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(11) Publication number:

0 608 767 A1

(12)

EUROPEAN PATENT APPLICATION(21) Application number: **94100777.5**(51) Int. Cl.⁵: **B65F 1/14, B65F 1/16**(22) Date of filing: **20.01.94**(30) Priority: **29.01.93 IT MN930001**(43) Date of publication of application:
03.08.94 Bulletin 94/31(84) Designated Contracting States:
AT BE CH DE ES FR GB GR IT LI NL PT

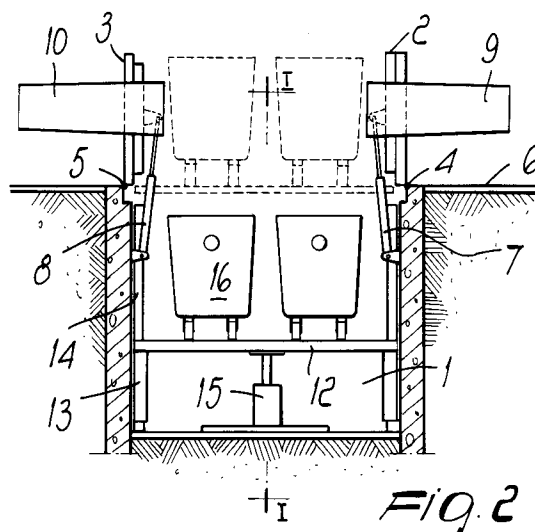
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(54) **Device for collecting waste in a pit.**

(57) Device for collecting waste in a pit, including a pit (1) having a lid (2,3) which can be opened and allowing transit, when it is in closed position, at the level of the surrounding paving (6); the lid is associated with the upper edge of the pit, and the pit furthermore has a lifting unit (12-15) that moves at least one waste container (16) from a position in which it is fully inserted in the pit to a position in which it protrudes fully from it; the lid has at least one column (9,10) to allow users to put waste into the at least one container.

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The present invention relates to a device for collecting waste in a pit.

It is known that the methods currently used to collect municipal solid waste are quite unsatisfactory.

Considering the method currently in widespread use, which consists in using large bins which are placed alongside the street surface proximate to the sidewalks and in which users place the waste contained in bags and various containers, it is easy to note its drawbacks both from the aesthetic point of view, since the bins certainly do not provide pleasant urban furnishing, and from the point of view of hygiene, due to the fumes that leak from said bins.

Such bins also cause unwanted space occupation particularly in densely populated areas.

It should also be noted that known collection methods entail a considerable use of labor, both for the above mentioned municipal solid waste and more generally for waste of any kind.

In order to obviate all these drawbacks, EPA no. 91 116 955.5 filed October 4, 1991 in the name of the same Applicants discloses a device that comprises a structure having a base and a lid which are mutually connected so as to delimit a portion of space for accommodating a bin that receives the waste by means of a column associated with the lid; said structure is connected to lifting means that move it from a position in which it is retracted inside a pit, so that its lid is aligned with the surrounding access surface, and a position in which it protrudes from the pit and in which it is the base that is aligned with said access surface.

This device is highly effective, but further studies have allowed to provide a new device which again has the aim of freeing the road surface from any bulky structure having a negative aesthetic impact and furthermore provides optimum hygiene conditions and easy handling for operators.

The proposed aim is achieved by a device for collecting waste in a pit, according to the invention, characterized in that it comprises a pit having a lid which can be opened and allowing transit, when it is in closed position, at the level of the surrounding paving, said lid being associated with the upper edge of said pit, said pit furthermore having a lifting unit suitable to move at least one waste container from a position in which it is fully inserted in the pit to a position in which it protrudes fully from it, said lid having at least one column to allow users to put waste into the at least one container.

Further characteristics and advantages of the invention will become apparent from the following description of a preferred but not exclusive embodiment thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a longitudinal sectional view, taken along the plane I-I of figure 2, of the device according to the invention with its lid closed;

figure 2 is a transverse sectional view, taken along the plane II-II of figure 1, of the device according to the invention with its lid open.

With reference to the above figures, the reference numeral 1 designates a pit, which is provided by ground excavation, is lined with masonry, and has an openable lid formed by two halves 2 and 3 hinged respectively at 4 and 5 to an upper rim of the pit.

Said lid is moved between a closed position, illustrated in figure 1, in which it allows transit over it by virtue of the strength of its structure and it is at the level of the surrounding paving 6, and an open position, shown in figure 2, by actuating oleodynamic cylinders 7 for the half 2 and oleodynamic cylinders 8 for the half 3.

The two halves of the lid have columns 9 for the half 2 and 10 for the half 3, which allow users to insert waste in the underlying containers, which will be described hereinafter.

As regards the lid, it should be noted that a seal suitable to prevent the escape of fumes from the pit is provided in the manner described and claimed in the above mentioned patent application no.91 116 955.5 and comprises a channel 11, which is filled with water and runs along the entire rim of the pit; when the lid is closed, said channel accommodates a ridge extending from said lid.

The pit 1 accommodates a lifting unit which comprises a platform 12, provided with sliders 13 that can slide along guides 14, which are fixed to the walls of the pit, by virtue of the action of an oleodynamic cylinder 15; said platform is suitable to support the waste containers, constituted by ordinary bins such as 16, and there are six of said containers, each one being located at a column 10, for introducing the waste.

The normal condition of the device is the one shown in figure 1: the containers are accommodated in the pit 1 below the street level; only the columns 10 protrude above said street level, and the waste is inserted therein by the users and falls into the bins 16.

Said bins are periodically emptied by moving the lid into the open position shown in figure 2 and by lifting the platform 12 of the lifting unit up to the level of the paving 6 surrounding the pit, as shown in dashed lines in said figure 2, so as to easily move the bins 16 to the collection truck.

Indeed, the actuator cylinder 15 of the lifting unit and the actuator cylinders 7 and 8 that move the lid can advantageously be actuated by virtue of the connection, with quick couplings not shown in the figures, of said actuator cylinders to the oleodynamic circuit of the collection truck.

The described invention is susceptible to numerous modifications and variations, all of which are within the scope of the inventive concept.

In the practical embodiment of the invention, the materials employed, as well as the shapes and dimensions, may be any according to the requirements. 5

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs. 10 15

Claims

1. Device for collecting waste in a pit, comprising a pit (1) having a lid (2,3) which can be opened and allows transit, when it is in closed position, at the level of the surrounding paving (6), said lid being associated with the upper edge of said pit, said pit furthermore having a lifting unit (12-15) which is suitable to move at least one waste container (16) from a position in which it is fully inserted in the pit to a position in which it protrudes fully from it, said lid having at least one column (10) to allow users to put waste into the at least one container. 20 25 30
2. Device according to claim 1, characterized in that the openable lid is divided into two halves (2,3) respectively pivoted at one side on a rim of the pit and provided with movement means (7,8) that are suitable to rotate them from the closed position to the open position and vice versa. 35
3. Device according to one or more of the preceding claims, characterized in that both the openable lid and the lifting unit have oleodynamic movement means (7,8;15) suitable to be connected to the oleodynamic circuit of a motor vehicle for removing the waste from the at least one container. 40 45
4. Device according to one or more of the preceding claims, characterized in that the lifting unit has movement means comprising an oleodynamic cylinder (15) and comprises a platform (12) suitable to support at least one waste container. 50

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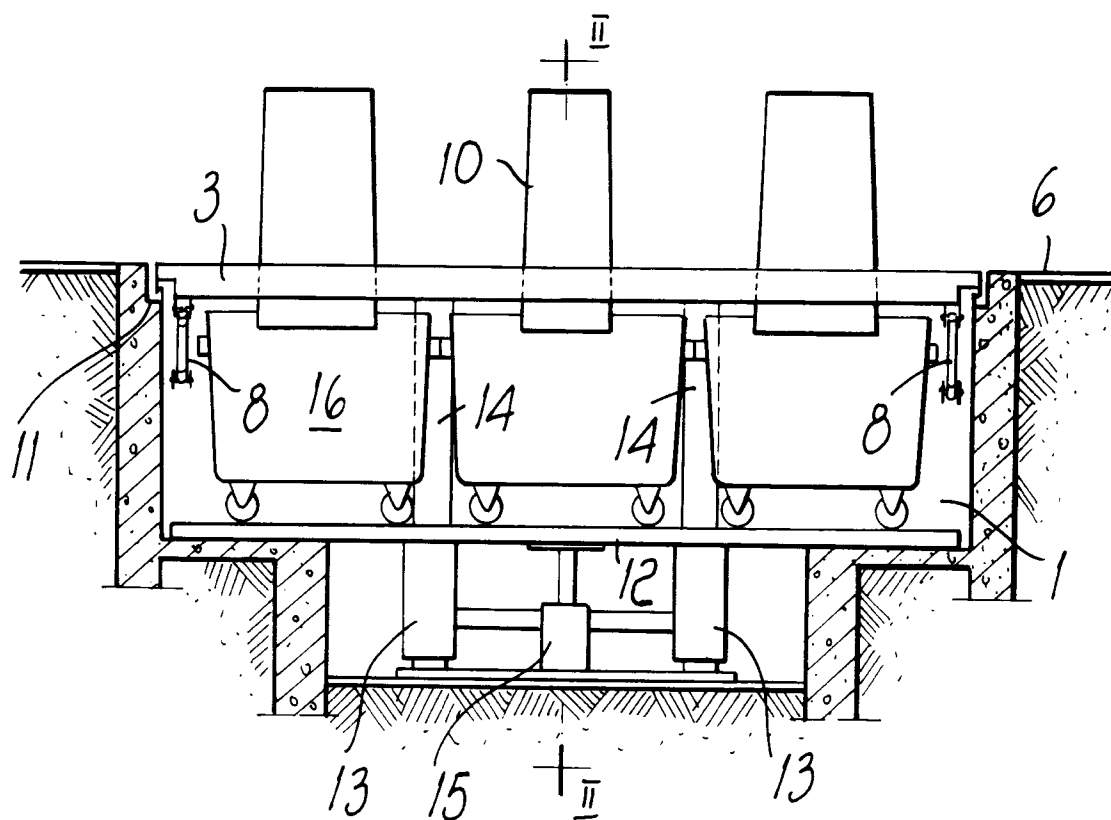


Fig. 1

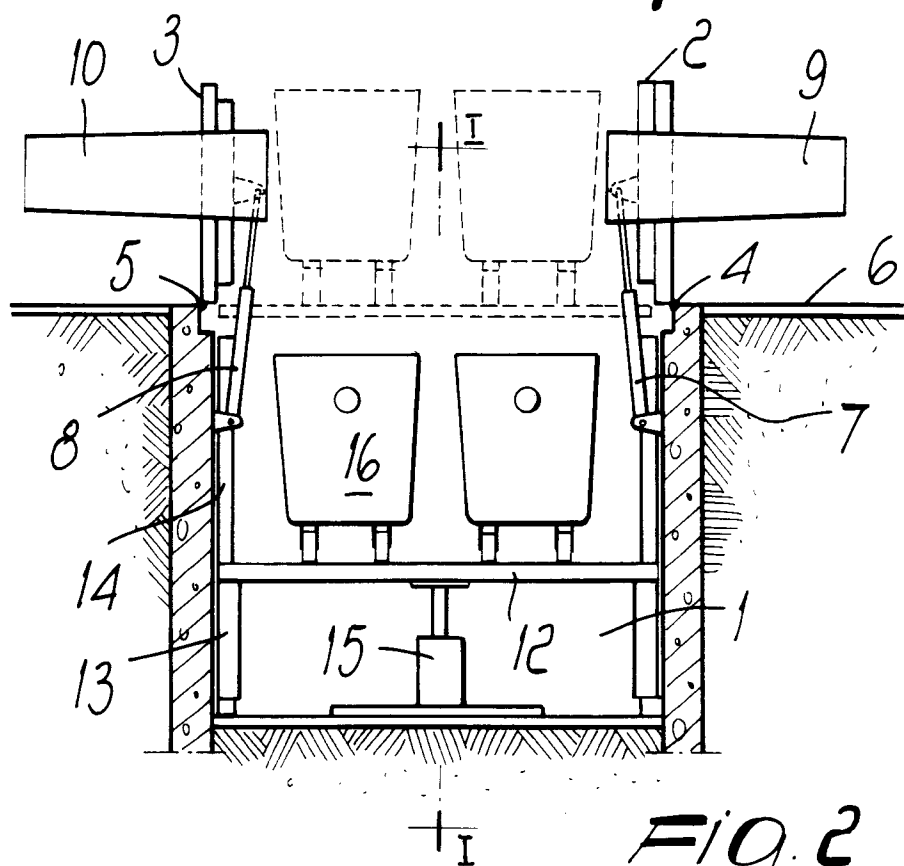


Fig. 2



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 94 10 0777

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
D,X Y	EP-A-0 480 326 (G. GALEAZZI) * the whole document * ---	1,3,4 2	B65F1/14 B65F1/16
Y	DE-U-90 04 988 (BUSSE DESIGN ULM GMBH) * page 16, line 20 - page 17, line 2 * * page 18, line 19 - page 19, line 3 * * figures 8,16 * ---	2	
A	DE-A-19 31 163 (S. REISS) * page 5, line 34 - line 37 * * figures 1,2 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			B65F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 9 May 1994	Examiner Smolders, R
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			