(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 821 352 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
07.01.2015 Bulletin 2015/02

(51) Int Cl.:
B65F 1/10 *(2006.01)* ***B65F 1/14*** *(2006.01)*
B65F 1/16 *(2006.01)*

(21) Application number: **13174633.1**

(22) Date of filing: **02.07.2013**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(71) Applicant: **Menfi Industria S.p.A.**
20092 Cinisello Balsamo (IT)

(72) Inventor: **Radojicic, Zivko**
11400 MLADENOVAC (RS)

(74) Representative: **Leihkauf, Steffen Falk et al**
Jacobacci & Partners S.p.A.
Via Senato 8
20121 Milano (IT)

(54) Underground waste container, particularly for use in urban environments

(57) An underground waste container device (1) comprises a lower housing (2) with an upper opening (3), a waste container (4) removably placed in the lower housing (2),
a cover platform (5) for opening and closing the upper opening (3), an insertion column (6) mounted on the cover platform (5) and having an insertion aperture (7) for receiving garbage and guiding it into the waste container (4) in the lower housing (2), a lid (10) for covering and opening the insertion aperture (7), a lid actuation mechanism (13) arranged inside an external housing (14) of the insertion column (6) and inaccessible during use of the device (1).

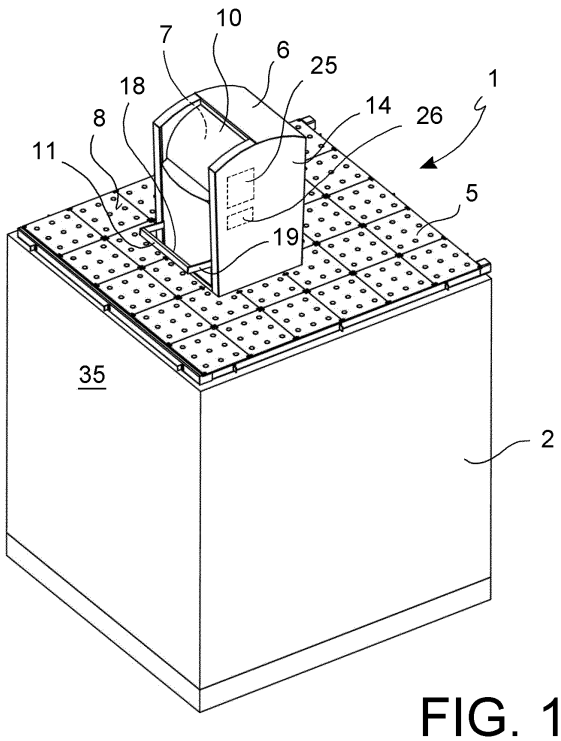

FIG. 1

EP 2 821 352 A1

Description

[0001] The present invention relates, in general, to the field underground waste container systems. More particularly, it relates to underground waste container devices for urban environments of the type comprising:

- a lower housing intended to be at least partially placed in the ground and having an upper opening,
- a waste container which can be placed into and extracted from the lower housing through the upper opening,
- a cover platform for opening and closing the upper opening,
- an insertion column mounted on the cover platform and having an insertion aperture above ground level and a passage channel extending from the insertion aperture through the cover platform,

such that garbage inserted through the insertion aperture falls through the passage channel into the waste container inside the lower housing.

[0002] These known underground waste container systems have multiple drawbacks.

[0003] One drawback is related with the manual opening and closing of the insertion aperture during placement of garbage in the insertion column, since there is usually no possibility to wash or disinfect one's hand afterwards. Also under very cold or hot weather conditions, the manual opening or closing of the insertion aperture can cause frost bits or burns of the users hands. A further disadvantage of the known underground waste container devices is that an electrical power supply for auxiliary functions, like waste filling level sensing, lighting, automatic alert of fault or anomaly situations, etc., needs either a connection to the electrical mains grid or a replaceable and/or rechargeable battery pack.

[0004] However, an electrical mains grid connection to neighboring facilities may be not always available or too far away or not agreed upon by the proprietor, whereas frequent replacement or recharging of batteries is expensive.

[0005] A yet further disadvantage of the known underground waste container devices is a rather complex and labor intensive emptying procedure of the waste container. There are known systems in which a security platform is provided which closes provisional the upper opening of the lower housing when the cover platform is removed therefrom and the waste container is hoisted out for emptying. The security platform is locked in its closing position by a mechanism with a button which is switched to an unlocked position upon insertion of the waste container. However, due to the necessary tolerances (the dimensions of the underground housing may be in the range of 2m x 2m x 4m) and the bad visual conditions at night time (when the waste containers are emptied), unlocking of the security platform often involves an undesirably high number of attempts of placement and insertion of the waste container for the locking mechanism to be released.

[0006] A yet further issue with underground waste container devices is the level of safety provided for preventing a person or an object from falling into the lower housing and for preventing injury of operators involved with the emptying of the waste container.

[0007] The object of the present invention is therefore to provide an improved underground waste container device which better addresses at least some of the described needs.

[0008] A further object of the invention is to provide an underground waste container device which is improved with regard to user friendliness, safety, environmental sustainability.

[0009] These and other objects are achieved by an underground waste container device according to claim 1.

[0010] Advantageous embodiments are the object of the dependent claims.

[0011] According to an aspect of the invention, an underground waste container device comprises:

- a lower housing intended to be at least partially placed in the ground and having an upper opening,
- a waste container which can be placed into and extracted from the lower housing through the upper opening,
- a cover platform for opening and closing the upper opening,
- an insertion column mounted on the cover platform and having an insertion aperture above ground level and a passage channel extending from the insertion aperture through the cover platform, such that garbage inserted through the insertion aperture falls through the passage channel into the waste container inside the lower housing,
- a lid connected to the insertion column and movable in an open position away from the insertion aperture and in a closed position covering the insertion aperture,
- a pedal arranged to be accessible by a users' foot from a front side of the insertion column near the cover platform, and a lid actuating mechanism connected between the pedal and the lid such that actuation of the pedal moves the lid in the open position and release of the pedal automatically moves the lid back in the closed position,

wherein the lid actuation mechanism is arranged inside an external housing of the insertion column and inaccessible during use of the device.

[0012] Thanks to the food operable lid opening, the users hands are no longer required to touch potentially dirty, cold or hot surfaces. Moreover, the inaccessibility of the lid actuating mechanism drastically reduces the number of accessible moving parts and, hence the risk of injury, damage or soiling of users and of the mechanism itself.

[0013] In accordance with a further aspect of the invention, the device comprises a rechargeable battery for energizing electrical auxiliary functions, and an electric generator for recharging the battery, wherein the electric generator is electrically connected to the battery and mechanically associated to one of the lid, lid actuation mechanism and pedal and configured to generate electrical current in response to the movement of the lid.

[0014] This allows to obviate both a mains grid connection and replacement and recharge costs of the batteries and simplifies battery positioning within the device, as frequent accessibility is no longer required,

[0015] In accordance with a further aspect of the invention, the device comprises a safety platform connected to the lower housing and movable from a rest position away from the upper opening and not interfering with the waste container inside the lower housing, to a work position covering the upper opening, and a safety lock for locking the safety platform in the work position and releasing it therefrom, wherein the safety lock comprises at least one foot actuated member arranged to be accessible by an operators foot near an edge of the upper opening.

[0016] This allows the operator to quickly lock and unlock the safety platform using his foot, thereby keeping his hands free to hold and operate a remote control for controlling the crane that empties and moves the hoisted waste container.

[0017] These and other features and advantages of the present invention shall be made apparent from the accompanying drawings which illustrate embodiments of the invention, and, together with the general description of the invention given above, and the detailed description of the embodiments given below, serve to explain the principles of the present invention.

Fig. 1 is a perspective view of an underground waste container system according to an embodiment of the invention,

Fig. 2 is a perspective view of the underground waste container system in figure 1, in which side walls of a lower housing are removed to better view a waste container and a safety platform,

Figs. 3, 4 are schematic vertical cross-sectional views of an insertion column of the device, illustrating a lid actuating mechanism and a battery charging electric generator in accordance with embodiments,

Fig. 5 is a vertical cross-sectional view of the device in accordance with an embodiment in operational conditions,

Fig. 6 is a vertical cross-sectional view of the device in accordance with an embodiment during hoisting and emptying the waste container,

Fig. 7 is a perspective view of the device in accordance with an embodiment during hoisting and emptying the waste container,

Fig. 8 is a magnified view of a detail in figure 6,

Fig. 9 is a perspective view of a safety lock of the device in accordance with an embodiment,

Figs. 10a and 10b are frontal and upper views of the safety lock in figure 9 in release position,

Figs. 11a and 11b are frontal and upper views of the safety lock in figure 9 in a lock position,

Fig. 13 is a vertical cross-sectional view of a insertion column of the underground waste container device in accordance with an embodiment.

[0018] With reference to the figures, an underground waste container device 1 comprises a lower housing 2, e.g. in reinforced concrete, intended to be at least partially placed in the ground and having an upper opening 3, a waste container 4, e.g. in plastics material, which can be placed into and extracted from the lower housing 2 through the upper opening 3, a cover platform 5 for opening and closing the upper opening 3, an insertion column 6 mounted on the cover platform 5 and having an insertion aperture 7 above ground level 8 and a passage channel 9 extending from the insertion aperture 7 through the cover platform 5, such that garbage inserted through the insertion aperture 7 falls through the passage channel 9 into the waste container 4 inside the lower housing 2.

[0019] A lid 10 is connected to the insertion column 6 and movable in an open position (Figure 4) away from the insertion aperture 7 and in a closed position (Figure 3) covering the insertion aperture 7.

[0020] A pedal 11 is arranged to be accessible by a users' foot from a front side 12 of the insertion column 6 near the cover platform 5, and a lid actuating mechanism 13 is connected between the pedal 11 and the lid 10 such that actuation of the pedal 11 moves the lid 10 in the open position and release of the pedal 11 automatically moves the lid 10 back in the closed position.

[0021] Advantageously, the lid actuation mechanism 13 is arranged inside an external housing 14 of the insertion column and inaccessible during use of the device 1.

[0022] Thanks to the food operable opening of the lid 10, the users' hands are no longer required to touch potentially dirty, cold or hot surfaces. Moreover, the inaccessibility of the lid actuating mechanism 13 drastically reduces the number of accessible moving parts and, hence the risk of injury, damage or soiling of the user and of the mechanism itself.

[0023] In accordance with an embodiment, the lid 10 may have also a handle 15 for possible manual operation and is rotatably connected to (preferably two opposite side walls 16 of) the insertion column 6 for rotating with respect to the insertion column 6 about a lid rotation axis 17 between the open and closed position.

[0024] The pedal 11 comprises a frontal bar 18 extending outside the insertion column 6 or in a frontal cavity thereof which is freely accessible by a users' foot and two lateral lever arms 19 extending from opposite ends of the frontal bar 18 and rotatably connected to the insertion column 6 (preferably near a rear wall 20 thereof opposite the frontal bar 18), for rotating with respect to

the insertion column 6 about a pedal rotation axis 20.

[0025] The lid actuating mechanism 13 comprises one or two transmission rods 21 having a first end rotatably connected to the lid 10 in a point eccentrically with respect to the lid rotation axis 17 and a second end connected to the pedal 11 (particularly to the lever arms 13) in a point eccentrically with respect to the pedal rotation axis 20. Moreover, a return spring or a counter weight 22 may be provided connected to the lid eccentrically to the lid rotation axis 17 such as to permanently urge the lid 10 back to the closed position.

[0026] The entire lid actuation mechanism 13 and counterweight 22 or return spring (if provided) are preferably arranged in a gap 23 between the external housing 14 and an internal wall 23 of the insertion column 6 which forms the passage channel 9.

[0027] In accordance with a further embodiment, the device 1 may comprise a rechargeable battery 28 or battery pack for energizing electrical auxiliary functions, e.g. waste filling level sensing means 24, lighting means 25, display or alert means 26, etc., and an electric generator 27 for recharging the battery 28, wherein the electric generator 27 is electrically connected to the battery 28 and mechanically associated to one of the lid 10, lid actuation mechanism 13 and pedal 11 and configured to generate electrical current in response to the movement of the lid 10.

[0028] This allows to obviate both a mains grid connection and replacement and recharge costs of the batteries and simplifies battery positioning within the device 1, as frequent accessibility is no longer required.

[0029] In accordance with an embodiment, the lid 10 forms a circular arch shaped toothed segment 29 meshing with a gear 30 of a rotor of the electric generator 27, with or without the interposition of an additional reducer gear box. Alternatively, the lid 10 may transmit its rotary motion to the rotor of the electric generator 27 by means of a (not illustrated) pulley - belt transmission.

[0030] In accordance with a further embodiment, the device 1 comprises a safety platform 31 connected to the lower housing 2 and movable from a rest position (Figure 5) away from the upper opening 3 and not interfering with the waste container 4 inside the lower housing 2, to a work position (Figures 6, 7) covering the upper opening 3, and a safety lock 32 for locking the safety platform 31 in the work position and releasing it therefrom, wherein the safety lock 32 comprises at least one foot actuated member 33, e.g. lever, push button etc., arranged to be accessible by an operators' foot near an edge 34 of the upper opening 3, preferably on a rear side 35 of the device 1 opposite the front side 12 of the insertion column 6.

[0031] This allows the operator to quickly lock and unlock the safety platform 31 using his foot, thereby keeping his hands free to hold and operate a remote control for controlling the crane that empties and moves the hoisted waste container 4.

[0032] In an embodiment, the cover platform 5 may be hinged to the lower housing 2, preferably on a front side thereof corresponding to the front side 12 of the insertion column 6 (compare figures 6, 7). Moreover, a spring or a spring-damper-unit or damper 36 may be connected between the lower housing 2 and the cover platform 5 to at least partially counteract the weight of the cover platform 5 and insertion column 6 and for damping its closing movement. The safety platform 31 is arranged inside the lower housing 2 and may be hinged to the lower housing 2 on the same side of the cover platform 5 hinge connection.

[0033] The safety platform 31 is preferably permanently biased towards the work position, e.g. by a spring or a spring-damper-unit 37 connected between the lower housing 2 and the safety platform 31. In this way, when the safety lock 32 is released and the waist container is lowered into the lower housing 2 it pushes the safety platform 31 away from the upper opening 3 into the rest position, e.g, adjacent to a side wall or to a bottom wall of the lower housing 2, and when the waist container 4 is hoisted out of the lower housing 2 the safety platform 31 finds the space to move automatically back in the work position where it covers the upper opening 3.

[0034] in accordance with an embodiment, the safety lock 32 is provided on a side of the lower housing 2 opposite the hinge of the safety platform 31 in order to achieve a safe double sided "simple beam" support without additional constraints which could lead to problems in case of deformations occurring during normal use of the device.

[0035] The safety lock 32 comprises at least one, preferably 2 latch members 38 connected to the lower housing in a position adapted for engaging the safety platform 31 in the work position and movable, e.g. rotatable, from a release position (Figures 10A, 10B) to a locking position (Figures 11A, 11B) and vice versa. Each latch member 38 forms a lower bar 39 and an upper bar 40 shaped to embrace a free edge of the safety platform 31 both from below and from above when the latch member 38 is in the locking position and to withdraw completely from the safety platform 31 when the latch member 38 is in the release position.

[0036] In case there are two or more latch members 38, their position and movement with respect to the lower housing 2 are preferably synchronized by a synchronization mechanism, e.g. a synchronization linkage 41 (figures 9, 10A, 11A) or a synchronization gear 42(figures 10A, 11A), such that the synchronized latch members 38 are all necessarily either in the locking position or in the release position.

[0037] The foot actuated member 33 is connected to the latch member/s 38, e.g. to the synchronization mechanism 41, 42 to provide foot actuated movement of the latch member/s 38 from the locking position to the release position and viceversa.

[0038] Particularly, the foot actuated member 33 is an elongated lever portion of the synchronization linkage 41.

[0039] This provides a particularly safe, simple and re-

liable locking and release system which obviates many of the drawbacks of the prior art devices.

[0040] While the present invention has been illustrated by description of several embodiments and while the illustrative embodiments have been described in considerate detail, it is not the intention to restrict or in any way limit the scope of the appended claims to such detail. Additional advantages and modifications may readily appear to those skilled in the art.

Claims

1. Underground waste container device (1), comprising:

   - a lower housing (2) intended to be at least partially placed in the ground and having an upper opening (3),
   - a waste container (4) which can be placed into and extracted from the lower housing (2) through the upper opening (3),
   - a cover platform (5) for opening and closing the upper opening (3),
   - an insertion column (6) mounted on the cover platform (5) and having an insertion aperture (7) and a passage channel (9) extending from the insertion aperture (7) through the cover platform (5), such that garbage inserted through the insertion aperture (7) falls through the passage channel (9) into the waste container (4) inside the lower housing (2),
   - a lid (10) connected to the insertion column (6) and movable in an open position away from the insertion aperture (7) and in a closed position covering the insertion aperture (7),
   - a pedal (11) arranged to be accessible by a users' foot from a front side (12) of the insertion column (6) near the cover platform (5), and a lid actuating mechanism (13) connected between the pedal (11) and the lid (10) such that actuation of the pedal (11) moves the lid (10) in the open position and release of the pedal (11) automatically moves the lid (10) back in the closed position,

   wherein the lid actuation mechanism (13) is arranged inside an external housing (14) of the insertion column (6) and inaccessible during use of the device (1).

2. Underground waste container device (1) according to claim 1, wherein:

   - the lid (10) has a handle (15) for manual operation and is rotatably connected to the insertion column (6) for rotating with respect to the insertion column (6) about a lid rotation axis (17) between the open and closed position.
   - the pedal (11) comprises a frontal bar (18) extending outside the insertion column (6) or in a frontal cavity thereof which is freely accessible by a users' foot, and two lateral lever arms (19) extending from opposite ends of the frontal bar (18) and rotatably connected to the insertion column (6) for rotating with respect to the insertion column (6) about a pedal rotation axis (20),
   - the lid actuating mechanism (13) comprises at least one transmission rod (21) having a first end rotatable connected to the lid (10) in a point eccentrically with respect to the lid rotation axis (17) and a second end connected to the pedal (11) in a point eccentrically with respect to the pedal rotation axis (20),
   - return urging means connected to the lid eccentrically to the lid rotation axis (17) such as to permanently urge the lid (10) back to the closed position.

3. Underground waste container device (1) according to claim 2, wherein the entire lid actuation mechanism (13) and return urging means (22) are arranged in a gap (23) between the external housing (14) and an internal wall (23) forming the passage channel (9)

4. Underground waste container device (1) according to any preceding claim, comprising a rechargeable battery (28) for energizing electrical auxiliary functions and an electric generator (27) for recharging the battery (28), wherein the electric generator (27) is electrically connected to the battery (28) and mechanically associated to one of the lid (10), lid actuation mechanism (13) and pedal (11) and configured to generate electrical current in response to the movement of the lid (10).

5. Underground waste container device (1) according to claim 4, wherein the lid (10) forms a toothed segment (29) meshing with a gear (30) of a rotor of the electric generator (27), with or without the interposition of an additional reducer gear box.

6. Underground waste container device (1) according to any preceding claim, comprising:

   - a safety platform (31) connected to the lower housing (2) and movable from a rest position away from the upper opening (3) and not interfering with the waste container (4) inside the lower housing (2), to a work position covering the upper opening (3), and
   - a safety lock (32) for locking the safety platform (31) in the work position and releasing it therefrom, wherein the safety lock (32) comprises at least one foot actuated member (33) arranged to be accessible by an operators' foot near an edge (34) of the upper opening (3).

7. Underground waste container device (1) according to claim 6, wherein the cover platform (5) is hinged to the lower housing (2) and one of:

    - a spring, or
    - a spring-damper-unit, or
    - a damper (36),

    is connected between the lower housing (2) and the cover platform (5) to at least partially counteract the weight of the cover platform (5) and insertion column (6) and for damping its closing movement.

8. Underground waste container device (1) according to claim 6 or 7, wherein the safety platform (31) is arranged inside the lower housing (2) and hinged to the lower housing (2) on the same side as the the cover platform (5),
wherein one of:

    - a spring, or
    - a spring-damper-unit (37)

    is connected between the lower housing (2) and the safety platform (31) to permanently bias the safety platform (31) towards the work position, such that:

    - when the safety lock (32) is released and the waist container is lowered into the lower housing (2) it pushes the safety platform (31) away from the upper opening (3) into the rest position, and
    - when the waist container (4) is hoisted out of the lower housing (2), the safety platform (31) finds the space to move automatically back in the work position where it covers the upper opening (3).

9. Underground waste container device (1) according to claim 8, wherein the safety lock (32) is provided on a side of the lower housing (2) opposite the hinge of the safety platform (31).

10. Underground waste container device (1) according to any one of claims 6 to 9, in which the safety lock (32) comprises at least one latch member (38) connected to the lower housing (2) in a position adapted for engaging the safety platform (31) in the work position and movable from a release position to a locking position and vice versa,
said latch member (38) forming a lower bar (39) and an upper bar (40) shaped to embrace a free edge of the safety platform (31) both from below and from above when the latch member (38) is in the locking position and to withdraw completely from the safety platform (31) when the latch member (38) is in the release position.

11. Underground waste container device (1) according to claim 10, in which at least two of said latch members (38) are provided and their position and movement with respect to the lower housing (2) are synchronized by a synchronization mechanism (41), such that the latch members (38) are all necessarily either in the locking position or in the release position.

12. Underground waste container device (1) according to claim 11. wherein the foot actuated member (33) is connected to one of the latch member/s (38) and the synchronization mechanism (41, 42).

13. Underground waste container device (1) according to claim 11 or 12, wherein said synchronization mechanism (41) comprises a synchronization linkage or a synchronization gear (42).

14. Underground waste container device (1) according to claim 13, wherein the foot actuated member (33) is an elongated lever portion of the synchronization linkage (41).

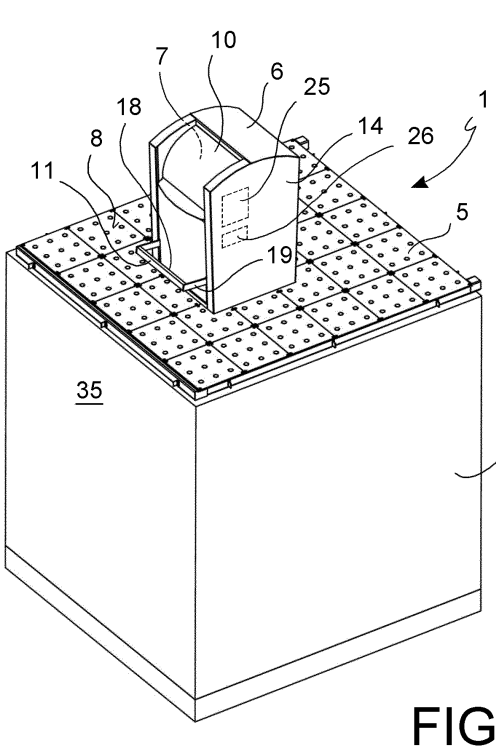

FIG. 1

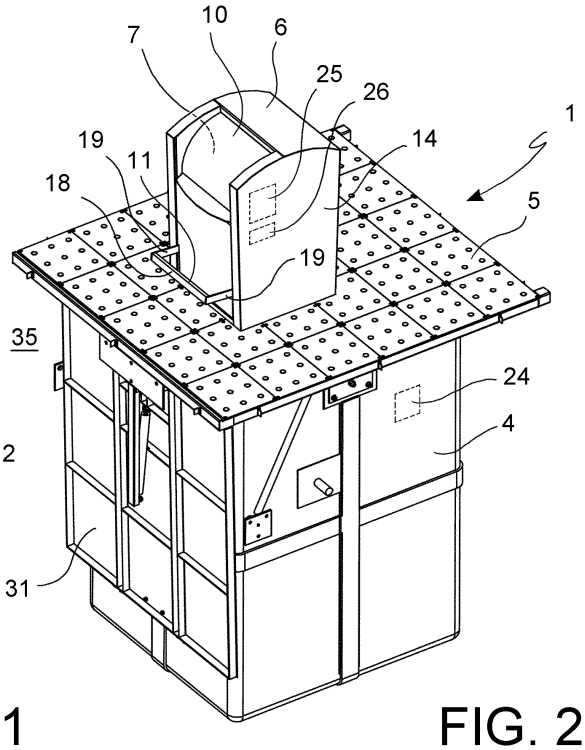

FIG. 2

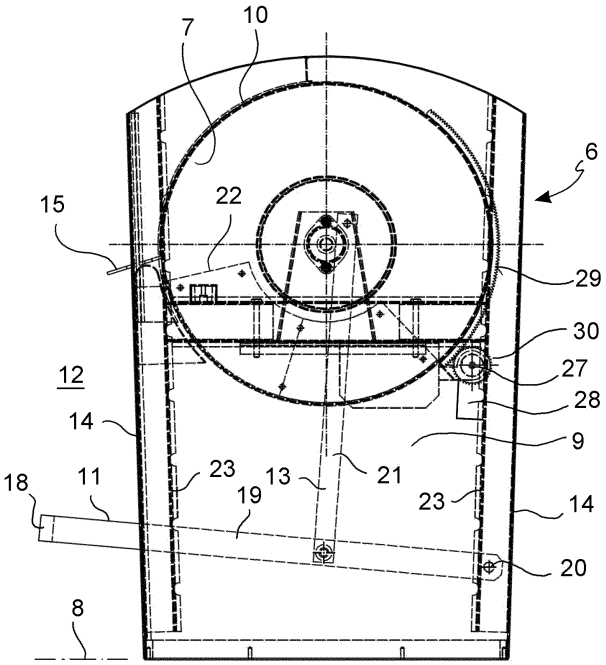
7
10
6
15
22
29
30
27
28
12
14
9
18
11
23
19
13
21
23
14
20
8

FIG. 3

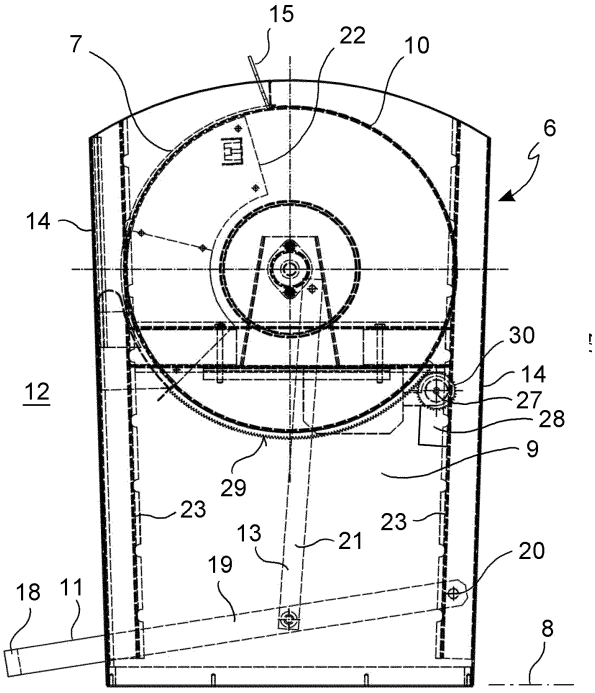
15
7
22
10
6
14
30
14
27
28
12
9
29
23
23
13
21
20
19
18
11
8

FIG. 4

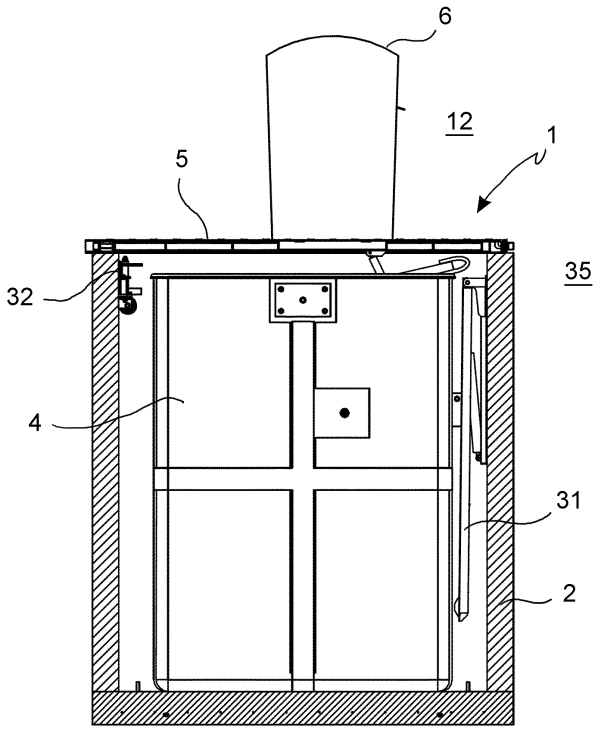

FIG. 5

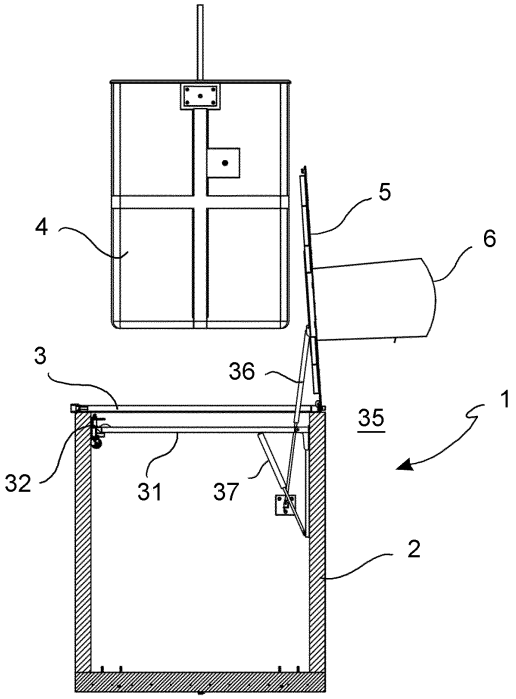

FIG. 6

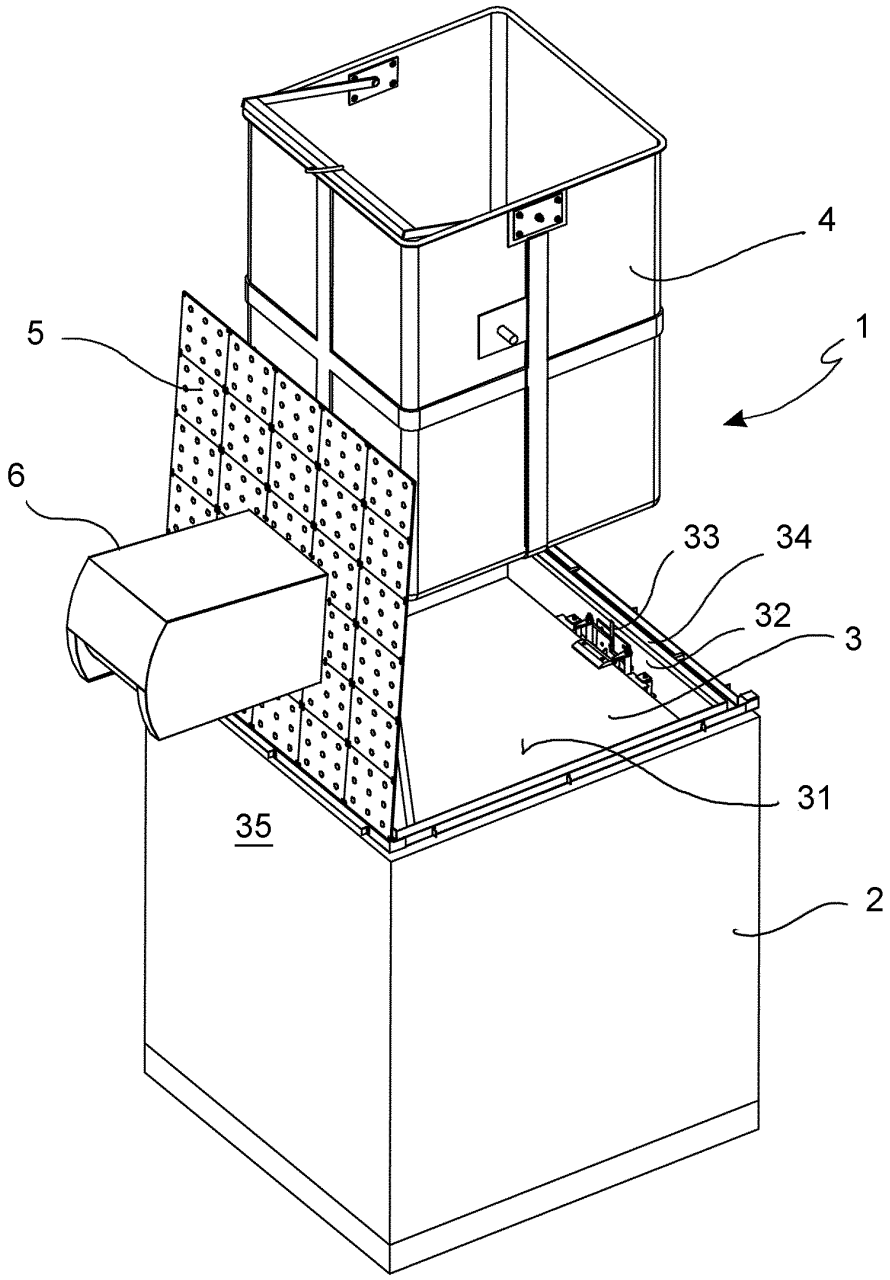

FIG. 7

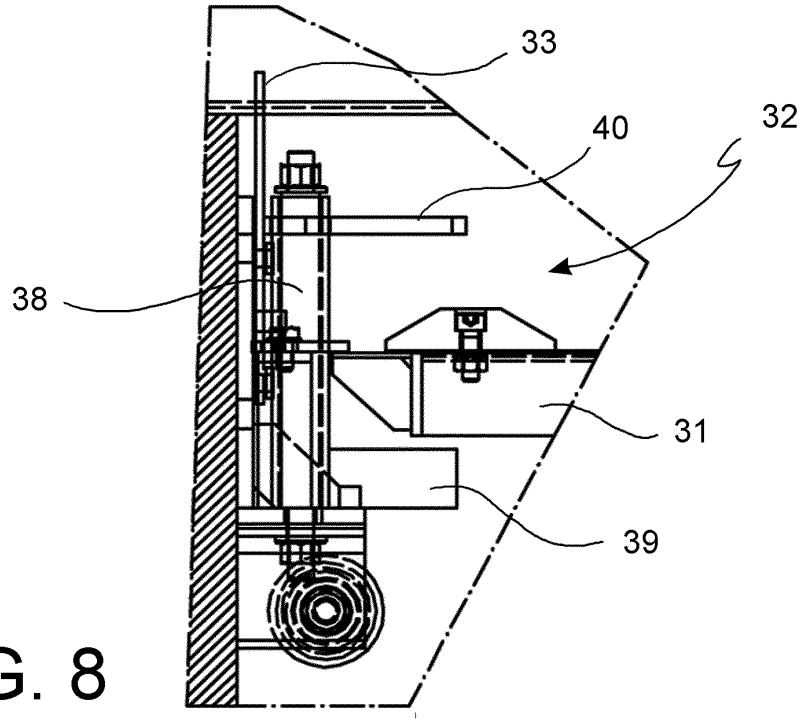

FIG. 8

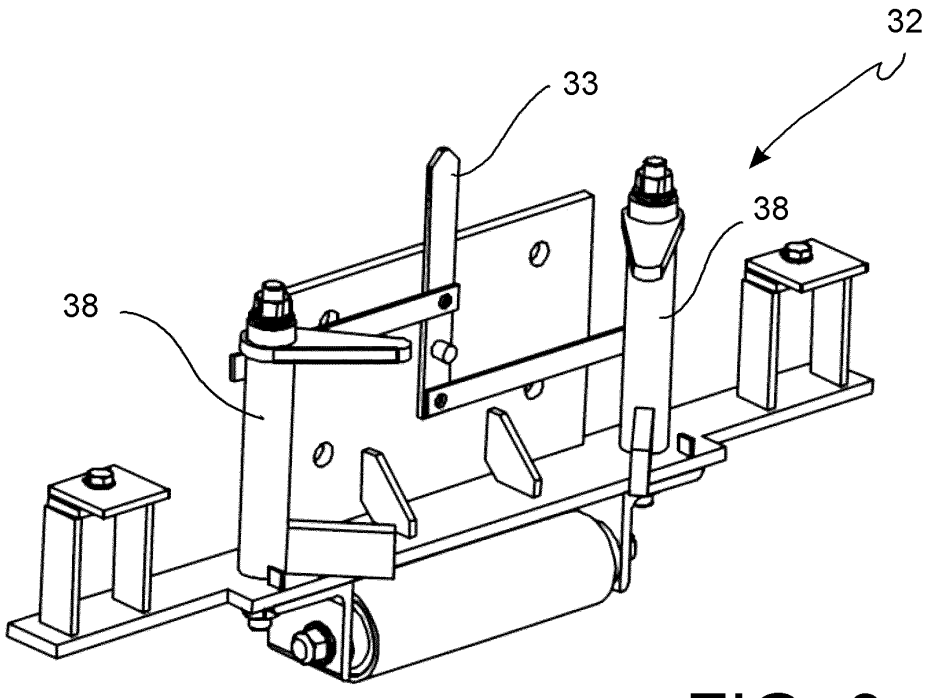

FIG. 9

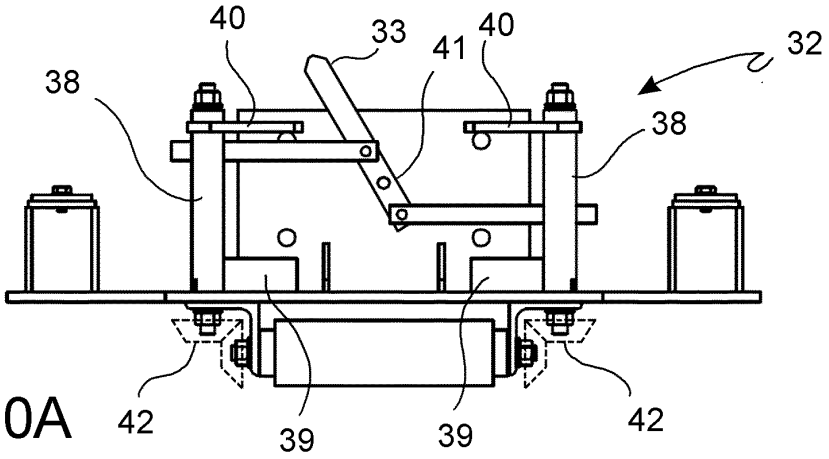

FIG. 10A

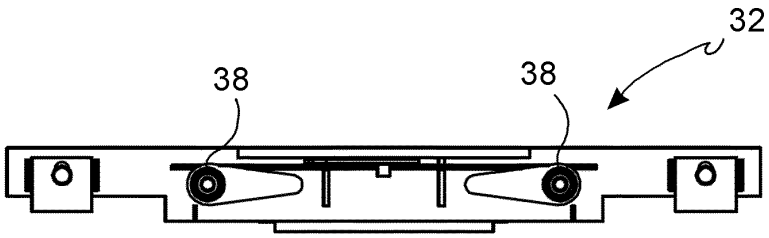

FIG. 10B

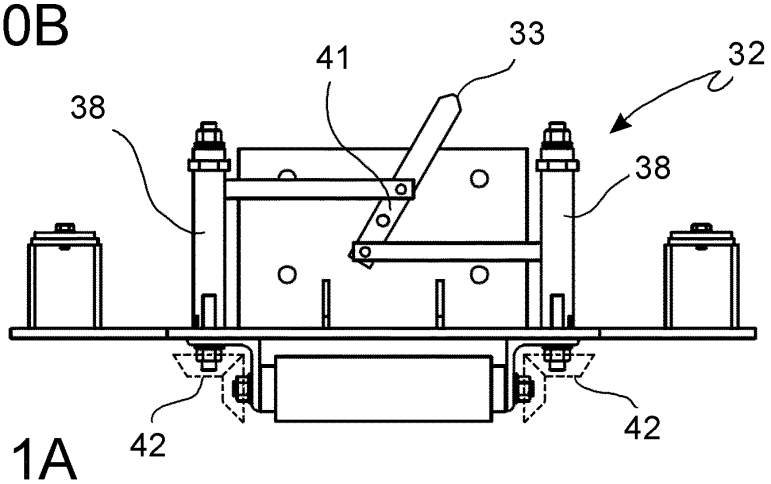

FIG. 11A

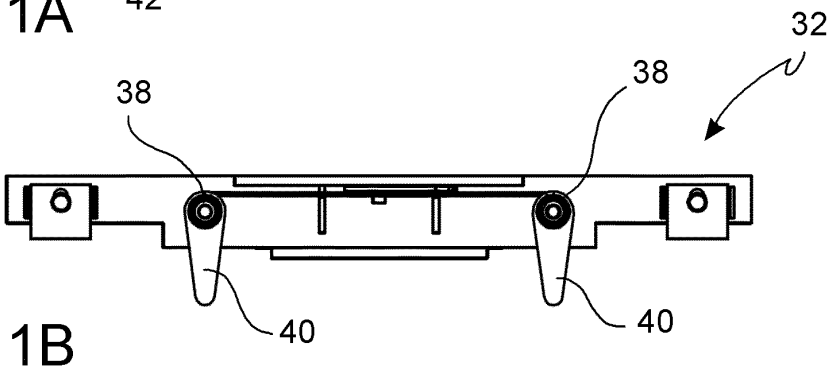

FIG. 11B

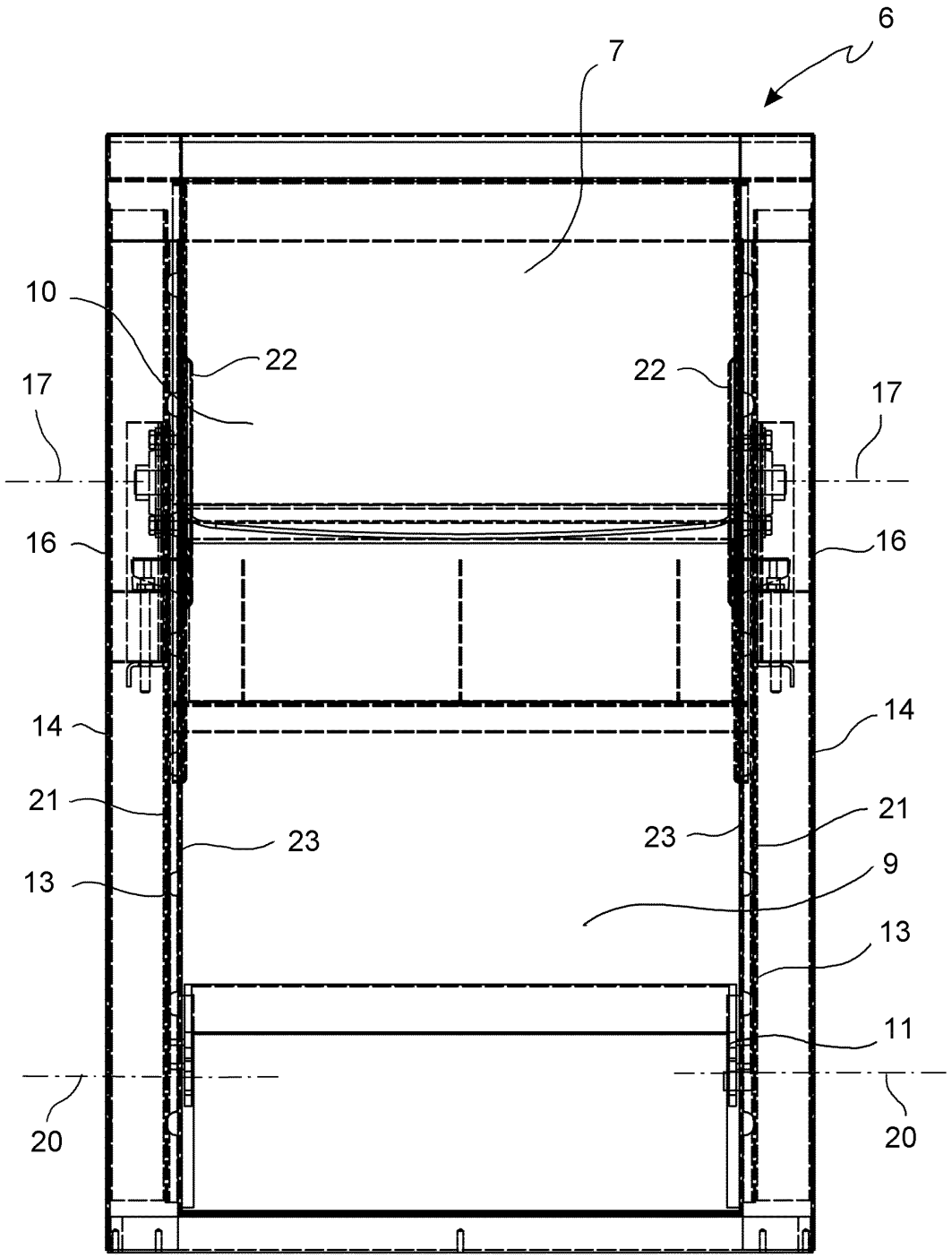

FIG. 13

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 13 17 4633

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	ES 2 244 280 A1 (RESOLUR TÉCNICOS R.S.U., S.L.) 1 December 2005 (2005-12-01) * column 3, line 51 - column 4, line 44 * * figures 1-4 *	1-3 4-9	INV. B65F1/10 B65F1/14 B65F1/16
Y	FR 2 962 424 A1 (S. MONDINI) 13 January 2012 (2012-01-13) * page 6, line 7 - page 9, line 7 * * figures 1-3 *	4,5	
Y A	ES 2 301 315 A1 (MBE SOTKON S.L.) 16 June 2008 (2008-06-16) * the whole document *	6-9 10	
X A	EP 1 508 535 A1 (B. PERLINI) 23 February 2005 (2005-02-23) * paragraph [0015] - paragraph [0019] * * paragraph [0060] * * figures 1,6,7 *	1 2,3	
X A	EP 2 316 753 A1 (VILLIGER ENTSORGUNGSSYSTEME AG) 4 May 2011 (2011-05-04) * paragraph [0010] * * figure 1 *	1 2,3	TECHNICAL FIELDS SEARCHED (IPC) B65F
X A	EP 0 915 034 A1 (MATURI E SAMPIETRO S.A.) 12 May 1999 (1999-05-12) * paragraph [0010] - paragraph [0019] * * figures 1,2 *	1 2,3	
A	DE 20 2008 015182 U1 (PAUL WOLFF GMBH) 8 April 2010 (2010-04-08) * paragraph [0057] - paragraph [0080] * * figures 1-3 *	1,6,8	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	20 January 2014	Smolders, Rob

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

Europäisches Patentamt
European Patent Office
Office européen des brevets

Application Number
EP 13 17 4633

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

Europäisches Patentamt
European Patent Office
Office européen des brevets

LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 13 17 4633

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-3

Underground waste container device comprising a lower housing, a waste container, a cover platform, an insertion column, a lid and a lid actuation mechanism, wherein the lid has an handle, the pedal of the lid actuation mechanism comprises a frontal bar, the lid actuating mechanism comprises at least one transmission rod, and the lid comprises return urging means.

---

2. claims: 4, 5

Underground waste container device comprising a lower housing, a waste container, a cover platform, an insertion column, a lid and a lid actuation mechanism, a rechargeable battery and an electric generator mechanically associated to the lid, the lid actuation mechanism or to the pedal.

---

3. claims: 6-14

Underground waste container device comprising a lower housing, a waste container, a cover platform, an insertion column, a lid and a lid actuation mechanism, a safety platform connected to the lower housing and a safety lock for locking the safety platform.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 13 17 4633

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-01-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
ES 2244280 A1	01-12-2005	NONE	
FR 2962424 A1	13-01-2012	CH 703434 A2	13-01-2012
		FR 2962424 A1	13-01-2012
ES 2301315 A1	16-06-2008	ES 2301315 A1	16-06-2008
		PT 103574 A	31-05-2007
EP 1508535 A1	23-02-2005	NONE	
EP 2316753 A1	04-05-2011	CH 702073 A2	29-04-2011
		EP 2316753 A1	04-05-2011
EP 0915034 A1	12-05-1999	AT 4450 U1	25-07-2001
		CH 690432 A5	15-09-2000
		EP 0915034 A1	12-05-1999
DE 202008015182 U1	08-04-2010	DE 202008015182 U1	08-04-2010
		EP 2186753 A1	19-05-2010
		EP 2279969 A2	02-02-2011

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82