicule mobile sur des roues, une pluralité de contenants (3), pour la collecte de matériau, supportés par ladite structure de support (2), comprenant des moyens pour le levage et l'inclinaison simultanés (5) de chacun desdits contenants (3), ces derniers étant mobiles entre une position de chargement, dans laquelle ils sont placés en repos sur ladite structure de support (2), et une position de déchargement, dans laquelle ils sont levés et tournés par rapport à

la position de chargement afin de permettre la libération du matériau contenu à l'intérieur, **caractérisé en ce que**

lesdits moyens de levage et d'inclinaison (5) comprennent au moins un ciseau à mouvement (20) placé entre ladite structure de support (2) et au moins l'un desdits contenants (3) et mobile entre une configuration fermée, correspondant à la position de chargement du contenant relatif (3), et au moins une configuration ouverte, correspondant à la position de déchargement du contenant relatif (3), lesdits ciseaux (20) comprenant au moins un premier levier (21) et au moins un second levier (22) articulés l'un sur l'autre et possédant une longueur différente.

2. Équipement (1) selon la revendication 1, **caractérisé par le fait que** lesdits contenants (3) définissent un volume contenant (6) délimité par une paroi inférieure (3a), une paroi avant (3b) et une paroi arrière (3c) opposées l'une à l'autre et accessible à partir de l'extérieur, une paire de parois latérales (3d) et au moins une paroi supérieure (3e), et **caractérisé par le fait qu'**au moins l'un desdits contenants (3) comprend au moins une première porte (7) pour l'introduction du matériau à l'intérieur dudit volume contenant (6) défini sur ladite paroi avant (3b).
3. Équipement (1) selon la revendication 1 ou 2, **caractérisé par le fait que** ladite première porte (7) est du type pivotant horizontalement.
4. Équipement (1) selon la revendication 2 ou 3, **caractérisé par le fait que** ledit au moins un contenant (3) comprend au moins une deuxième porte (8), pour l'introduction de matériau à l'intérieur dudit volume contenant (6), définie sur ladite paroi supérieure (3e).
5. Équipement (1) selon une ou plusieurs des revendications 2 à 4, **caractérisé par le fait que** ledit au moins un contenant (3) comprend au moins une troisième porte (10) pour la libération du matériau à partir dudit volume contenant (6) et définie sur ladite paroi arrière (3c).
6. Équipement (1) selon la revendication 5, **caractérisé par le fait que** ladite troisième porte (10) est mobile entre une configuration de fermeture et une configuration d'ouverture, dans lequel, dans la configuration d'ouverture, elle est agencée de façon sensiblement alignée avec la paroi inférieure (3a) du contenant relatif (3) pour définir son extension.
7. Équipement (1) selon une ou plusieurs des revendications précédentes, **caractérisé par le fait qu'**au moins l'un desdits contenants (3) comprend des moyens compacteurs (12) du matériau, agencés à l'intérieur du volume contenant relatif (6).

8. Équipement (1) selon la revendication 7, **caractérisé par le fait que** lesdits moyens compacteurs (12) comprennent au moins un élément compacteur (13) agencé de façon mobile en rotation autour d'un axe relatif à l'intérieur du volume contenant relatif (6).
9. Équipement (1) selon la revendication 8, **caractérisé par le fait que** ledit élément compacteur (13) divise le volume contenant relatif (6) au moins en une première chambre (6a) communiquant avec ladite première et/ou ladite deuxième porte (7, 8) et en une seconde chambre (6b) communiquant avec ladite troisième porte (10).
10. Équipement (1) selon la revendication 9, **caractérisé par le fait que** ledit élément compacteur (13) possède au moins une ouverture (15) capable de placer en communication ladite première avec ladite seconde chambre (6a, 6b) et que lesdits moyens compacteurs (12) comprennent au moins un élément de fermeture (16) mobile pour ouvrir/fermer ladite ouverture (15).
11. Équipement (1) selon une ou plusieurs des revendications précédentes, **caractérisé par le fait qu'il** comprend des moyens de levage (4) de ladite structure de support (2).
12. Équipement (1) selon une ou plusieurs des revendications précédentes, **caractérisé par le fait qu'il** comprend au moins une batterie rechargeable fonctionnellement connectée à au moins un point utilisateur électrique et au moins un panneau solaire fonctionnellement connecté à ladite batterie rechargeable.
13. Équipement (1) selon une ou plusieurs des revendications précédentes, **caractérisé par le fait qu'il** comprend au moins un émetteur GPS fonctionnellement connecté, à distance, à un récepteur GPS relatif.

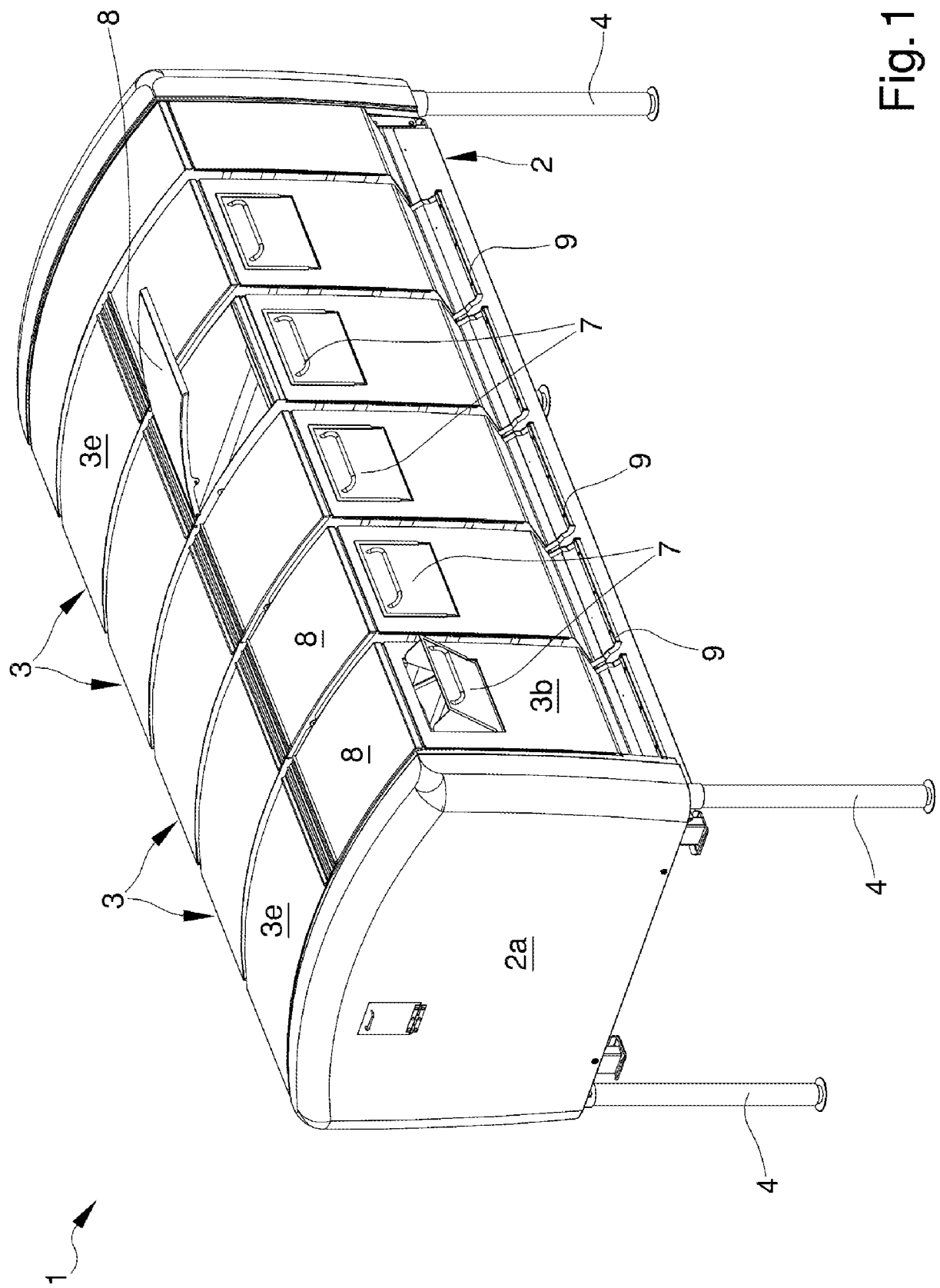


Fig. 1

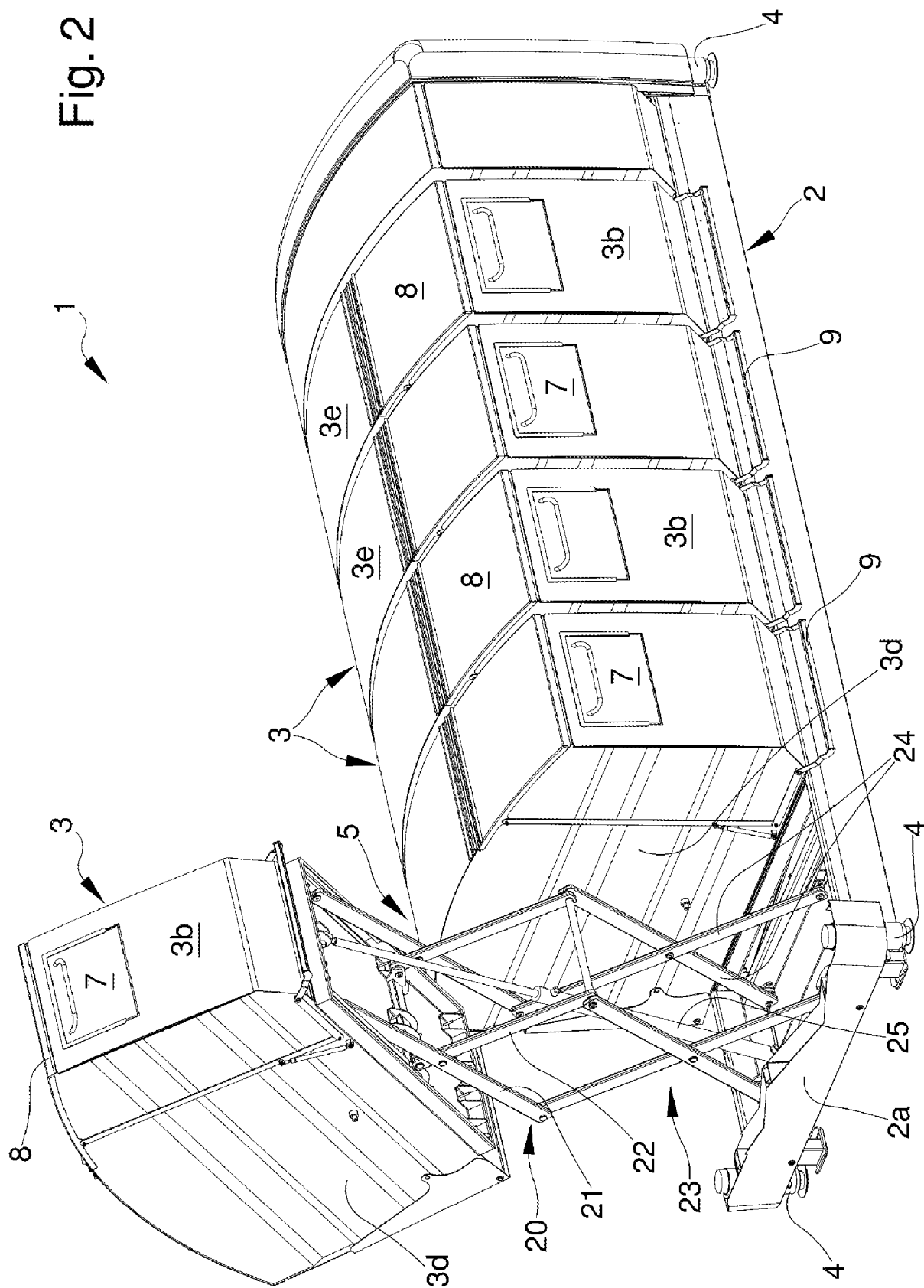


Fig. 2

Fig. 3

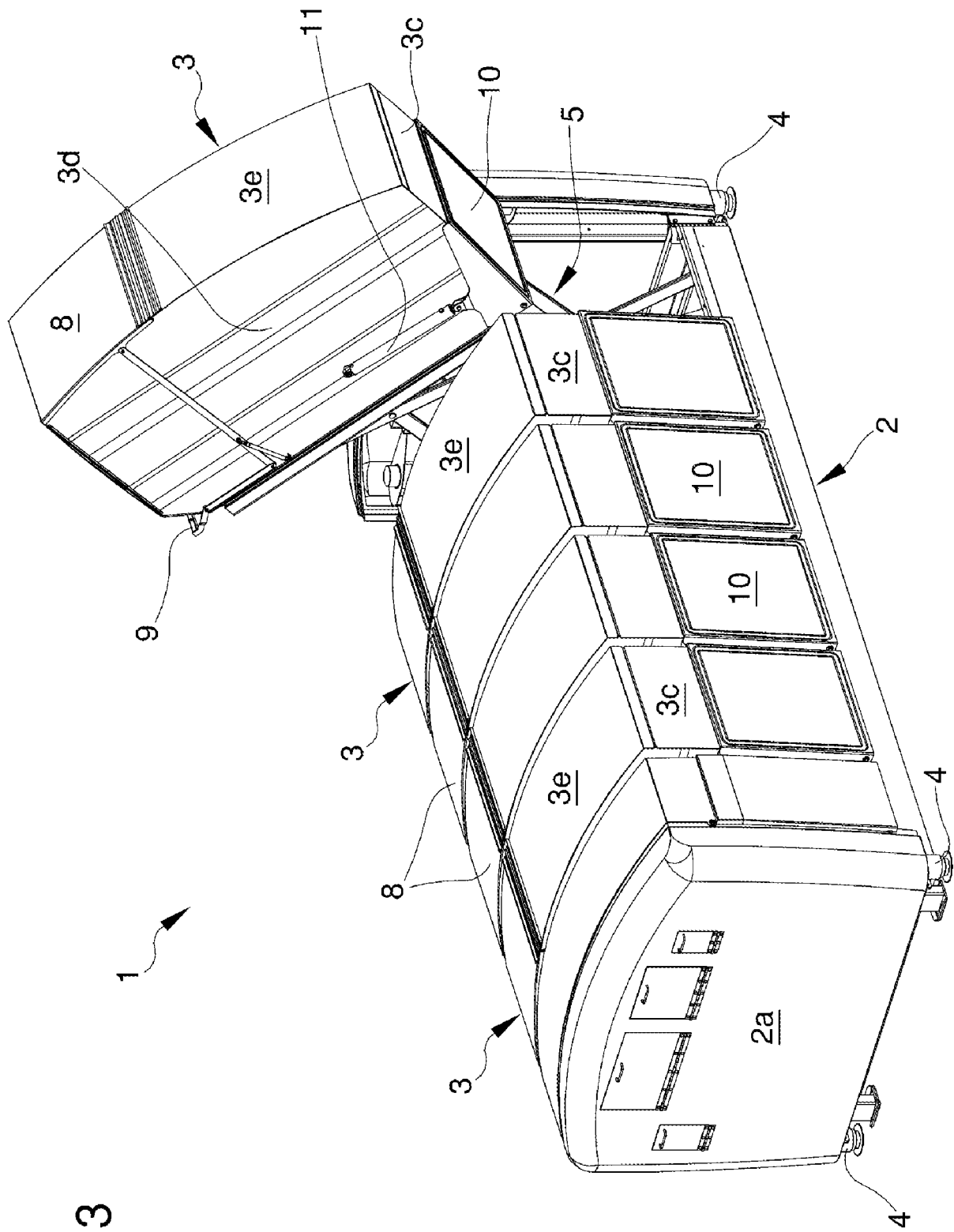
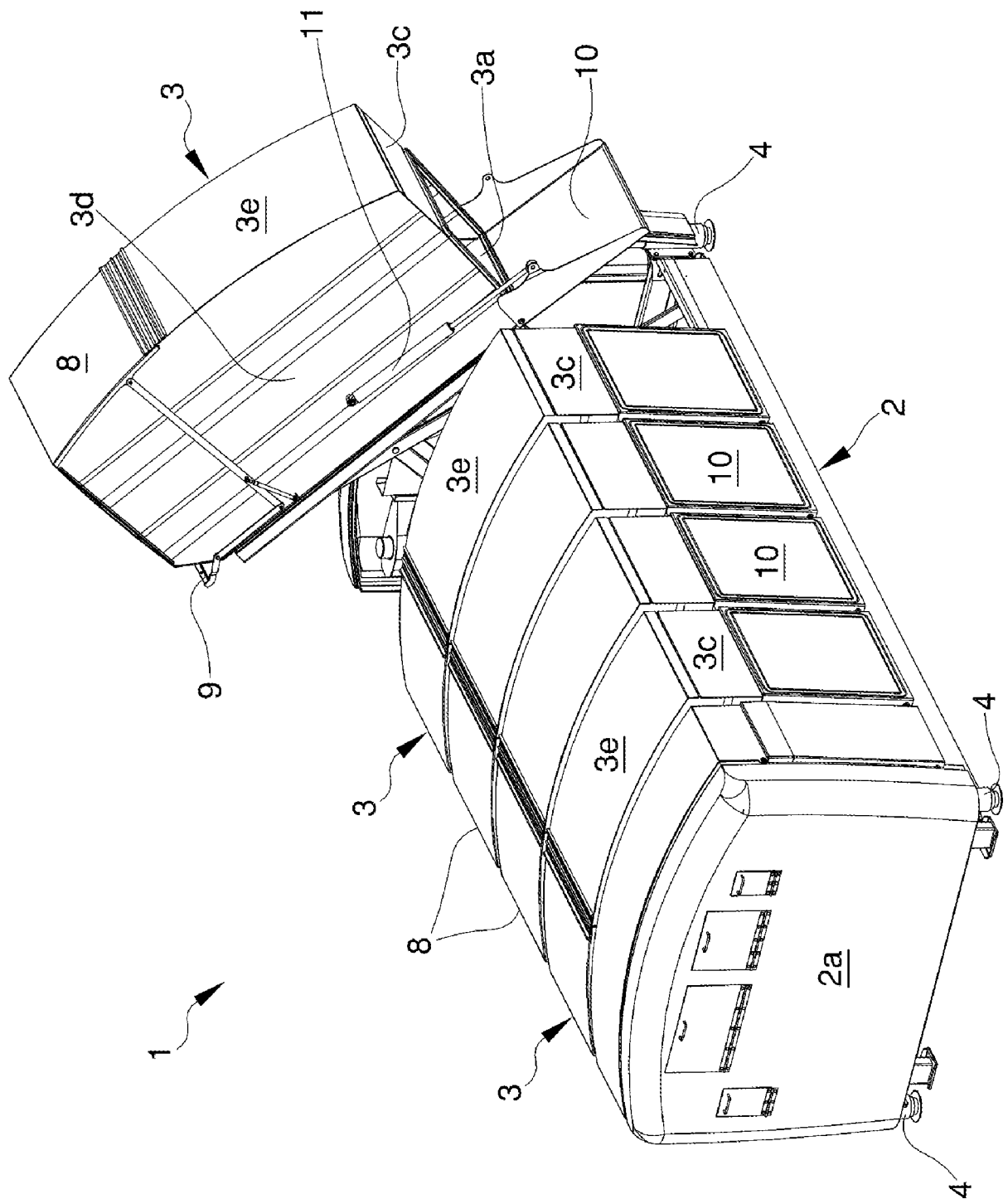


Fig. 4



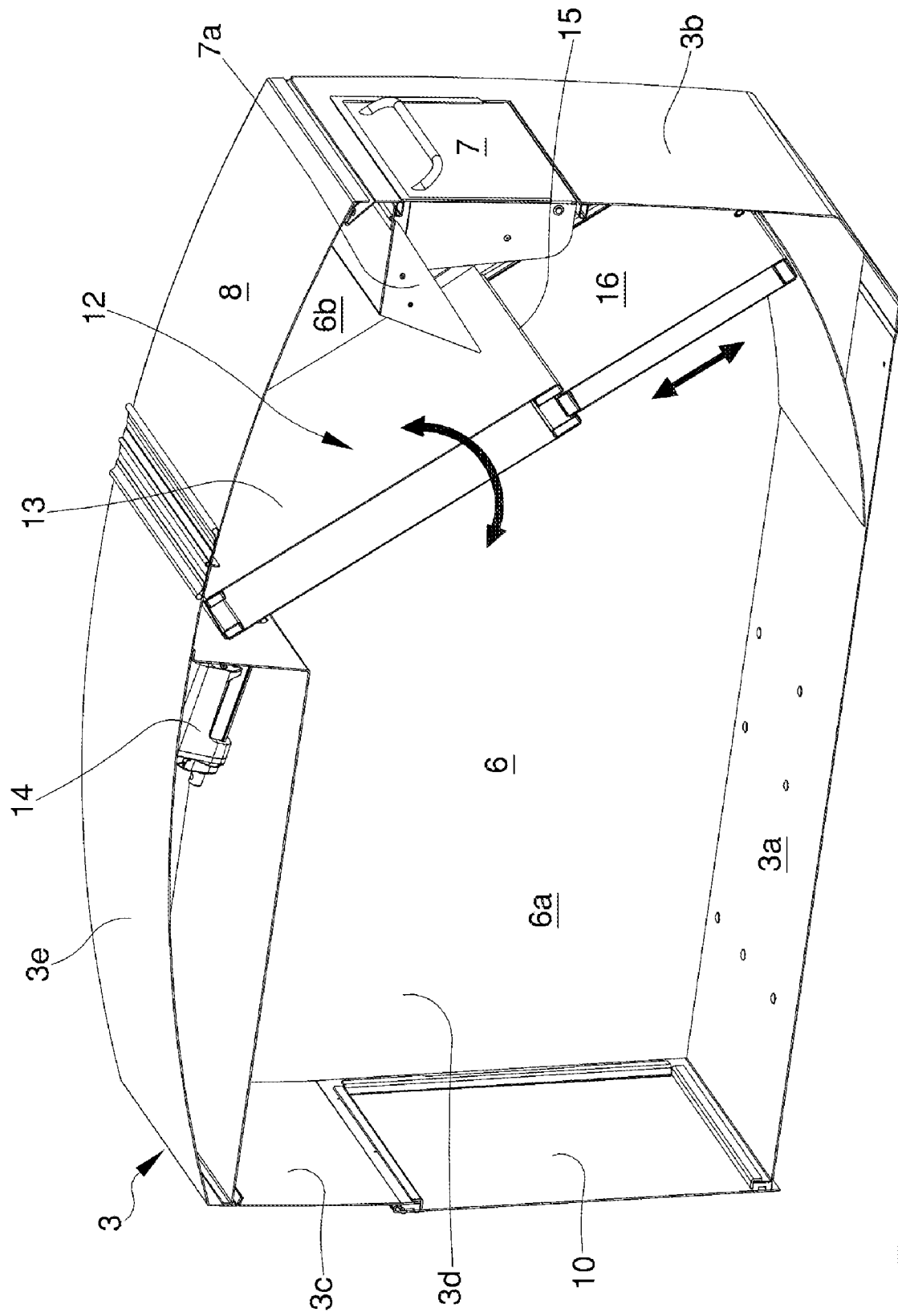


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 2432713 A [0004] [0005] [0006] [0007]
- WO 2010133265 A1 [0004]