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(54) Bin with pedal-operated lid and inner bucket

(57) A bin comprising, accommodated in a containment enclosure (12) provided with a lid (13) that is connected thereto, a removable bucket (15) and, on the bottom (16) of the enclosure (12), articulation means (17) for a pedal-operated lever (18) for opening the lid (13), the bucket (15) being able to contain a lower portion (21a) of an additional identical bin (10a); locators (22) protrude from its internal surface (20) in order to support the bottom (16a) of the additional identical bin (10a). In the bin (10), in a stacking configuration, the lid (13) is open at an angle that allows the stacking from above of the additional bin (10a).

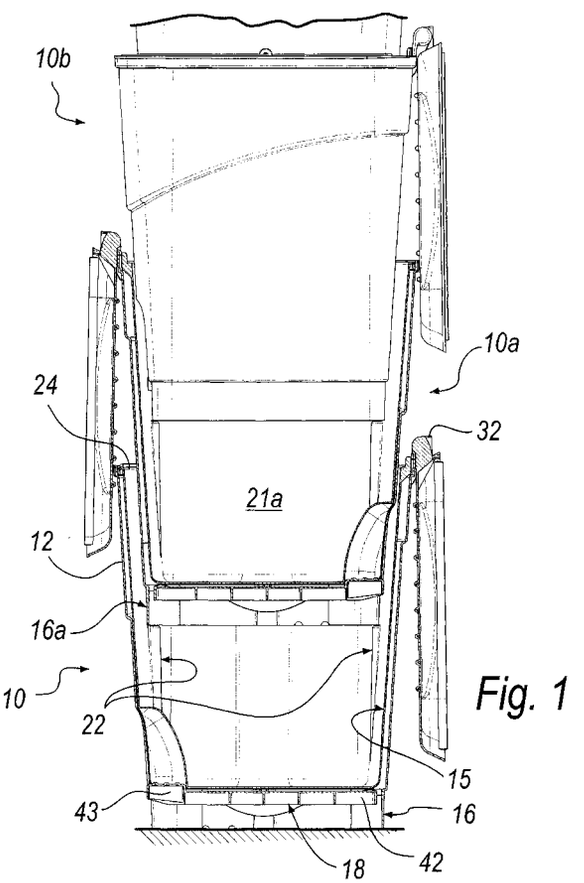

Fig. 1

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Description

[0001] The present invention relates to a bin with pedal-lifted lid and internal bucket.

[0002] Currently known bins with pedal-lifted lid and with an internal bucket comprise a removable bucket, which is accommodated in a containment enclosure provided with a lid that is connected to the enclosure by way of hinge means.

[0003] Articulation means for a pedal-operated lever available to the action of a user and suitable to actuate lid opening means are provided on the bottom of the enclosure.

[0004] Such bins, which are widely used because of their convenience and easy handling, have some limitations in storage and packaging.

[0005] The presence of the bucket inside the containment enclosure and of the lid that closes the enclosure over the bucket in fact prevent the series stacking of a plurality of bins.

[0006] Conventional bins of the type described above are stored so that the bottom of one rests on the lid of the underlying one.

[0007] This arrangement leads to a large expenditure of storage volumes, of equally bulky and numerous packages for the transport of said known bins, and to high handling costs, which increase in proportion to the number of pallets to be transported.

[0008] The aim of the present invention is to provide a bin with pedal-lifted lid and internal bucket that can be stored with great advantage in terms of occupied volume with respect to known types.

[0009] Within this aim, an obj ect of the present invention is to provide a bin that can be packaged, with a plurality of additional identical bins, in a more compact manner than known types.

[0010] Another object of the present invention is to provide a bin that allows to store, in a known package, approximately twice as many bins compared to conventional bins.

[0011] Another object of the present invention is to provide a bin with pedal-lifted lid and internal bucket whose performance is not lower, in terms of capacity and convenience in use for a user, than that of known bins.

[0012] Another object of the present invention is to provide a bin that allows far cheaper management of the storage and transport of a plurality of identical additional bins than conventional types.

[0013] A further object of the present invention is to provide a bin with pedal-lifted lid and internal bucket whose components can all be obtained easily and cheaply by molding plastic material.

[0014] A still further object of the present invention is to provide a bin with pedal-lifted lid and internal bucket that can be manufactured with known systems and technologies.

[0015] This aim and these and other objects that will become better apparent hereinafter are achieved by a bin with pedal-lifted lid and internal bucket, of the type that comprises, accommodated in a containment enclosure provided with a lid that is connected thereto by way of hinge means, a removable bucket, articulation means for a pedal-operated lever being provided on the bottom of the enclosure, such lever being available to the action of a user and being adapted to actuate means for opening said lid, said bin being characterized in that said bucket has an internal surface that is contoured so as to contain at least one lower portion of an additional identical bin, at least two locators protruding from said internal surface in order to support the bottom of said additional identical bin, said bin having, in a stacked configuration, said lid open at an angle that allows the stacking from above of said additional bin.

[0016] Further characteristics and advantages of the present invention will become better apparent from the following detailed description of a preferred but not exclusive embodiment thereof, illustrated by way of nonlimiting example in the accompanying drawings, wherein:

Figure 1 is a partially sectional side view of a plurality of bins according to the invention, shown stacked;
Figure 2 is a sectional front view of a bin according to the invention;
Figure 3 is a sectional side view of a bin according to the invention;
Figure 4 is a perspective view of a detail of a bin according to the invention, in a first embodiment;
Figure 5 is another perspective view of the same detail of Figure 4, in a second embodiment;
Figure 6 is a perspective view of the same detail of Figure 5, in a third embodiment;
Figure 7 is a top perspective view of a bin according to the invention;
Figure 8 is a bottom perspective view of a bin according to the invention.

[0017] With reference to the figures, a bin with pedal-lifted lid and internal bucket, according to the invention, is generally designated by the reference numeral 10.

[0018] The bin 10 comprises, accommodated inside a containment enclosure 12, a removable trash collection bucket 15.

[0019] The enclosure 12 is provided with a lid 13, which is connected thereto by way of hinge means 14, in order to close a mouth 24 of the bucket 15.

[0020] On a bottom 16 of the enclosure 12 there are articulation means 17 for a pedal-operated lever 18.

[0021] The pedal-operated lever 18, available to the action of a user, is suitable to actuate means 19 for opening the lid 13.

[0022] The bin 10 is characterized in that the bucket 15 has an internal surface 20 that is shaped so as to contain a lower portion 21a of an identical bin 10a.

[0023] Four locators 22 protrude from the internal surface 20 in order to support the bottom 16a of the additional identical bin 10a.

[0024] Each locator 22 is constituted by a vertically arranged ridge 23.

[0025] The four ridges 23 protrude symmetrically in a substantially angular position of the internal surface 20 of the bucket 15.

[0026] In a stacking configuration, the lid 13 of the bin 10 is open at such an angle as to allow the stacking, from above, of the additional bin 10a.

[0027] Likewise, the additional bin 10a has, in a stacking configuration, a lid 13a open at an angle that allows the stacking from above of a third bin 10b.

[0028] The bin 10 is stacked so that it is rotated through 180° about a vertical axis with respect to the additional identical bin 10a.

[0029] Likewise, the additional identical bin 10a is stacked so that it is rotated through 180° with respect to the overlying third bin 10b.

[0030] In the stacking configuration, shown in Figures 1 and 4, the lid 13 is arranged substantially at an angle of 269° with respect to its configuration, shown in Figures 2, 3 and 5, for closing the mouth 24 of the bucket 15.

[0031] Such stacking configuration, together with the mutual arrangement rotated through 180° about a vertical axis and with the depth of the mouth 24 of the bucket 15 and of the locators 22, allows the bin 10 to contain a lower portion 21a of the additional identical bin 10a that corresponds to at least one third of the additional identical bin 10a.

[0032] The hinge means 14 are provided by two pivots 30, which are coaxial and symmetrical with respect to a vertical plane of symmetry of the bin 10.

[0033] The pivots 30 protrude on a rear part 32 of an upper perimeter 33 of the containment enclosure 12, and complementarily shaped holes 31 provided in the lid 13 rotate about them.

[0034] A protrusion 35 protrudes from one end 34 of each one of the pivots 30 and is provided with an upper abutment face 36 for a tab 37 that is rigidly coupled to the lid 13.

[0035] The tab 37 rests against the upper face 36 in a fully open configuration of the lid 13.

[0036] In such fully open configuration, shown in Figure 6, with the tab 37 rested on the protrusion 35, the lid 13 is open at 89° with respect to the closed configuration.

[0037] The tab 37 undergoes an elastic deformation in sliding over a lower part 38 of the protrusion 35 during the transition from the stacking configuration, with the lid at 269°, to the fully open configuration, with the lid at 89° with respect to the closed configuration.

[0038] The tab 37 again assumes, by snap action, its original configuration at the upper abutment face 36 of the protrusion 35 and therefore at the fully open configuration of the lid 13.

[0039] The protrusion 35 and the corresponding tab 37 allow the lid 13, overturned from the stacking configuration to the closed configuration, to open, by way of the opening means 19, up to 89° without overturning again and without assuming an inconvenient intermediate non-return configuration.

[0040] Such non-return configuration is undesirable, because it leads to the lid stopping in an open position, on which a user must act in order to return the lid 13 to the closed configuration.

[0041] The fully open configuration at 89° instead allows the lid to return to the closed configuration by gravity as a consequence of the release of the pedal-operated lever 18 by the user.

[0042] The means 19 for opening the lid 13 comprise a lid portion 40 that is arranged between the two pivots 30 and has a cam-like profile.

[0043] The portion 40 can be pushed so as to rotate upward by means of a corresponding portion of an upper rim 41 of the bucket 15.

[0044] The bucket 15 in turn can be lifted by means of the pedal-operated lever 18.

[0045] The pedal-operated lever 18 is of the centrally-pivoted type.

[0046] A rear end 42 of the lever 18, arranged opposite a front pedal 43, is suitable to push upward the bucket 15.

[0047] The pedal-operated lever 18 is pivoted so as to rotate in a complementarily shaped opening 44 of the bottom 16 with the articulation means 17.

[0048] The articulation means 17 are constituted by two fulcrums 45, which are monolithic with the pedal-operated lever 18 and with the bottom 16.

[0049] Advantageously and conveniently, the enclosure 12 with the pedal-operated lever 18, the bucket 15 and the lid 13 are obtained individually by molding plastic material.

[0050] The stackability of a plurality of identical bins according to the invention allows a great reduction in storage and packaging volumes and therefore in the transport costs for packages loaded on pallets.

[0051] In practice it has been found that the invention thus described solves the problems noted in known types of bin with a pedal-lifted lid and an internal bucket.

[0052] In particular, the present invention provides a bin with pedal-lifted lid and with an internal bucket that can be packed together with a plurality of additional identical bins more compactly than known types.

[0053] Moreover, the present invention provides a bin that allows to store, inside a known package, approximately twice as many bins compared with known bins.

[0054] Moreover, the present invention provides a bin in which the performance in terms of capacity and convenience in use for a user is not lower than that of conventional bins.

[0055] Moreover, the present invention provides a bin that allows a far cheaper management of the storage and transport of a plurality of identical bins with respect to conventional types.

[0056] Further, the present invention provides a bin with pedal-lifted lid and with an internal bucket whose components are all obtainable easily and cheaply by molding plastic material.

[0057] Not least, the present invention provides a bin with pedal-lifted lid and with an internal bucket that can be manufactured with known systems and technologies.

[0058] In practice, the materials employed, so long as they are compatible with the specific use, as well as the dimensions, may be any according to requirements and to the state of the art.

[0059] The disclosures in Italian Utility Model Patent Application No. PD2003U000108 from which this application claims priority are incorporated herein by reference.

[0060] 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 interpretation of each element identified by way of example by such reference signs.

Claims

1. A bin with pedal-lifted lid and internal bucket, of the type that comprises, accommodated in a containment enclosure (12) provided with a lid (13) that is connected thereto by way of hinge means (14), a removable bucket (15), articulation means (17) for a pedal-operated lever (18) being provided on the bottom (16) of said enclosure (12), said lever being available to the action of a user and being adapted to actuate means (19) for opening said lid (13), said bin (10) being **characterized in that** said bucket (15) has an internal surface (20) that is contoured so as to contain at least one lower portion (21a) of an additional identical bin (10a), at least two locators (22) protruding from said internal surface (20) in order to support the bottom (16a) of said additional identical bin (10a), said bin (10) having, in a stacked configuration, said lid (13) open at an angle that allows the stacking from above of said additional bin (10a).

2. The bin according to claim 1, **characterized in that** it is stacked so that it is turned through 180° about a vertical axis with respect to said additional identical bin (10a).

3. The bin according to claim 1, **characterized in that** in the stacking configuration, said lid (13) is arranged at an angle of substantially 269° with respect to its configuration for closing the mouth (24) of said removable internal bucket (15).

4. The bin according to one or more of the preceding claims, **characterized in that** said hinge means (14) are provided by two pivots (30), which are symmetrical and coaxial with respect to a vertical plane of symmetry of said bin (10) and protrude from a rear part (32) of the upper perimeter (33) of said enclosure (12), complementarily shaped holes (31) provided on said lid (13) being arranged on said pivots (30) so that they can rotate.

5. The bin according to one or more of the preceding claims, **characterized in that** a protrusion (35) protrudes from one end (34) of each one of said pivots (30) and is provided with an upper abutment face (36) for a tab (37) that is rigidly coupled to said lid (13), said tab (37) being adapted to rest on said upper face (36) in a fully open configuration of said lid (13).

6. The bin according to one or more of the preceding claims, **characterized in that** said tab (37) is adapted to undergo elastic deformation in sliding on a lower part (38) of said protrusion (35) in passing from said stacking configuration to said fully open configuration, said tab (37) assuming, with a snap action, its original configuration at said upper abutment face (36) of said protrusion (35) and therefore at said fully open configuration of said lid (13).

7. The bin according to one or more of the preceding claims, **characterized in that** said at least two locators (22) for supporting said bottom (16a) of said additional identical bin (10a) are constituted by four vertical and symmetrical ridges (23).

8. The bin according to one or more of the preceding claims, **characterized in that** in said fully open configuration, when said tab (37) rests on said protrusion (35), said cover (13) is open at 89° with respect to said closure configuration.

9. The bin according to one or more of the preceding claims, **characterized in that** said means (19) for opening said lid are constituted by at least one portion of a lid (40), proximate to said pivots (30), that has a cam-like profile and can be pushed so as to rotate upward by way of a corresponding portion of the upper rim (41) of said bucket (15), said bucket (15) being in turn liftable by way of said pedal-operated lever (18).

10. The bin according to one or more of the preceding claims, **characterized in that** said pedal-operated lever (18) is of the centrally-pivoted type, the rear end (42) of said lever (18) that lies opposite the front pedal (43) being adapted to push said bucket (15) upward.

11. The bin according to one or more of the preceding

claims, **characterized in that** said pedal-operated lever (18) is pivoted so as to rotate in a complementarily shaped opening (44) of said bottom (16) by way of said articulation means (19).

12. The bin according to one or more of the preceding claims, **characterized in that** said articulation means (19) are constituted by two fulcrums (45), which are monolithic with said pedal-operated lever (18) and with said bottom (16).

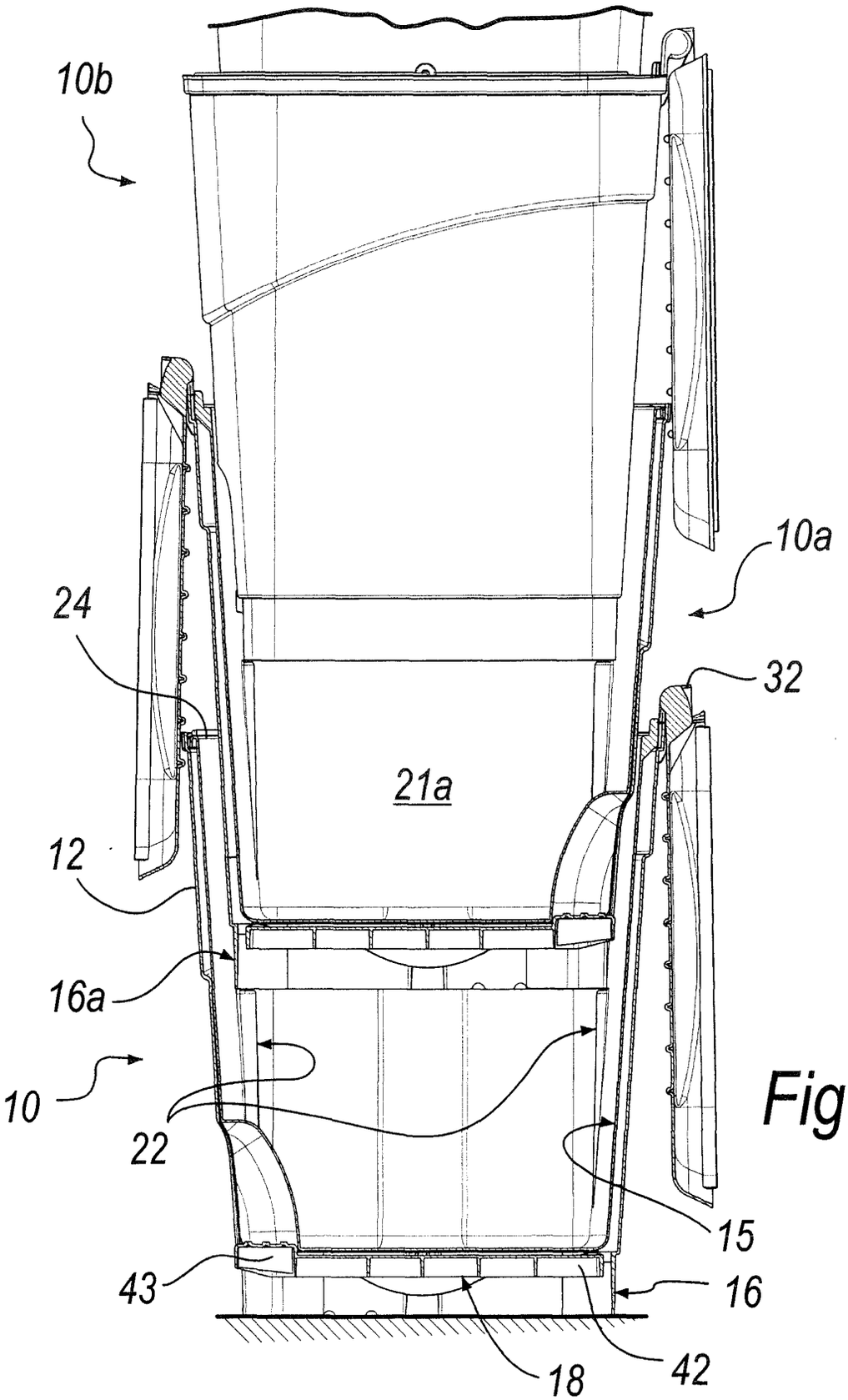

Fig. 1

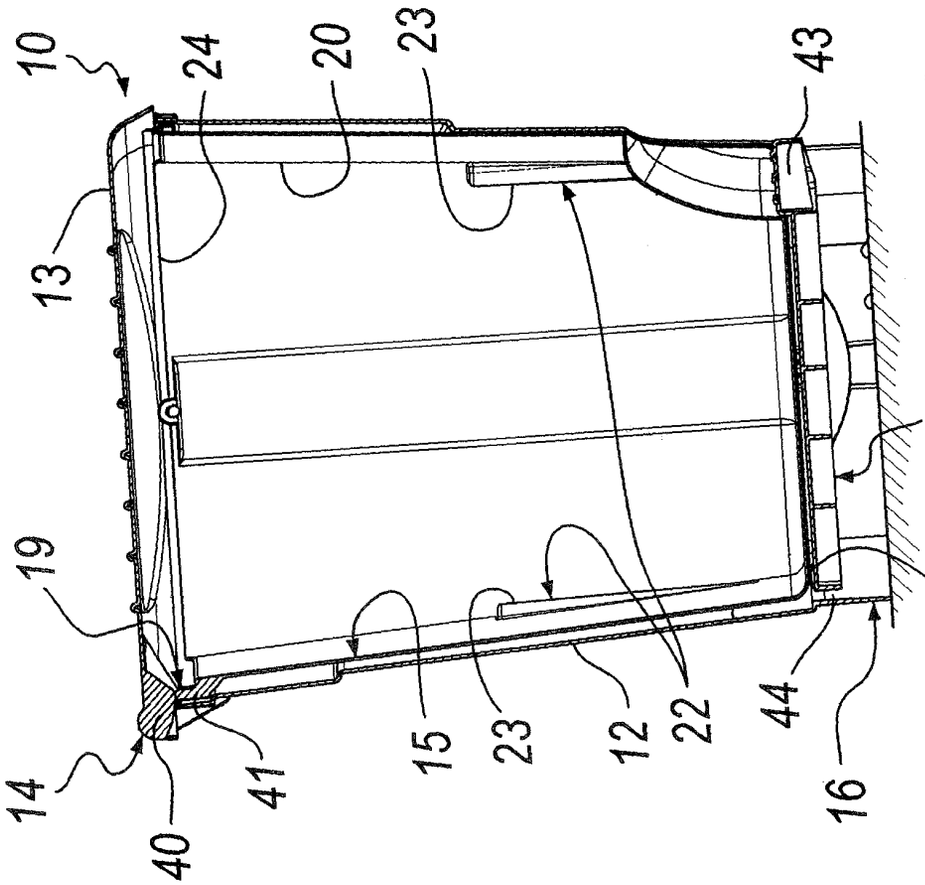
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Fig. 3

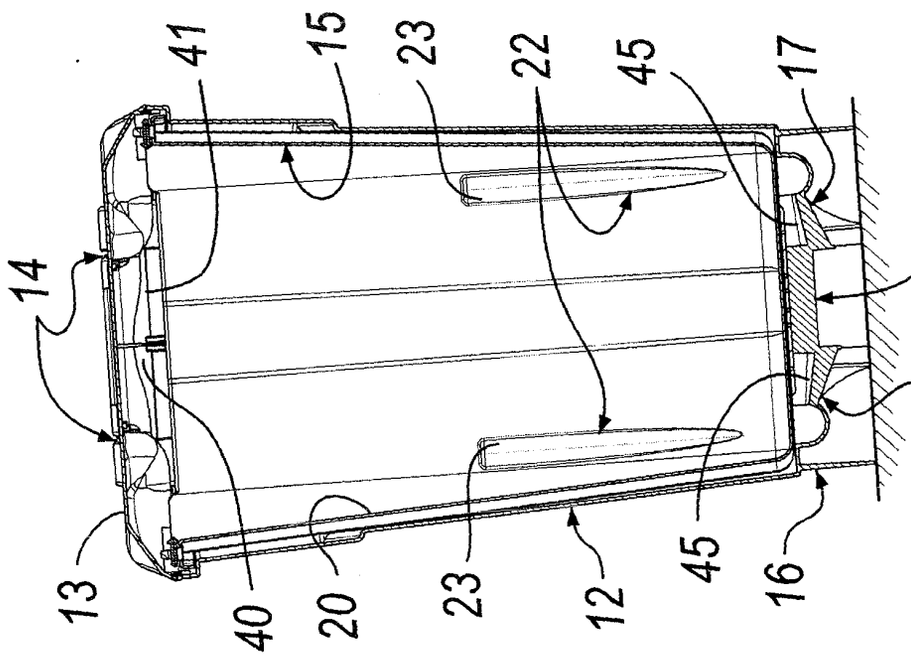
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Fig. 2

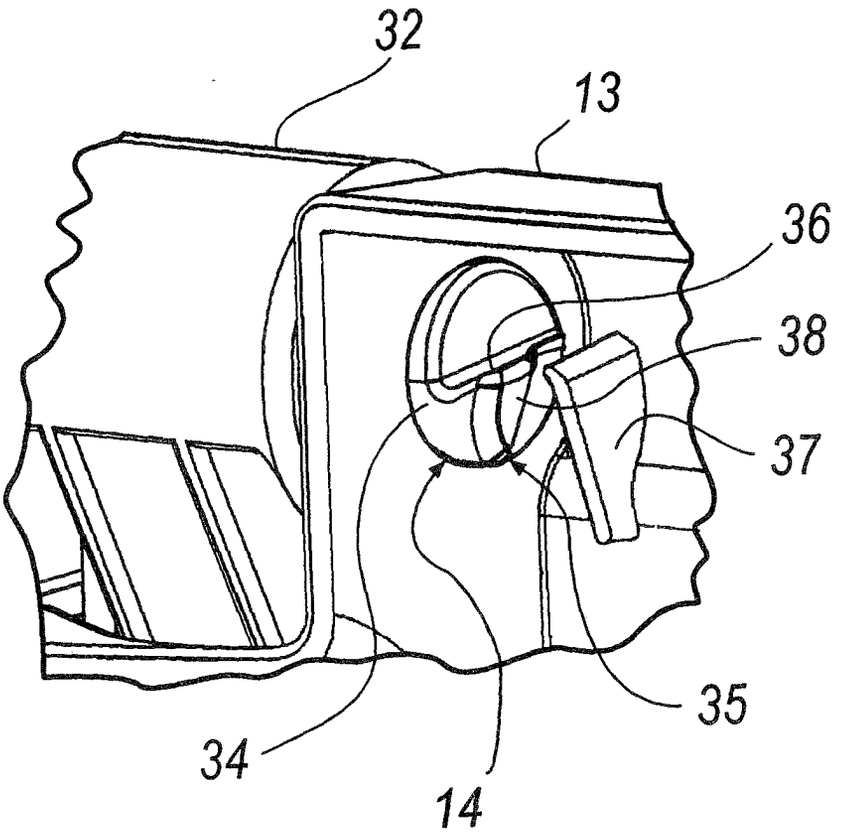

Fig. 4

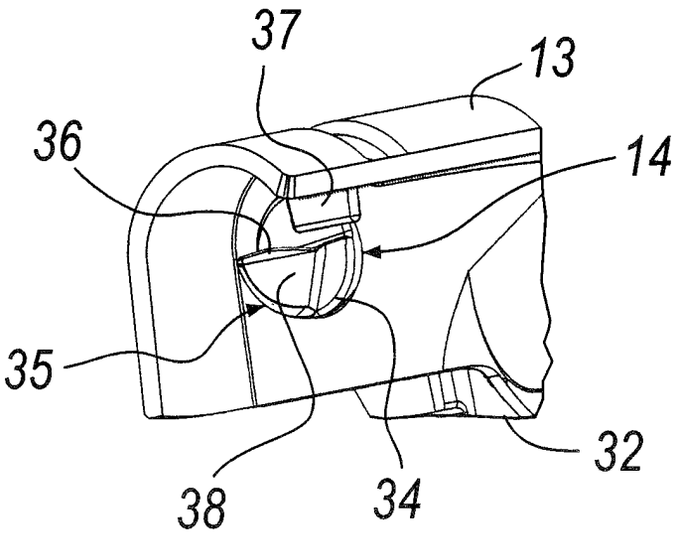

Fig. 5

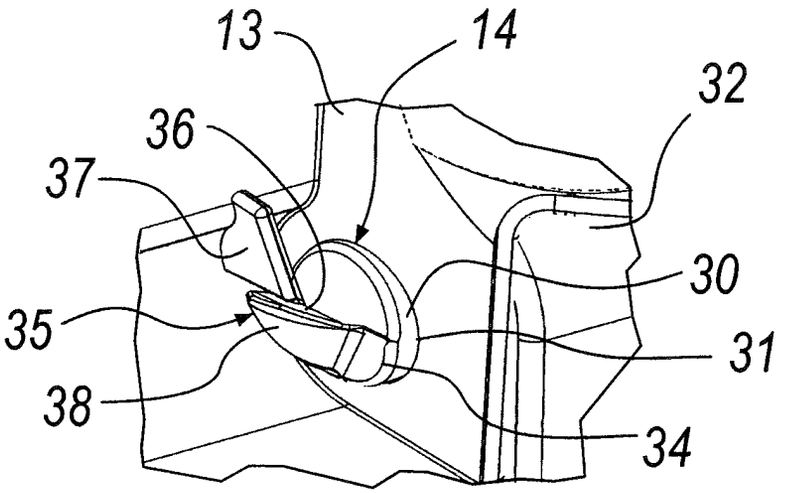

Fig. 6

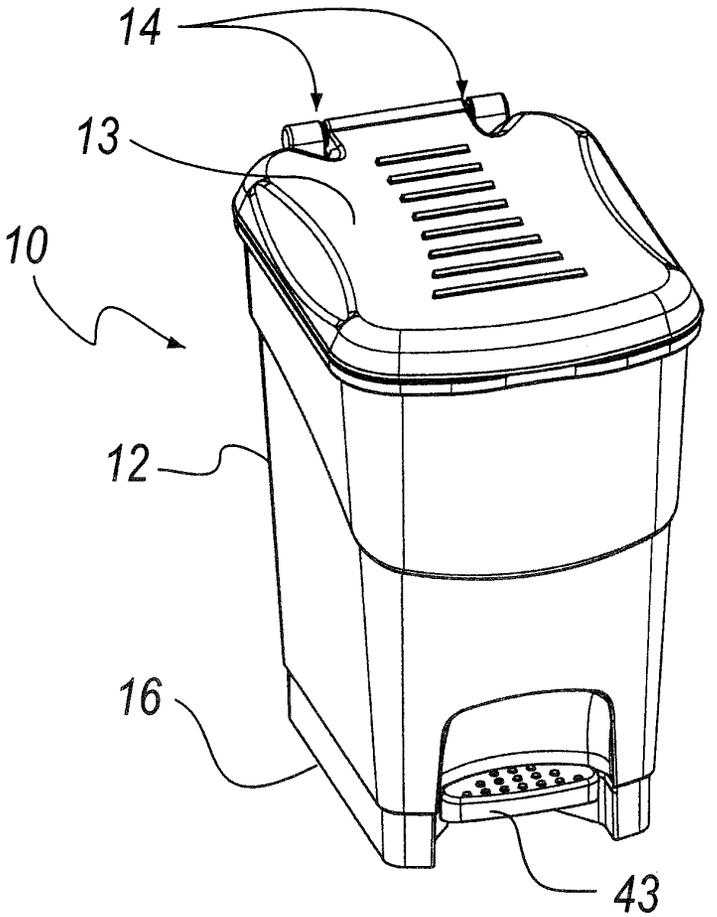

Fig. 7

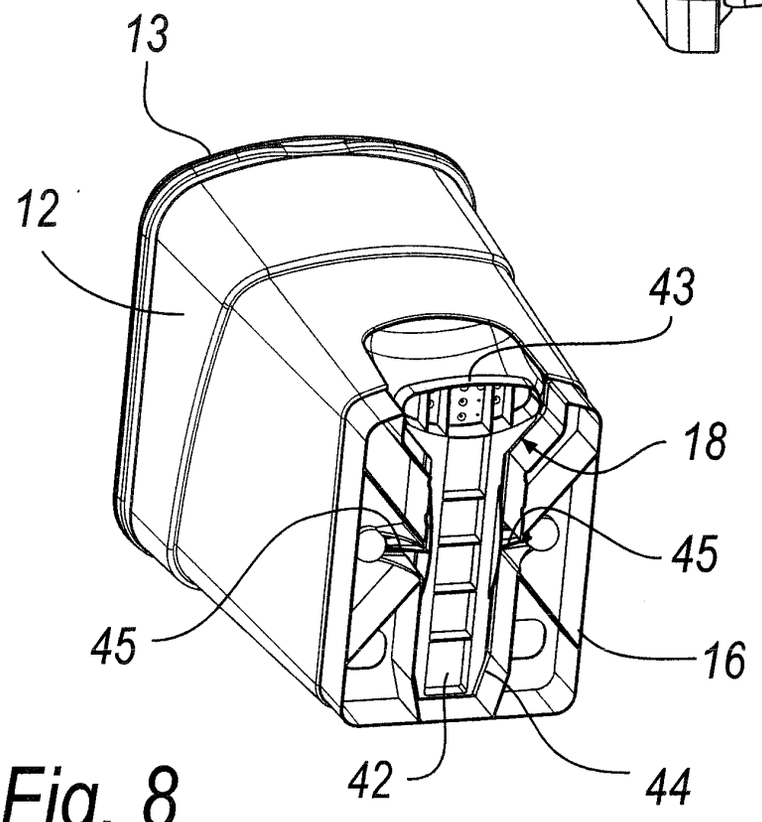

Fig. 8

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EUROPEAN SEARCH REPORT

Application Number
EP 04 10 5926

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.7)
A	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 13, 30 November 1998 (1998-11-30) -& JP 10 218215 A (GIFU PLAST IND CO LTD), 18 August 1998 (1998-08-18) * abstract * -----	1	B65F1/16
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 01, 31 January 2000 (2000-01-31) -& JP 11 292209 A (SEKISUI CHEM CO LTD), 26 October 1999 (1999-10-26) * abstract * -----	1	
A	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 12, 26 December 1996 (1996-12-26) -& JP 08 198292 A (SEKISUI CHEM CO LTD), 6 August 1996 (1996-08-06) * abstract * -----	1	
A	US 2003/213808 A1 (J. BERGER) 20 November 2003 (2003-11-20) -----		TECHNICAL FIELDS SEARCHED (Int.Cl.7) B65F
A	DE 295 20 654 U (HAMMERLIT GMBH) 22 February 1996 (1996-02-22) -----		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	21 January 2005	Smolders, R

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 10218215 A	18-08-1998	JP 3230651 B2	19-11-2001
JP 11292209 A	26-10-1999	NONE	
JP 08198292 A	06-08-1996	NONE	
US 2003213808 A1	20-11-2003	CA 2428849 A1	17-11-2003
DE 29520654 U	22-02-1996	DE 29520654 U1	22-02-1996

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