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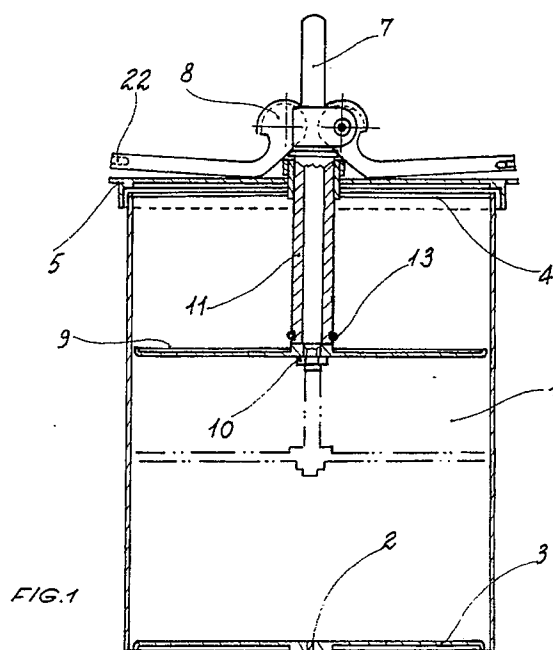
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(54) **Compaction container for domestic solid waste.**

(57) The invention device is foreseen with a cylindrical container (1) and cover (5) to be firmly fitted on it by means of four bayonet coupling (6), which bears a lever multiplier to supply to the rack rod (7) a force "n" times stronger than the one applied to the levers (8). The multiplier mechanism is integral with a cylinder (11) which slides inside a housing with cuts (12) fitted in the cover (5) centre to allow a constant compression according to the heap height. The force is transmitted on the waste to compress by means of a piston (9) which is firmly connected with a nut (10) to the lower part of the rack rod (7).



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COMPACTION CONTAINER FOR DOMESTIC SOLID WASTE.

The invention refers to a compaction container for domestic solid waste, the incumbered volume of which is reduced to consistently increase the reception capacity of the containing part of the device, thus allowing longer filling times and/or the utilization of smaller containers. The invention starts from the presupposition that, at present, these waste in great part consist of paper and plastic materials, such as packing components, wrapping materials and lost containers, as well as newspapers, materials which cause considerable encumbering, when freely collected, and small weight, while the presence of air in the wide inter-spaces acts as a degradation hastener of the organic substances contained in the refuse materials and cause bad smells. The invention, by extracting the air interposed in the waste, avoids this inconvenience by carrying out a compacted block consisting of inert parts that keep back the interposed organic ones in bond condition. This compacted block, lodged in a impermeable bag, previously fitted in the container, is then brought to discharged.

Substantially, the device consists of a cylindrical container 1 with bore 2 on the bottom 3 and upper inlet with edge 4 and shut by a cover 5 to be firmly fitted on the container by means of four bayonet coupling 6. On the said cover 5, a lever multiplier is fitted, by means of which on a rack rod 7 and "n" times stronger force is applied in comparison with the one on the levers 8. Such force is transmitted to the material to compress by means of a piston 9 which is firmly connected, by means of the nut 10, to the lower part of the rack rod 7. The multiplier mechanism is integral with a cylinder 11, which slides into a housing with cuts 12, fitted in the centre of cover 5 so as many are the heights from which the compression can be performed again. A stroke gain is thus obtained which can be used until the space foreseen in the container 1 is completely filled. In the intermediate compression positions, the cylinder 11 is prevented from dehousing by a system of OR-type limit seats 13. The slip of the cylinder 11 is checked and controlled by a reickly released rabbet 14 to check the exceeding force, if any, which could be inadvertently exerted on the levers 8. The multiplier mechanism consists of two counterposed levers 8 which are intergral with wheels, with lowered flat involute gear teeth, which transmits the movement to a double gear teeth of the same type obtained on the rack rod 7. These levers, at the end of which some lug bolts are fitted to catch then more easily, and the gear wheels can rotate by approximately 210° on a pivot turning with them. This

pivot is positioned in the fixed part of the sliding cylinder 11 on which fixed part it is blocked by means of a self-tapping screw 15 with washer 16. The complete rotation of the levers 8 lets the rack rod 7 - contained in the sliding cylinder 11 - slide downwards. With a view to allowing an easy extraction of the material after its compression, some tolerance is foreseen between the piston 9 and the container 1, so that a soft and resistant plastic material bag can be inserted, the upper part of which will be kept back by the seal 17 of the cover 5 when closing. The container 1 is also fitted with feet 18 a facilitate the operator to keep it back on the ground. The rail 14 is kept tightened, on counterposed approaching lug bolts, by a means with a threaded pivot 19 and nut 20 and handle 21 which, when closed, keeps in position an eccentric cam. By bringing this handle 21 into opened position, the eccentric cam is brought outwards and the cylinder 11 is allowed to travel. By properly calibrating the nut 20, it is possible to rate the circling force in order to avoid breaks owing to exceeding pressure and to allow to use the whole available space.

To use the counterposed clutches 22 with the hands, the cover 5 is disengaged on which the compacting device is fitted and brought up to allow the container 1 to accede and the different waste put in. This assembly is then fitted again by turning the two levers 8, counterposed in upturning, with handle catch on them. The crossed levers 8, the rack rod 7 is activated which, by sliding downwards brings the piston 9 to compress the waste. To put in more waste, the cover assembly 5 is taken out and the pressing condition of the heap in the container 1 is restored. To draw out the waste, the bag is closed, which was retained in opposition between the seal 17 of the cover and the edge 4 of the container, and is extracted while the depression air enters through the bore 2 of bottom 3.

A version of the invention is illustrated, in a merely indicative way, in the drawings of the tables 1, 2 and 3. With reference to table 1, fig. 1 is the longitudinal section of the operative assembly, and the piston 9 can be observed, in a hatching view, in a lower position. Fig. 2 instead is a view from above of the device according to the invention. Fig. 3 in table 2 is a particular of the longitudinal section showing the compacting device fitted on the cover. Fig. 4 in table 3 is the view of the devices carrying out the operation of the rack rod 7, while fig. 5 is the view of the disengaging device for the cover.

Before closing the device, the invention foresees, each time, a covering surface means on the

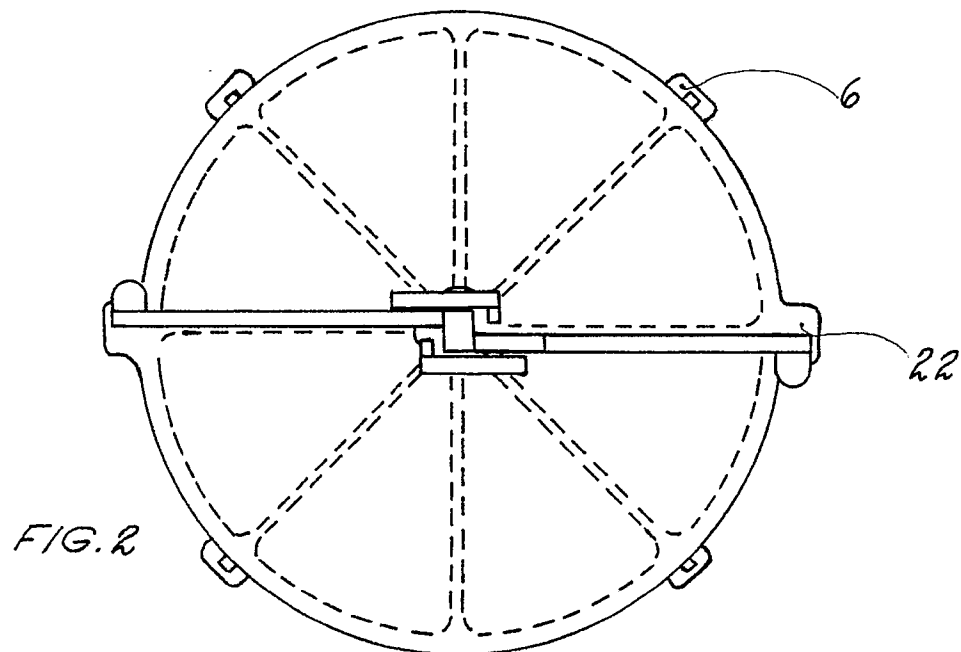
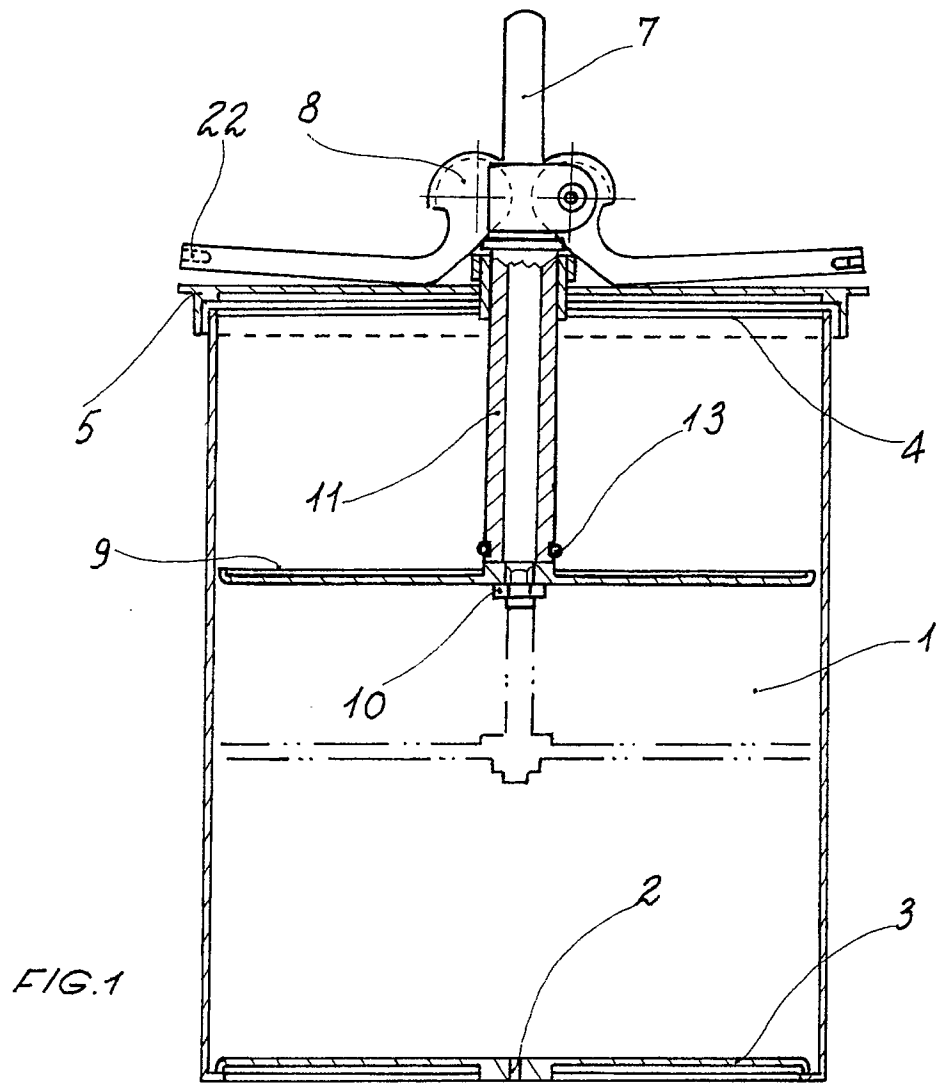
waste heap, either in paper or plastic, to act as a fender between the waste and the piston 9 to avoid to soil it.

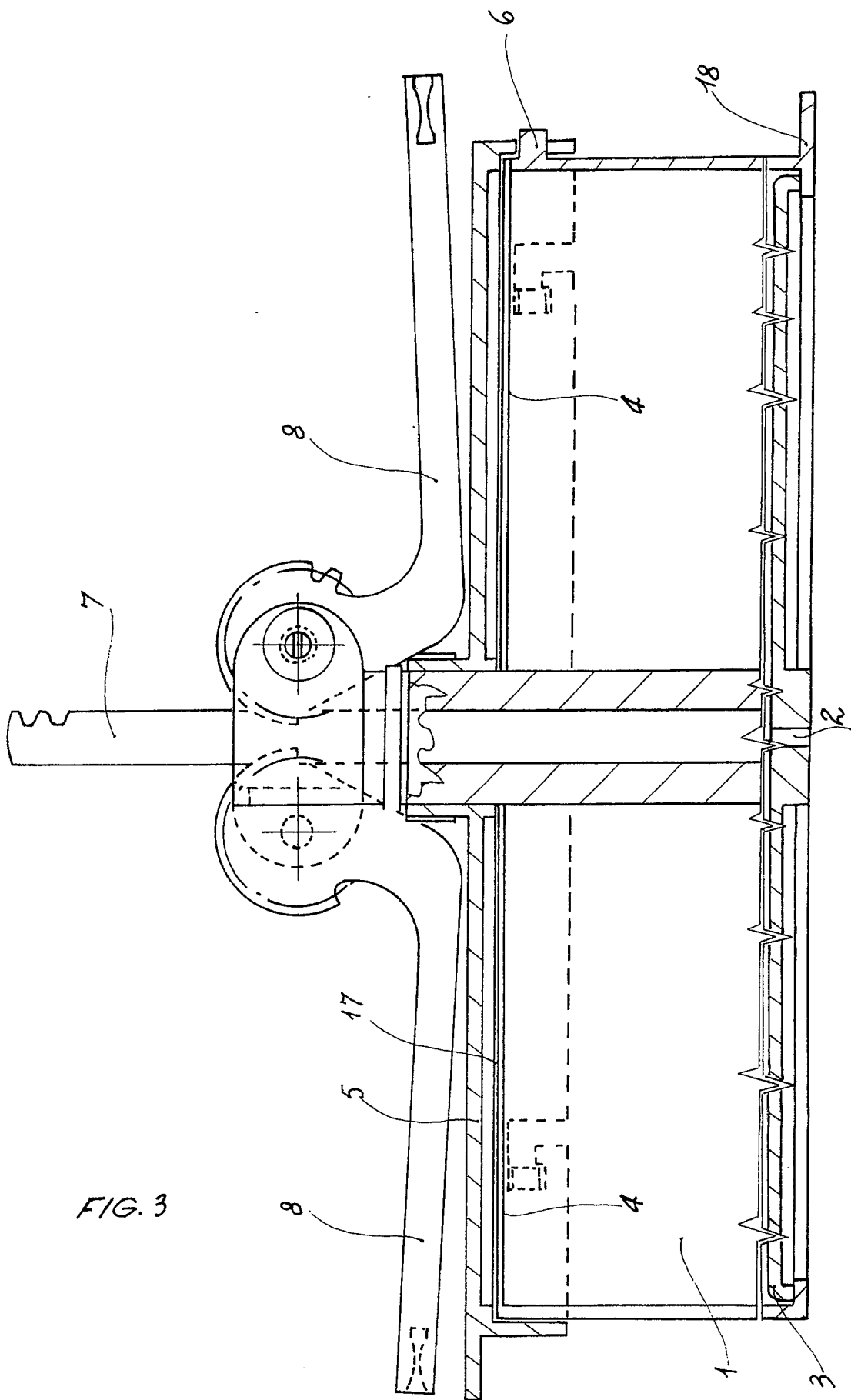
Claims

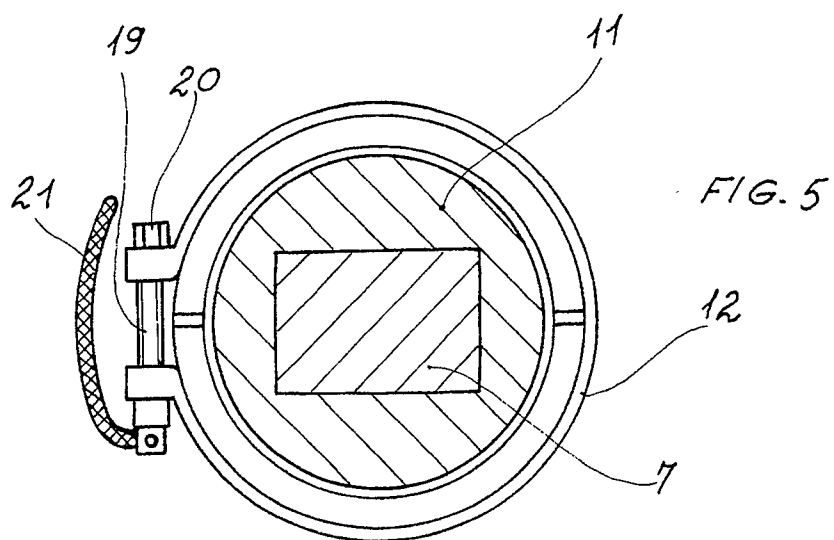
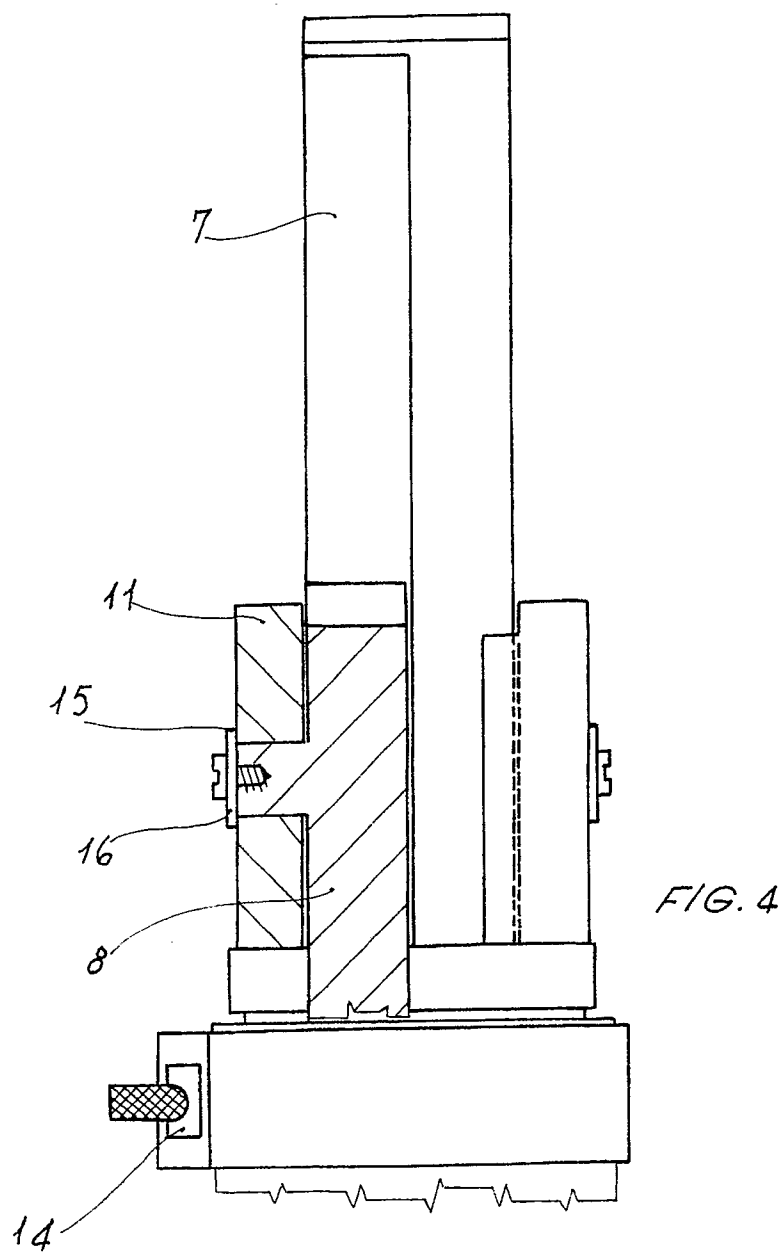
1. Compaction container for domestic solid waste, characterized by the fact that it consists of a cylindrical container (1) with bore (2) on the bottom (3) and upper inlet with edge (4) shut by a cover (5) to firmly fit to the container by means of four bayonet coupling (6). On the said cover (5) a lever multiplier is operating by means of which an "n" times multiplied force in respect to the one exerted on the levers (8) is set to a rack rod (7). This force is transmitted to the waste to compress by means of a piston (9) which connected to the lower part of the rod (7) by a nut (10). The multiplier mechanism is integral with a cylinder (11) which slides in a housing with cuts (12) and in central position in the cover (5) to allow a compression at different heights. In the intermediate compression positions, the cylinder (11) is prevented from dehousing by a system of OR-type limit seats (13). The slip of the cylinder (11) is furthermore checked and controlled by a quickly released rabbit (14) in order to limit the effects of exceeding forces operating on the levers (8). The multiplier mechanism consists of two counterposed levers (8) turning with wheels, with lowered flat involute gear teeth which transmit the motion to a double gear teeth of the same type obtained on the rack (7). The said levers, at the end of which some lug bolts are fitted to facilitate setting, and the gear wheels can turn about 210° around a pivot which is turning with them. The pivot is positioned in the stationary part of the sliding cylinder (11) to which it is fixed with a self-tapping screw (15) with washer (16). The complete rotation of the levers (8) lets the rack rod (7) slide downwards which is contained in the sliding cylinder (11).
2. Compaction container for domestic waste, as per claim 1), characterized by the fact that in order to extract more easily the bag with the compacted waste therein contained, a bore (2) is foreseen on the bottom (3) in order to allow the depression air to get in.
3. Compaction container for domestic waste, as per claim 1), characterized by the fact that in order to avoid to tear the collecting bag and to allow the air contained in the waste to get out during the compacting operation, a tolerance has been foreseen between the piston (9) and

the container (1).

4. Compaction container for domestic waste, as per claim 1), characterized by the fact that the device is fitted with feet (18) to enable the operator to hold the device on the ground.
5. Compaction container for domestic waste, as per claim 1), characterized by the fact that the bail (14) is kept closed on counterposed approaching lug bolts by a means with threaded pivot (19), a nut (20) and a handle (21) which, when closed, keeps an eccentric in position. By bringing this handle in opened position, the eccentric is fitted out of place and the cylinder (11) can slide.
6. Compaction container for domestic waste, as per claim 1), characterized by the fact that by properly calibrating the nut (20) it is possible to adjust the circling force and to avoid breaks due to exceeding pressure.
7. Compaction container for domestic waste, as per claim 1), characterized by the fact that before closing the device, each time a covering surface means, either in paper or plastic is foreseen to operate as a diaphragm between the waste and the piston (9), thus avoiding to soil it.









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EUROPEAN SEARCH REPORT

Application Number

EP 90 83 0023

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)
A	DE-A-2 553 662 (GRIEBEL) * Figures 1,2; claims 1,3 * ---	1	B 65 F 1/14
A	US-A-1 344 156 (SQUIRE) * Figure 2; page 1, lines 79-104 * ---	1	
A	DE-A-2 434 286 (ROHDE) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 F B 30 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 07-08-1990	Examiner DEUTSCH J.P.M.
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	