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(54) **Disposal lock**

Entsorgungsschleuse

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Description

[0001] The invention relates to a disposal lock for waste according to the preamble of claim 1. Such a disposal lock is known from EP-A-922655. Said known disposal lock comprises a lock means, the drive device of which also operates a lid located at the top side of the housing. The drive for said lid and for the closure element is designed in such a way that only one of either the lid or the closure element can be opened in each case, so that it is always possible to hold measured amounts of waste in the lock means. The lock means is supported by the weighing device, but is additionally also connected to the lid of the housing. This connection between the lock means and the lid of the housing can result in inaccuracies in the weighing of the waste.

[0002] A further disposal lock is known from DE-A-4122405. In said disposal lock, the closure element is located in a fixed position, and the container is displaceable sideways with respect to the closure element for the purpose of depositing the waste in a waste container under the disposal lock. The closure element is supported by a weighing device in such a way that the weight of the waste which lands on the closure element is inevitably determined.

[0003] The container has a cross section which widens towards the bottom, as a result of which the waste inevitably lands directly on the closure element. However, the waste may rest against the container, predominantly in the case of large amounts of inserted waste. This disrupts the weighing of the waste.

[0004] A further disposal lock is known from DE-A-4413034. The housing of said known disposal lock consists of a fixed shaft which is closed off at the bottom side by a weighing element. The weighing element is supported with respect to the shaft by a load cell, in such a way that the weight of the amount of waste which has landed on the weighing element is inevitably determined.

[0005] In said known disposal lock, too, the reliability of the weighing is only guaranteed if the amount of waste is actually resting entirely on the weighing element. In this connection, the problem may arise that waste is indeed positioned on the weighing element but is also pressing against the wall of the shaft. This phenomenon is likely to occur above all in the case of relatively large amounts of waste. In such cases, the weighing device will indicate a weight which is too low. This may result in the costs to be charged being too low, and also in the waste container to which the disposal lock is attached becoming too full.

[0006] The object of the invention is to provide a disposal lock of the aforementioned type, by means of which reliable measurement of the amount of inserted waste is guaranteed under all circumstances. This object is achieved by the fact that the container is provided with a lid at the top side, and the container, the lid provided at the top side of the container and the closure element of the lock means provided at the bottom side of the container are supported solely by the weighing device.

[0007] In the device according to the invention, the entire lock means, including the container, is supported by the weighing device. This always ensures that the correct weight of the inserted waste is measured, namely the difference between the weight of the empty lock means and the lock means when it is filled with waste. In this case, it is not relevant how the waste is supported in the lock means.

[0008] The fact that the container also has its own lid also ensures that the weighing cannot be influenced by closing the lid (outer lid) of the housing. After closing the lid (inner lid) of the container, the amount of waste can no longer protrude above the container, so that any contact between the outer lid and the amount of waste in the container is avoided.

[0009] The closure element may be designed in various different ways. Preference is given to a closure element having at least one flap, preferably two flaps opposite one another, which is/are suspended from the container. The drive for displacing the container and the closure means with respect to one another is also preferably supported solely by the weighing device. In connection with the reliable emptying of the lock means, the container may have a cross section which increases from the top downwards.

[0010] The lock means can also be supported with respect to the weighing device in many different ways. Preference is given to the variant in which a support is attached to the outside of the container, which support is fastened to the housing by means of one or more load cells. For example, the container may have at least one flat upright wall, and the support may be in the form of a beam which extends along the outside of said wall. The container may be composed of four flat walls which, in pairs, enclose a right angle in cross section, but other forms, with three or more than four walls, or with curved walls, are also possible. According to another variant, it is possible, as seen in the vertical direction of the container, for a second closure element to be provided for determining various holding volumes in the container.

[0011] It is also necessary to provide recording means for recording the amount of waste on the basis of the weighing data supplied by the weighing device. Said recording means may comprise a reading device for reading individualized user data. In addition, the recording means may be connected to a cost module for individually assigning costs or credit to users on the basis of the weighed amount of waste.

[0012] A sensor may also be provided for recording the closed position of the lid of the container. In this connection, it is also possible to provide regulating means connected to the sensor in order to permit the lid of the housing to close only if the lid of the container is closed.

[0013] The invention also relates to a waste holding device, comprising a disposal lock as described above and a waste container located under the disposal lock, in which waste container the waste discharged from the

disposal lock can be collected.

[0014] The invention will be explained in more detail below with reference to an exemplary embodiment illustrated in the figures, in which:

Figure 1 shows a disposal lock according to the invention, mounted on a schematically illustrated waste container.

Figure 2 shows the lock means.

[0015] The disposal lock 1 illustrated in Figure 1 is mounted on a waste container 2, in which waste which is inserted via the disposal lock 1 can be collected. The disposal lock 1 consists of a housing 3 which bears a lid 4 at the top side. The housing 3 is illustrated using broken lines so that a lock means 5 located in the interior of the housing 3 is clearly visible. Above the lock means 5, a collar 6 extends up to the lid 4, so that waste which is inserted when the lid 4 is open can be reliably guided along the collar 6 into the lock means 5. Figures 1 and 2 show that the lock means 5 consists of a container 18 having four walls 9-12 and a closure element comprising two flaps 15, 16. The walls 9-12 extend away from one another slightly towards the bottom. A motor drive unit or drive 7 is fastened to the lock means 5. Journals 14 of the two flaps 15, 16 are rotatably suspended from the front wall 9 and the rear wall 10, which journals are connected to the motor drive unit 7. Profiled plates 25 are fastened to the side walls 11, 12; a main beam 22 is in turn fastened to the projecting parts of the profiled plates 25 and therefore extends along the rear wall 10 of the container 18. The main beam 22, and therefore the entire lock means 5 including container 18, flaps 15, 16, lid (inner lid) 19 and drive 7, is supported by means of a weighing device or load cell 8 with respect to a beam or support 13 which is rigidly connected to legs 23 of the housing 3. The legs 23 themselves are supported on a base 24 of the housing 3. The lid (inner lid) 19 is suspended pivotably by means of a hinge 20 from the top side of the container 18. After opening the lid (outer lid) 4 of the housing 3, the user can open the inner lid 19 of the container 18. An amount of waste can then be deposited in the container 18, following which the inner lid 19 is closed. The closed state of the inner lid 19 is recorded by the sensor 21. Only then can the outer lid 4 be closed and the weighing of the waste take place. This process can be set by means of a regulating device (not illustrated) which is connected to the sensor 21. This prevents an amount of waste which protrudes too far above the container 18 from being compressed by the outer lid 4 of the housing 3 and thus leading to incorrect weighing results.

[0016] Inserted waste lands in a chamber 17 which is enclosed by the four walls 9-12 and the two flaps 15, 16 of the lock means 5. It is therefore possible to reliably measure the weight of this waste by means of the load cell 8.

List of reference numerals

[0017]

1. Disposal lock
2. Waste container
3. Housing
4. Housing lid
5. Lock means
6. Collar
7. Motor drive unit
8. Load cell
9.-12. Walls
13. Beam
14. Journal
15., 16. Flap
17. Chamber
18. Container
19. Container lid
20. Lid hinge
21. Sensor
22. Main beam of lock means
23. Leg of housing
24. Base
25. Profiled plate of housing

Claims

1. Disposal lock (1) for waste, comprising a housing (3), a lid (4) at the top side of the housing (3), a weighing device (8) for weighing waste, and a lock means (5) under the lid (4) for holding waste in the housing (3) or for discharging waste from the housing (3), wherein the lock means (5) comprises a container (18) which is located in the housing (3) and which container (18) is accessible at the top side thereof, a closure element (15, 16) provided at the bottom side of the container (18), which closure element (15, 16) is displaceable between a closed position for holding waste in the lock means (5) and an open position for discharging waste from the lock means (5), and a drive (7) for operating the closure element (15, 16), wherein the container (18) and the closure element (15, 16) are supported by the weighing device (8), **characterized in that** the container (18) is provided with a lid (19) at the top side, and **in that** the container (18), the lid (19) provided at the top side of the container (18) and the closure element (15, 16) of the lock means (5) provided at the bottom side of the container (18) are supported solely by the weighing device (8).

2. Disposal lock (1) according to Claim 1, wherein the closure element (15, 16) comprises at least one flap, preferably two flaps (15, 16) opposite one another, which is/are suspended from the container (18).

3. Disposal lock (1) according to Claim 1 or 2, wherein the container (18) has a cross section which increases from the top downwards.

4. Disposal lock (1) according to one of the preceding claims, wherein the weiging device (8) comprises one or more load cells (8) and a support (13) is attached to the outside of the container (18), which support (13) is fastened to the housing (3) by means of said one or more load cells (8).

5. Disposal lock (1) according to Claim 4, wherein the container (18) has at least one flat upright wall (10) and the support (13) is in the form of a beam (13) which extends along the outside of said at least one flat upright wall (10).

6. Disposal lock (1) according to one of the preceding claims, wherein the container (18) is formed of four flat walls (9-12) which, in pairs, enclose a right angle in cross section.

7. Disposal lock (1) according to one of the preceding claims, wherein the drive (7) for operating the closure element (15, 16) is supported solely by the weighing device (8).

8. Disposal lock (1) according to one of the preceding claims, wherein, as seen in the vertical direction of the container, a second closure element is provided for determining various holding volumes in the container (18).

9. Disposal lock (1) according to one of the preceding claims, wherein recording means are provided for recording the amount of waste on the basis of the weighing data supplied by the weighing device (8).

10. Disposal lock (1) according to Claim 9, wherein the recording means comprise a reading device for reading individualized user data.

11. Disposal lock (1) according to Claims 9 and 10, wherein the recording means are connected to a cost module for individually assigning costs/credit to users on the basis of the weighed amount of waste.

12. Disposal lock (1) according to one of the preceding claims, wherein the lid (19) provided at the top side of the container (18) is pivotably suspended therefrom.

13. Disposal lock (1) according to one of the preceding claims, wherein a sensor (21) is provided for recording the closed position of the lid (19) of the container (18).

14. Disposal lock (1) according to Claim 13, wherein regulating means connected to the sensor (21) are provided in order to permit the lid (4) of the housing (3) to close only if the lid (19) of the container (18) is closed.

15. Waste holding device, comprising a disposal lock (1) according to one of the preceding claims and a waste container (2) located under the disposal lock (1), in which waste container (2) the waste discharged from the disposal lock (1) can be collected.

Patentansprüche

1. Entsorgungsschleuse (1) für Abfall mit einem Gehäuse (3), einem Deckel (4) an der Oberseite des Gehäuses (3), einer Wiegevorrichtung (8) zum Wiegen von Abfall und einer Schleuseneinrichtung (5) unter dem Deckel (4) zum Zurückhalten von Abfall in dem Gehäuse (3) oder zum Ausgeben von Abfall aus dem Gehäuse (3), wobei die Schleuseneinrichtung (5) einen Behälter (18), der in dem Gehäuse (3) angeordnet ist und der an seiner Oberseite zugänglich ist, ein Verschlusselement (15, 16), das an der Unterseite des Behälters (18) vorgesehen ist, wobei das Verschlusselement (15, 16) zwischen einer geschlossenen Stellung zum Zurückhalten von Abfall in der Schleuseneinrichtung (5) und einer offenen Stellung zum Ausgeben von Abfall aus der Schleuseneinrichtung (5) versetzbar ist, und einen Antrieb (7) zum Betreiben des Verschlusselements (15, 16) aufweist, wobei der Behälter (18) und das Verschlusselement (15, 16) von der Wiegevorrichtung (8) getragen werden, **dadurch gekennzeichnet, dass** der Behälter (18) an der Oberseite mit einem Deckel (19) versehen ist und dass der Behälter (18), der an der Oberseite des Behälters (18) vorgesehene Deckel (19) und das an der Unterseite des Behälters (18) vorgesehene Verschlusselement (15, 16) der Schleuseneinrichtung (5) ausschließlich von der Wiegevorrichtung (8) getragen werden.

2. Entsorgungsschleuse (1) nach Anspruch 1, wobei das Verschlusselement (15, 16) wenigstens eine Klappe, vorzugsweise zwei einander gegenüberliegende Klappen (15, 16), aufweist, die an dem Behälter (18) aufgehängt ist/sind.

3. Entsorgungsschleuse (1) nach Anspruch 1 oder 2, wobei der Behälter (18) einen Querschnitt hat, der sich von der Oberseite aus nach unten vergrößert.

4. Entsorgungsschleuse (1) nach einem der vorhergehenden Ansprüche, wobei die Wiegevorrichtung (8) ein oder mehrere Wägezellen (8) und einen Träger (13) aufweist, der an der Außenseite des Behälters (18) angebracht ist, wobei der Träger (13) durch die eine oder die mehreren Wagezellen (8) mit dem Ge-

häuse (3) verbunden ist.

5. Entsorgungsschleuse (1) nach Anspruch 4, wobei der Behälter (18) wenigstens eine flache, aufrechtstehende Wand (10) hat und der Träger (13) die Form eines Balkens (13) hat, der entlang der Außenseite der wenigstens einen flachen, aufrechtstehenden Wand (10) verläuft.

6. Entsorgungsschleuse (1) nach einem der vorhergehenden Ansprüche, wobei der Behälter (18) durch vier flache Wände (9-12) gebildet ist, die im Querschnitt paarweise einen rechten Winkel einschließen.

7. Entsorgungsschleuse (1) nach einem der vorhergehenden Ansprüche, wobei der Antrieb (7) zum Betreiben des Verschlusselements (15, 16) ausschließlich von der Wiegevorrichtung (8) getragen ist.

8. Entsorgungsschleuse (1) nach einem der vorhergehenden Ansprüche, wobei, in vertikaler Richtung des Behälters gesehen, ein zweites Verschlusselement vorgesehen ist, um verschiedene Rückhaltevolumina in dem Behälter (18) festzulegen.

9. Entsorgungsschleuse (1) nach einem der vorhergehenden Ansprüche, wobei Aufzeichnungseinrichtungen vorgesehen sind, um die Abfallmenge auf Basis der von der Wiegevorrichtung (8) bereitgestellten Wiegedaten aufzuzeichnen.

10. Entsorgungsschleuse (1) nach Anspruch 9, wobei die Aufzeichnungseinrichtungen ein Lesegerät zum Lesen von individualisierten Benutzerdaten aufweisen.

11. Entsorgungsschleuse (1) nach Ansprüchen 9 und 10, wobei die Aufzeichnungseinrichtungen mit einem Kostenmodul verbunden sind, um auf Basis der gewogenen Abfallmenge Benutzern individuell Kosten/Gutschriften zuzuweisen.

12. Entsorgungsschleuse (1) nach einem der vorhergehenden Ansprüche, wobei der an der Oberseite des Behälters (18) vorgesehene Deckel (19) schwenkbar daran aufgehängt ist.

13. Entsorgungsschleuse (1) nach einem der vorhergehenden Ansprüche, wobei ein Sensor (21) vorgesehen ist, um die geschlossene Stellung des Deckels (19) des Behälters (18) zu registrieren.

14. Entsorgungsschleuse (1) nach Anspruch 13, wobei eine mit dem Sensor (21) verbunden Steuereinrichtung vorgesehen ist, um das Schließen des Deckels (4) des Gehäuses (3) nur zuzulassen, wenn der Deckel (19) des Behälters (18) geschlossen ist.

15. Abfallbehältervorrichtung mit einer Entsorgungsschleuse (1) nach einem der vorhergehenden Ansprüche und mit einem Abfallbehälter (2), der unter der Entsorgungsschleuse (1) angeordnet ist, wobei von der Entsorgungsschleuse (1) ausgegebener Abfall in dem Abfallbehälter (2) gesammelt werden kann.

Revendications

1. Sas à ordures (1), destiné à des déchets, ledit sas à ordures comprenant
un boîtier (3),
un couvercle (4) du côté supérieur du boîtier (3), un dispositif de pesée (8) destiné peser des déchets et un moyen de verrouillage (5) placé sous le couvercle (4) et destiné à retenir des déchets dans le boîtier (3) ou à évacuer des déchets du boîtier (3), le moyen de verrouillage (5) comprenant un conteneur (18) situé dans le boîtier (3), le conteneur (18) étant accessible sur son côté supérieur, un élément de fermeture (15, 16) placé du côté inférieur du conteneur (18), l'élément de fermeture (15, 16) étant déplaçable entre une position fermée dans laquelle les déchets sont retenus dans le moyen de verrouillage (5) et une position ouverte dans laquelle les déchets sont évacués du moyen de verrouillage (5) et
un moyen d'entraînement (7) destiné à actionner l'élément de fermeture (15, 16), le conteneur (18) et l'élément de fermeture (15, 16) étant supportés par le dispositif de pesée (8),
caractérisé en ce que le conteneur (18) est muni d'un couvercle (19) du côté supérieur et **en ce que** le conteneur (18), le couvercle (19) prévu du côté supérieur du conteneur (18) et l'élément de fermeture (15, 16) du moyen de verrouillage (5) placé du côté inférieur du conteneur (18) sont supportés uniquement par le dispositif de pesée (8).

2. Sas à ordures (1) selon la revendication 1, dans lequel l'élément de fermeture (15, 16) comprend au moins un volet, de préférence deux volets (15, 16) opposés l'un à l'autre, qui sont suspendus au conteneur (18).

3. Sas à ordures (1) selon la revendication 1 ou 2, dans lequel le conteneur (18) a une section transversale qui augmente de haut en bas.

4. Sas à ordures (1) selon l'une quelconque des revendications précédentes, dans lequel le dispositif de pesée (8) comprend une ou plusieurs cellules de pesée (8) et un support (13) est fixé à l'extérieur du conteneur (18), le support (13) étant fixé au boîtier (3) au moyen de ladite ou desdites cellules de pesée

(8).

5. Sas à ordures (1) selon la revendication 4, dans lequel le conteneur (18) comporte au moins une paroi verticale plate (10) et le support (13) se présente sous la forme d'une poutre (13) qui s'étend le long de l'extérieur de ladite au moins une paroi verticale plate (10).

6. Sas à ordures (1) selon l'une quelconque des revendications précédentes, dans lequel le conteneur (18) est formé de quatre parois plates (9 à 12) qui forment par paires un angle droit en coupe transversale.

7. Sas à ordures (1) selon l'une quelconque des revendications précédentes, dans lequel le moyen d'entraînement (7) destiné à actionner l'élément de fermeture (15, 16) est supporté uniquement par le dispositif de pesée (8).

8. Sas à ordures (1) selon l'une quelconque des revendications précédentes, dans lequel un second élément de fermeture est prévu pour définir différents volumes de retenue dans le conteneur (18), lorsque l'on regarde dans la direction verticale du conteneur,.

9. Sas à ordures (1) selon l'une quelconque des revendications précédentes, dans lequel des moyens d'enregistrement sont prévus pour enregistrer la quantité de déchets sur la base des données de pesée fournies par le dispositif de pesée (8).

10. Sas à ordures (1) selon la revendication 9, dans lequel les moyens d'enregistrement comprennent un dispositif de lecture destiné à lire des données d'utilisateur individualisées.

11. Sas à ordures (1) selon les revendications 9 et 10, dans lequel les moyens d'enregistrement sont reliés à un module de coûts destiné à affecter individuellement des coûts/crédit aux utilisateurs sur la base de la quantité pesée de déchets.

12. Sas à ordures (1) selon l'une quelconque des revendications précédentes, dans lequel le couvercle (19) prévu du côté supérieur du conteneur (18) est suspendu de manière pivotante à celui-ci.

13. Sas à ordures (1) selon l'une quelconque des revendications précédentes, dans lequel un capteur (21) est prévu pour enregistrer la position fermée du couvercle (19) du conteneur (18).

14. Sas à ordures (1) selon la revendication 13, dans lequel des moyens de régulation connectés au capteur (21) sont prévus pour permettre la fermeture du couvercle (4) du boîtier (3) uniquement si le couvercle (19) du conteneur (18) est fermé.

15. Dispositif de retenue de déchets, comprenant un sas à ordures (1) selon l'une des revendications précédentes et un conteneur de déchets (2) situé sous le sas à ordures (1), les déchets évacués du sas à ordures 1) pouvant être collectés dans le conteneur de déchets (2).

Fig. 1

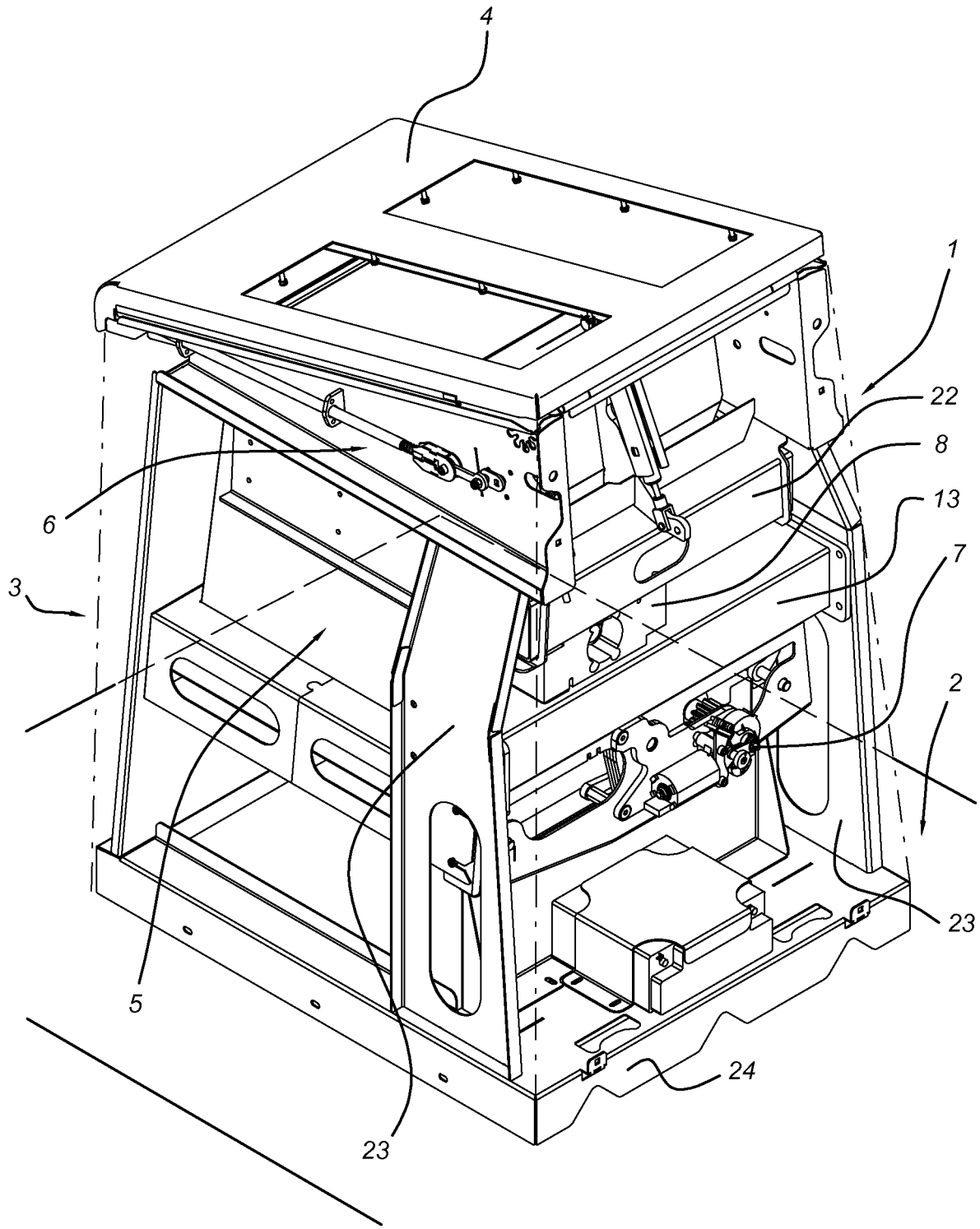
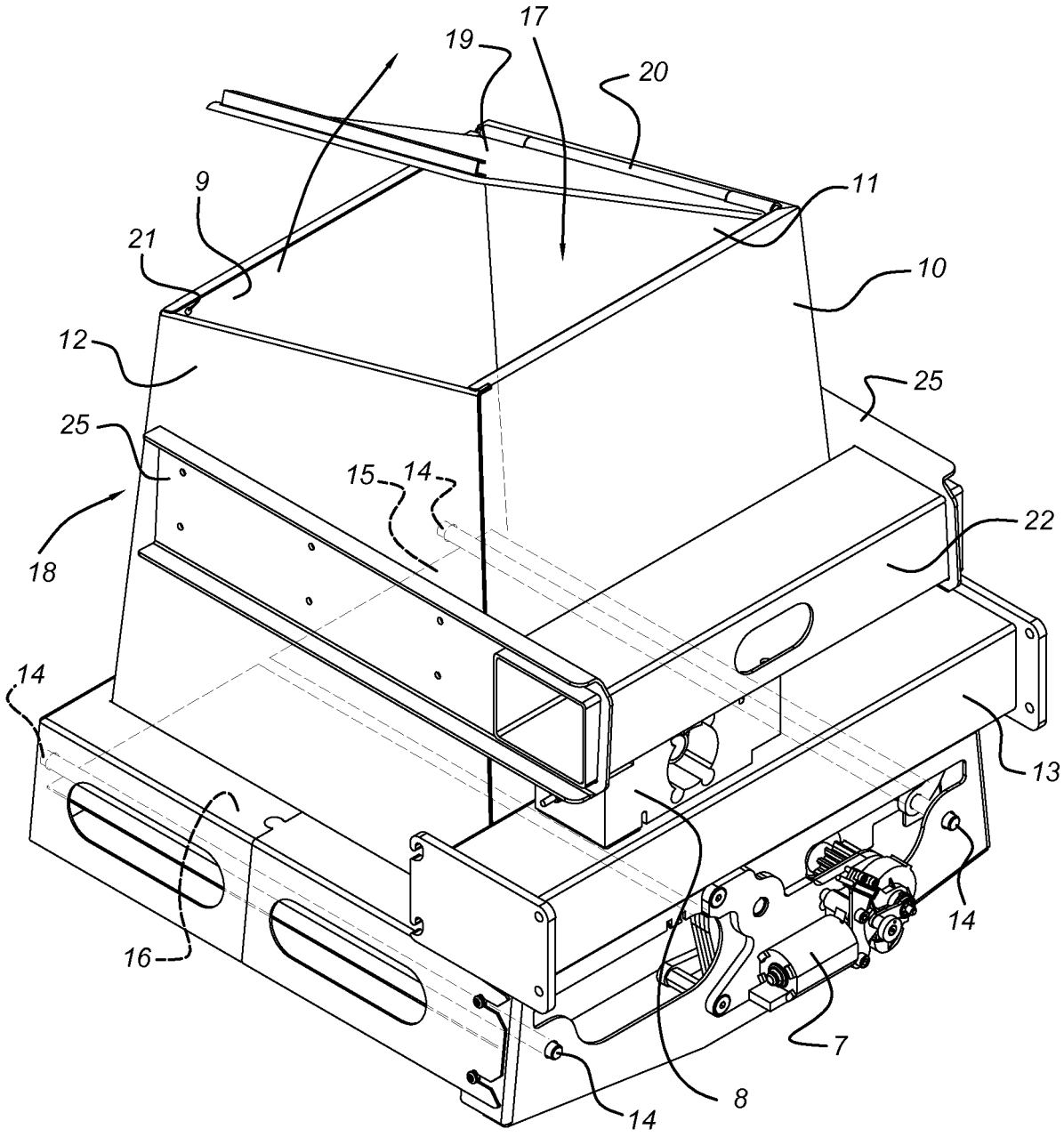


Fig. 2



REFERENCES CITED IN THE DESCRIPTION

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