(12) UK Patent Application (19) GB (11) 2 451 300 (13) A

(43) Date of A Publication 28.01.2009

(21) Application No: 0721936.3

(22) Date of Filing: 08.11.2007

(30) Priority Data:
(31) 0714215 (32) 20.07.2007 (33) GB

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(51) INT CL:
B65F 1/08 (2006.01)

(56) Documents Cited:
GB 2393104 A

(58) Field of Search:
INT CL **B65D, B65F**
Other: **EPODOC, WPI**

(54) Abstract Title: **Container for a set of bins**

(57) A bin container comprises a hollow body 8 having a plurality of compartments 17a, 17b, each for receiving a waste collection bin 4a,4b. The body 8 is open on at least one side to allow bins to be inserted into and removed from the compartments. The body 8 is constructed and arranged to allow stacking with a similar body in a nested condition. Figure 6. The walls of the compartments diverge towards the open side of the body and the compartments are separated by a shelf which is recessed at the open side to allow the nesting. The body 8 may comprise a plastics moulding. A set of wheels 22 and a handle 30 may be attached opposite to the open side. The bins 4a, 4b may be open-topped boxes.

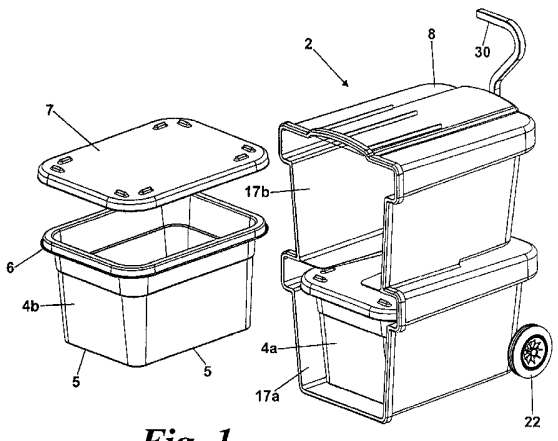

Fig. 1

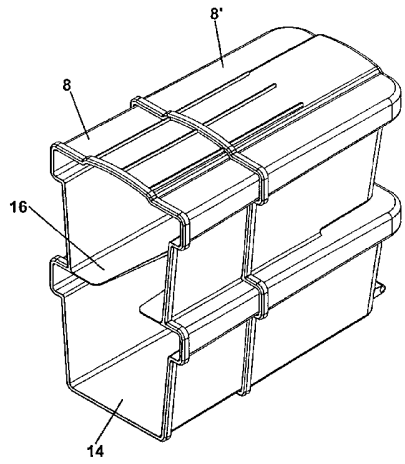

Fig. 6

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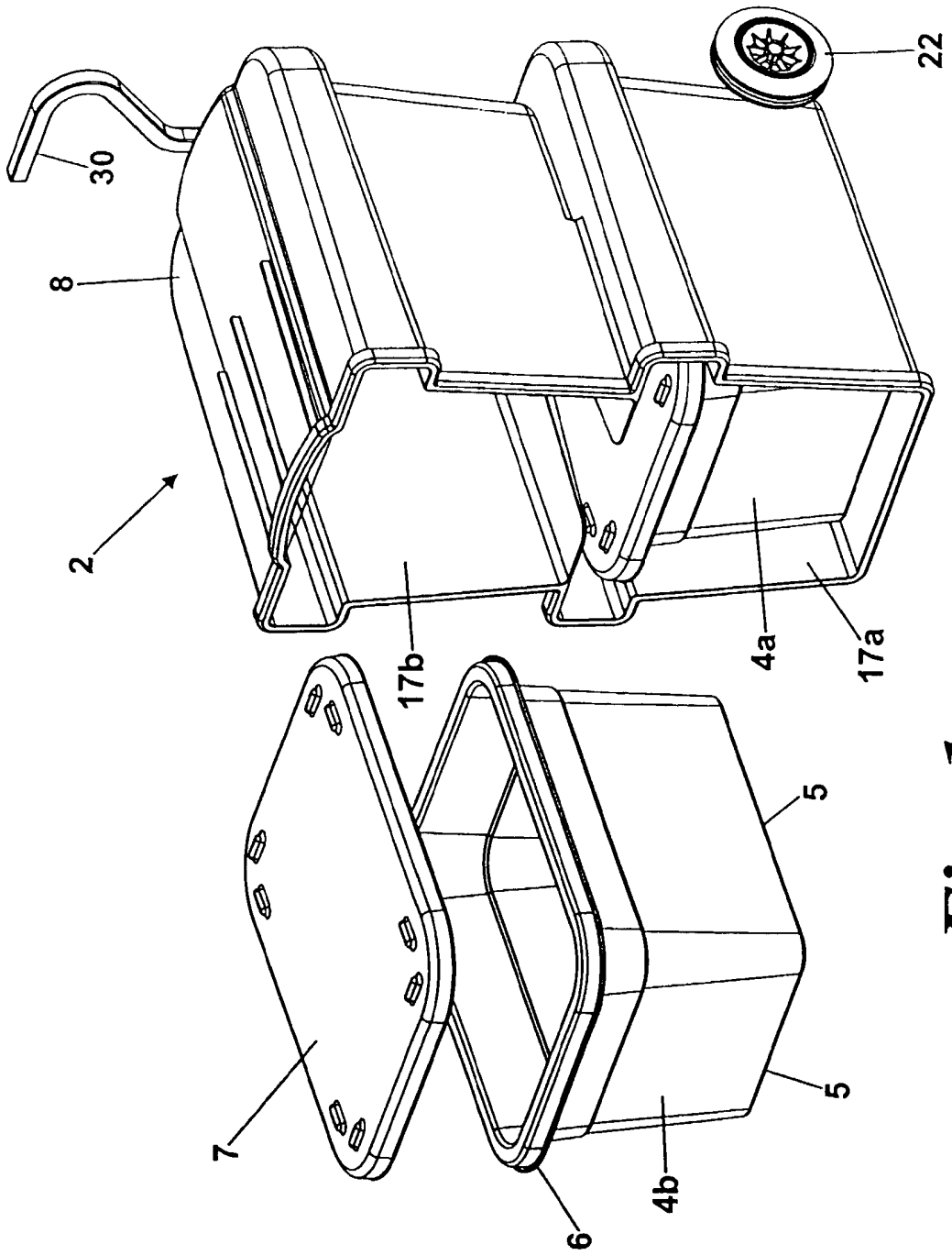


Fig. 1

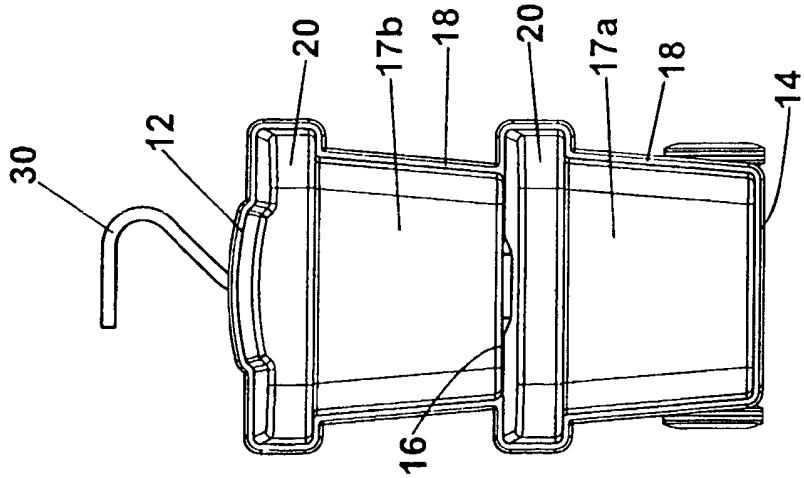


Fig. 4

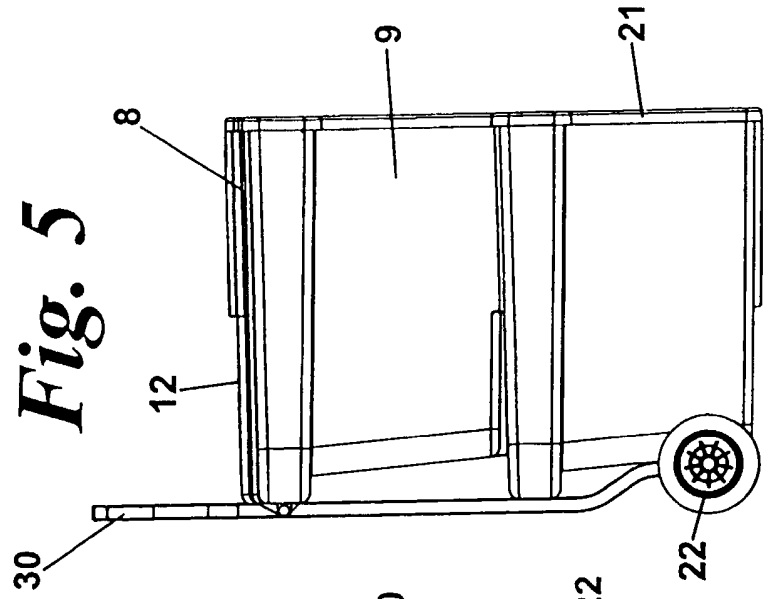


Fig. 2

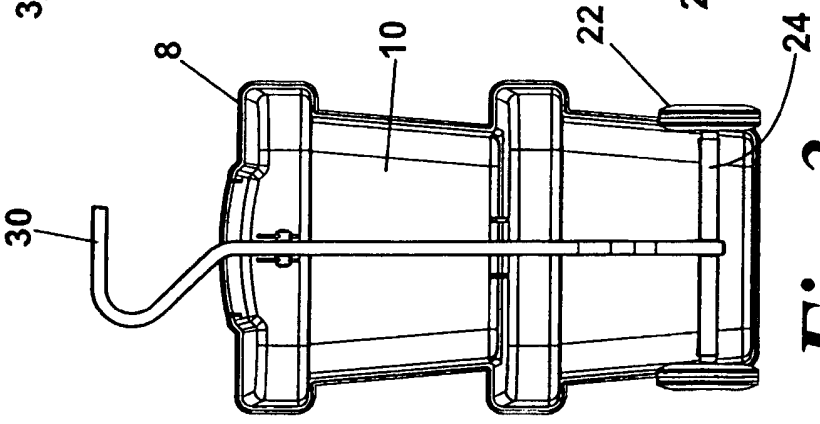


Fig. 3

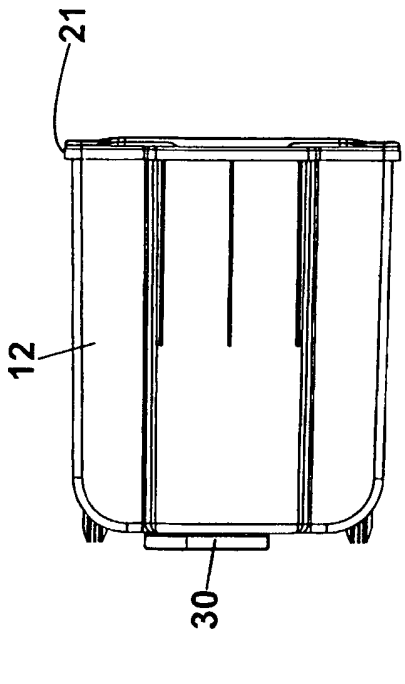


Fig. 5

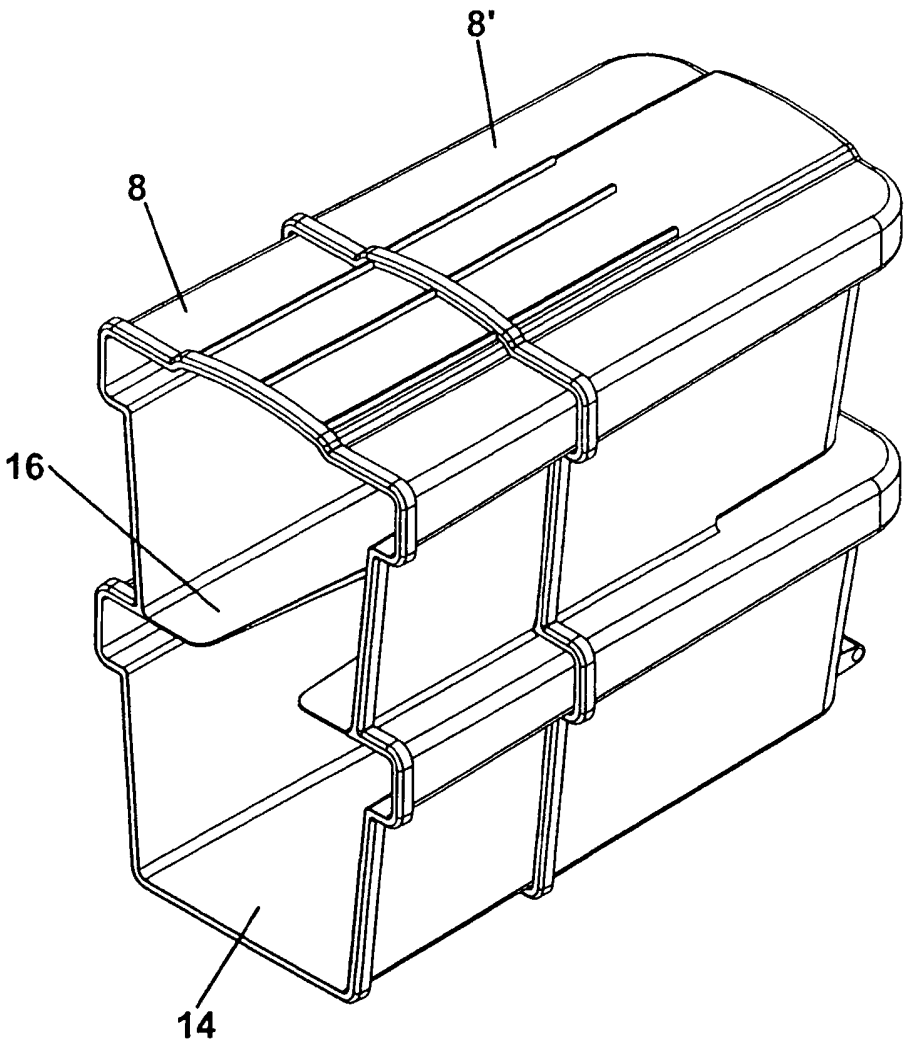


Fig. 6

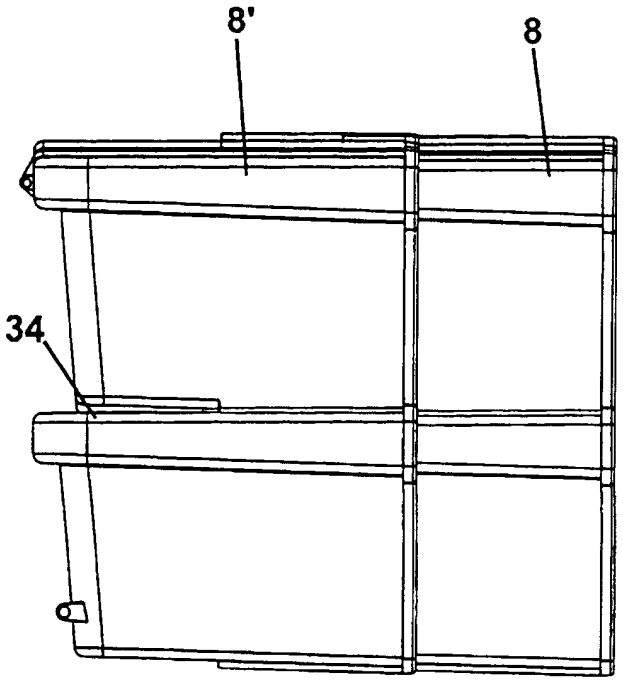


Fig. 7

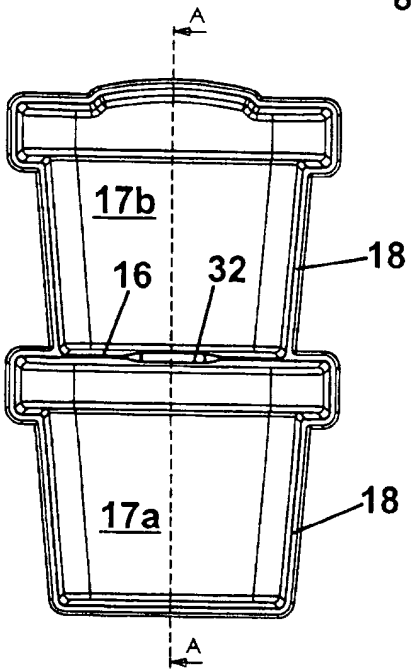


Fig. 8

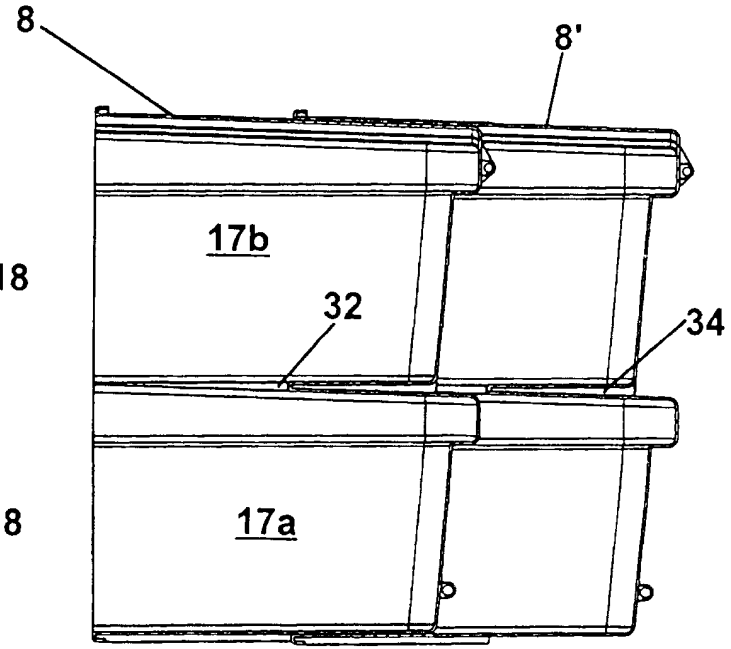


Fig. 9

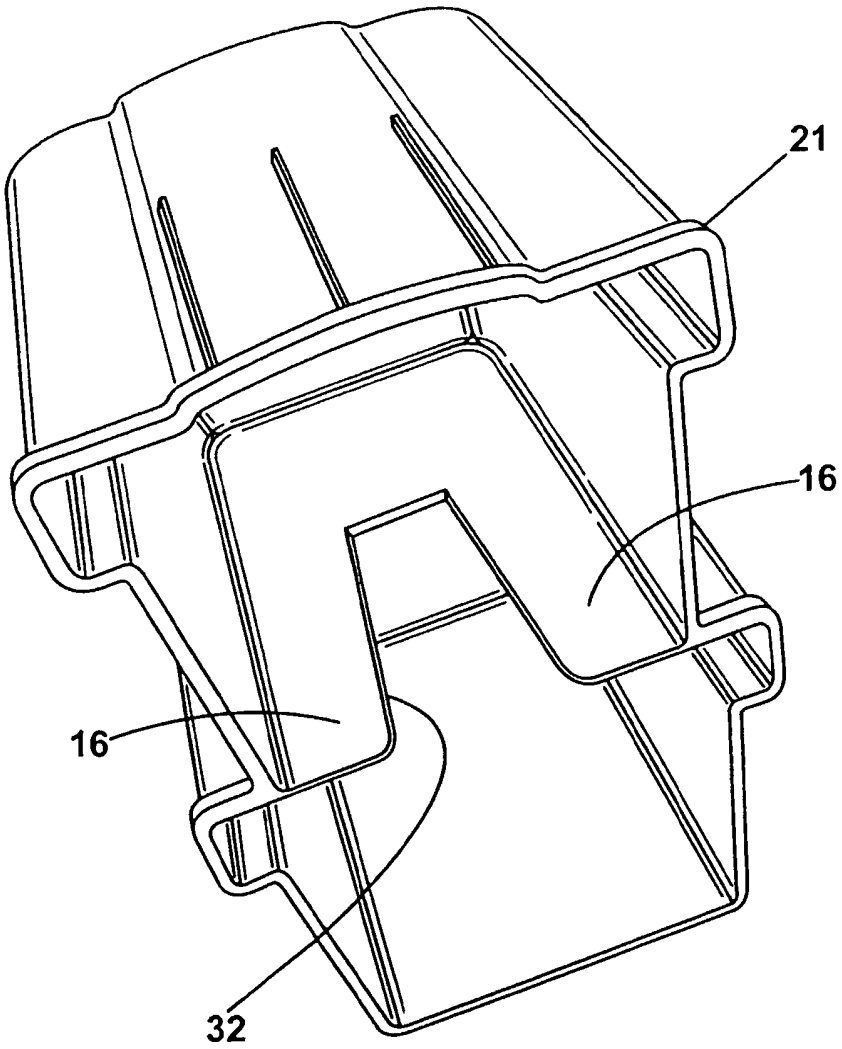


Fig. 10

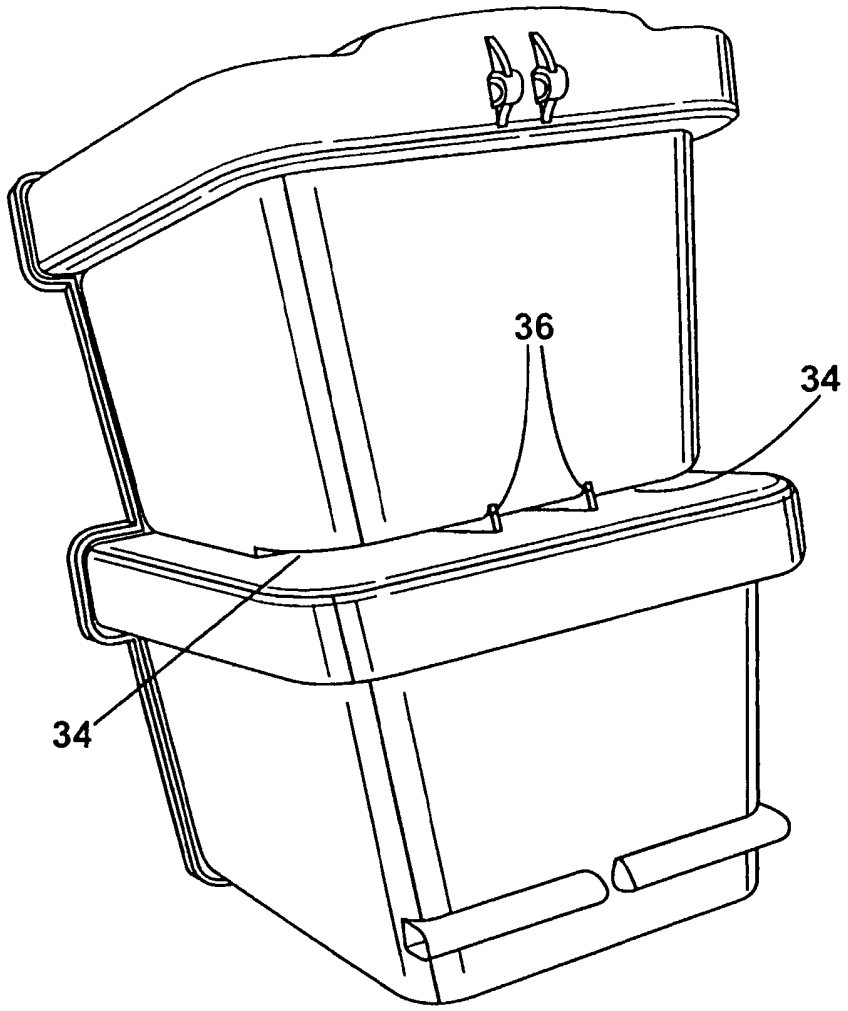


Fig. 11

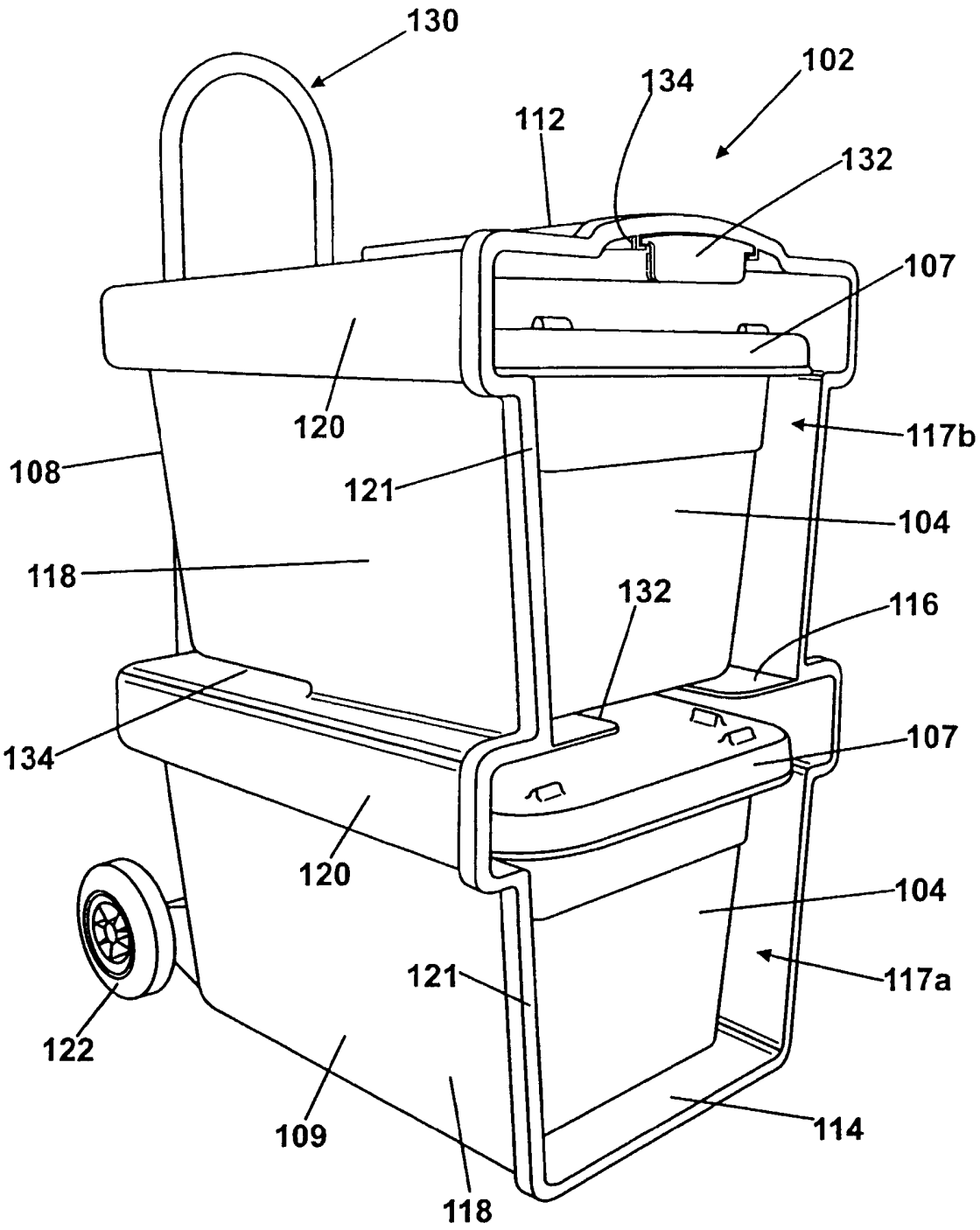
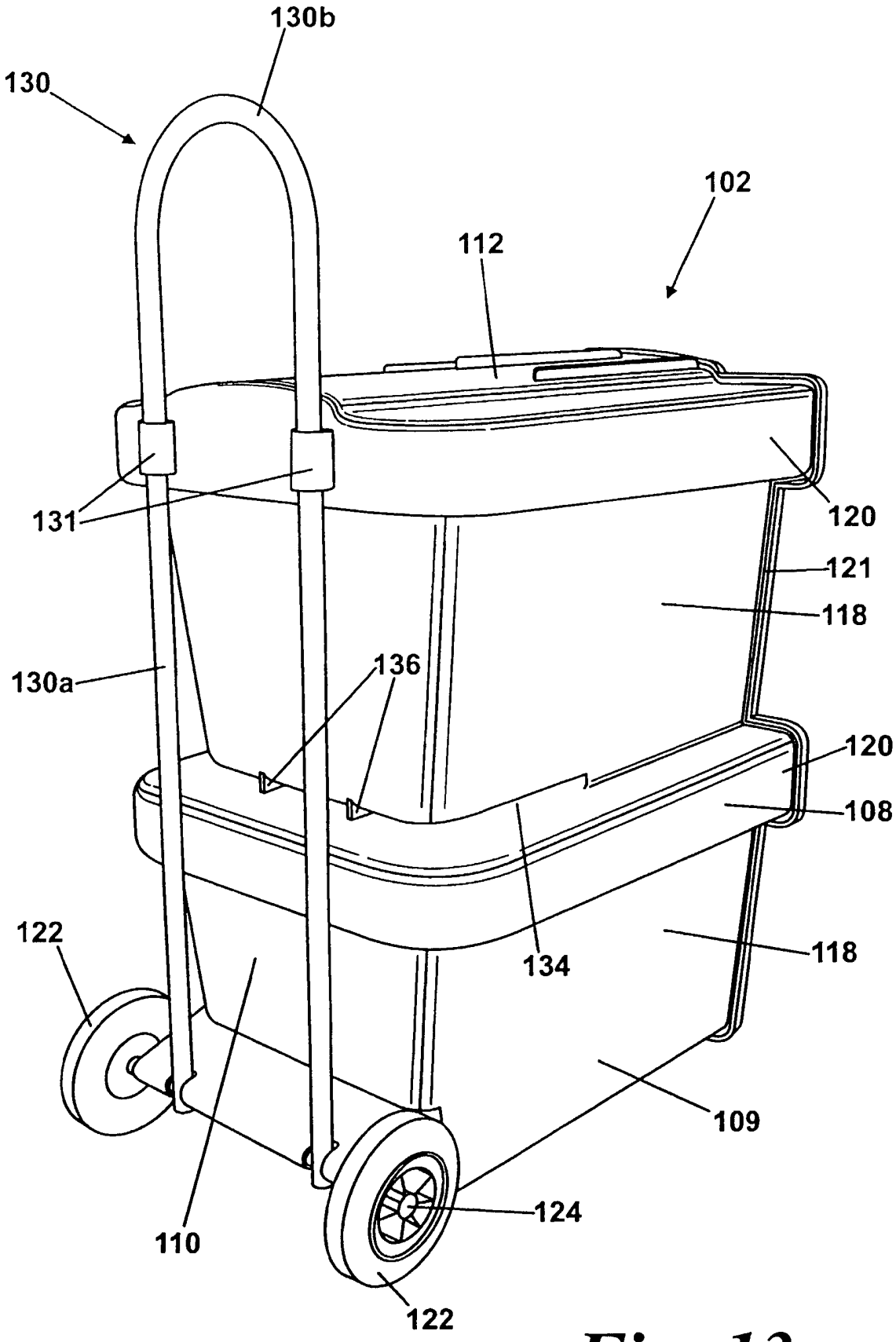

130
102
134
112
132
107
120
117b
108
121
104
118
132
116
134
107
120
104
121
117a
122
109
114
118

Fig. 12


130b
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102
112
131
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121
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130a
136
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124
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122

Fig. 13

Bin Container

The present invention relates to a bin container. In particular, but not exclusively, it relates to a container for storing a plurality of bins, boxes or other similar containers, such as waste collection bins for recyclable materials, and allowing them to be moved easily and with little effort.

In many places, members of the public are encouraged to collect recyclable materials and items (e.g. glass, plastics, paper, electrical batteries etc.) in their domestic refuse, so that those materials and items can be collected and recycled. Often, the public are provided with a number of waste collection bins, usually in the form of open-topped or lidded plastic boxes, in which the recyclable materials can be stored. These waste collection bins are emptied by a waste collection agency on a regular basis, for example every one or two weeks. The non-recyclable waste is usually stored in a separate waste refuse container, for example a large wheeled bin (or "wheelie bin").

One problem with the existing plastic collection bins is that they are quite large and can be heavy and difficult to lift when full, especially for the elderly and infirm. Also, if several waste collection bins are provided for collecting different recyclable materials they can take up a considerable amount of floor space and they can be difficult to stack, discouraging their use.

A solution to these problems is suggested in GB 2393104 A, which discloses an apparatus for storage and transportation of recyclable waste. The apparatus consists of a standard wheeled rubbish bin, which is modified to allow it to hold a number of recycling boxes. The modification consists of cutting away part of the front wall of the bin and introducing an insert to provide compartments for the recycling boxes. This process is however complex and adds to the cost and weight of the apparatus. Further, the walls of standard wheelie bins are not designed to be load-bearing and may not have sufficient strength to support a number of fully-loaded recycling boxes. Cutting away part of the front wall only weakens the apparatus

further. Additional strengthening structures may therefore be required, further increasing the cost and weight of the apparatus.

Another bin container is described in WO 2006/048592 A. In this apparatus the body of the container is manufactured a single moulding, which overcomes many of the problems associated with the apparatus described in GB 2393104 A. However, one problem with the bin container is described in WO 2006/048592 A is that the moulded body of the container cannot be stacked with other moulded bodies in a nested condition with one body inserted partially into another one. Storing a large number of containers therefore requires a considerable storage volume, which can cause considerable problems when manufacturing, shipping or storing the containers prior to distribution.

It is an object of the present invention to provide a bin container that mitigates at least some of the aforesaid disadvantages.

According to the present invention there is provided a bin container comprising a hollow body having a plurality of compartments, each for receiving a bin, said body being open on at least one side to allow bins to be inserted into and removed from the compartments, said body being constructed and arranged to allow the bin container to be stacked with similar bodies in a nested condition.

The bin container is designed to allow a plurality of bodies to be stored conveniently with little wasted space.

Advantageously, the compartments are defined by a plurality of walls that diverge towards the open side of the body, allowing one body to be nested within another.

Advantageously, adjacent compartments are separated by a shelf, which includes a recess adjacent the open side of the container to allow one body to be nested within another. Preferably, at least one recess is provided in a rear portion of the body, which is complementary to the shelf and is constructed and arranged to accommodate a portion of the shelf when two such bodies are nested.

Advantageously, the bin container includes a plurality of wheels, which are preferably located on an opposite side of the container to the open side. The wheels are preferably designed to be attached upon delivery of the bin container to an end user, so that until that point they do not obstruct nesting of the bodies.

Advantageously, the bin container includes a handle, which is preferably located on an opposite side of the container to the open side. The handle is preferably designed to be attached upon delivery of the bin container to an end user, so that until that point it does not obstruct nesting of the bodies. Alternatively, the handle may be omitted.

Advantageously, the body comprises a plastics moulding. The bin container advantageously has two or three compartments. Advantageously, the compartments are arranged vertically, one above another.

Advantageously, the walls are tapered and/or include outwardly-curved upper portions, and/or include an outwardly-extending flange at the open side of the container, for increased strength and rigidity.

Advantageously, the hollow body includes a drawer for receiving individual waste items, for example electrical batteries.

According to a further aspect of the invention there is provided a waste container system, including a plurality of waste collection bins and a bin container according to any one of the preceding claims, for storing the waste collection bins.

Advantageously, each waste collection bin comprises an open-topped box having a base and an upstanding wall.

Certain embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is an isometric view showing a bin container according to the invention, together with a number of waste collection bins;

Figure 2 is a side view of the bin container;

Figure 3 is a rear view of a bin container;

Figure 4 is a front view of the bin container;

Figure 5 is a top view of the bin container;

Figure 6 is an isometric view showing two moulded bodies in a nested condition;

Figure 7 is a side view of the two moulded bodies in a nested condition;

Figure 8 is a front view of a moulded body;

Figure 9 is a cross section on line A-A of Figure 8;

Figure 10 is an isometric view showing a moulded body from the front;

Figure 11 is an isometric view showing a moulded body from the rear;

Figure 12 is a perspective view showing a second bin container according to the invention, from the front, together with a number of waste collection bins, and

Figure 13 is perspective view showing the second bin container from the rear.

Figure 1 shows a bin container 2 and two waste collection bins 4a,b. One of the waste collection bins 4a is shown inside the bin container 2 and the second bin 4b is shown outside the container. Each waste collection bin 4 has a substantially rectangular base, four inclined walls 5 with an outwardly-protruding rim 6 at the upper edge of each wall, and optionally a removable lid 7.

The bin container 2 comprises a body 8, preferably formed as a single plastics moulding, which has two side walls 9, and rear wall 10, a top plate 12 and a base 14. The front face of the moulded body 8 is open. A shelf 16 extends across the interior of the body 8, dividing it into two compartments 17a,b, each of which is shaped to receive a waste collection bin 4. Each compartment 17a,b includes outwardly inclined side walls 18 and an enlarged upper section 20, which accommodates the rim of the bin 4. The front edge of the base 14, the top plate 12 and the shelves 16 include an integral outwardly-extending flange 21 and may be ribbed or corrugated for strength and rigidity. The inclined walls 18 and the enlarged upper

sections 20 of the compartments also add strength and rigidity to the body, allowing it to support two fully-loaded waste collection bins 4. The height of each compartment 17a,b is sufficient to allow small recyclable items (e.g. newspapers and flattened bottles/cans) to be placed in the bin without having to remove the bin from the compartment. The bins 4 are however protected from the elements by the top plate 12 and the shelves 16, which prevent rain water from falling into the bins 4 (if lids are not provided)

A pair of wheels 22 are mounted on an axle 24, which is attached to the body 8 at the lower end of the rear wall 10. The wheels 22 are located at or just above ground level when the container is standing upright on the base 14, and so that when the container is tipped backwards the wheels engage the ground, lifting the base 14 clear of the ground. A handle 30 is attached to the rear wall 10, which can be used to tip the container backwards onto the wheels, so that it can be easily moved.

The waste collection bins 4a,b can be slotted into the compartments 17a,b of the body 8, so that they stand on the shelf 16 or the base 14. Each waste bin 4a,b,c can therefore be removed or replaced in the container 2 as required. They can be stored vertically within the container 2, so reducing the amount of floor space they occupy. Because the container 2 is provided with wheels 22, the container 2 and the waste collection bins 4a,b can be moved easily from one location to another, for example so that the waste collection bins can be conveniently emptied.

As shown in figures 6 to 11, the body 8 is designed to allow it to be stacked with a similar body 8' in a nested condition prior to attaching the wheels 22 and the handle 30. To permit nesting, the walls 18, the base 14 and the top plate 12 diverge away from one another towards the open side of the body 8, and the shelf 16 includes a recess 32 in its front edge, in the form of a tapered slot. In addition, a pair of recesses 34 are provided in the rear of the body member, which are complementary to the shelf 16 and accommodate the front portion of the shelf on a second body 8' in which the first body 8 is nested. These rear recesses 34 are located beneath the base of the upper compartment 17b and above the lower compartment 17a, the rear portion of the upper compartment 17b being supported by two vertical ribs 36 located between the two rear recesses 34. These features allow two or more bodies to be stacked in

a nested condition, thereby significantly reducing the space occupied. For example, in the embodiment illustrated in the drawings, each body 8 has an overall length of 584mm and can be stacked so that when nested the inner body extends only 300mm beyond the outer body. In this condition, it is possible to ship 567 such bodies in a 8ft x 8ft x 45ft (2.44m x 2.44m x 13.7m) shipping container in stacks of seven bodies, each with a height of 2.38m.

Figures 12 and 13 show a second bin container 102 and two waste collection bins 104, each of which has a removable lid 107. The waste collection bins 104 are substantially identical to the bins of the first bin container described above and so will not be described in detail here.

The bin container 102 is similar in most respects to the first bin container described above and comprises a body 108, which is preferably formed as a single plastics moulding and has two side walls 109, and rear wall 110, a top plate 112 and a base 114. The front face of the moulded body 108 is open. A shelf 116 extends across the interior of the body 108, dividing it into two compartments 117a,b, each of which is shaped to receive a waste collection bin 104. Each compartment 117a,b includes outwardly inclined side walls 118 and an enlarged upper section 120, which accommodates the rim of the bin 104. The front edge of the base 114, the top plate 112 and the shelves 116 include an integral outwardly-extending flange 121 and may be ribbed or corrugated for strength and rigidity. The inclined walls 118 and the enlarged upper sections 120 of the compartments also add strength and rigidity to the body, allowing it to support two fully-loaded waste collection bins 104. The height of each compartment 117a,b is sufficient to allow small recyclable items (e.g. newspapers and flattened bottles/cans) to be placed in the bin without having to remove the bin from the compartment. The bins 104 are however protected from the elements by the top plate 112 and the shelves 116, which prevent rain water from falling into the bins 104 (if lids are not provided).

A pair of wheels 122 are mounted on an axle 124, which is attached to the body 108 at the lower end of the rear wall 110. The wheels 122 are located at or just above ground level when the container is standing upright on the base 114, and so that when the container is tipped backwards the wheels engage the ground, lifting the base 114 clear of the ground. A handle 130 is attached to the rear wall 110, which can be used to tip the container backwards onto the

wheels, so that it can be easily moved. The handle 130 consists of an inverted U-shaped metal tube, comprising two straight sections 130a that are joined at their upper ends by a curved section 130b. The two straight sections 130a pass through moulded retaining loops 131 formed on the rear part of the enlarged upper section 120 of the upper compartment 117b and at their lower ends are provided with aligned holes through which passes the wheel axle 124.

A drawer 132 for small individual waste items such as batteries is located within the space in the upper compartment 117b of the hollow body 108 between the top of the bin 104 and the top plate 112. The drawer 132 is supported on runners 134 that are moulded on the lower surface of the top plate 112, allowing it to be pulled out for filling or emptying.

The waste collection bins 104 can be slotted into the compartments 117a,b of the body 108, so that they stand on the shelf 116 or the base 114. Each waste bin 104 can therefore be removed or replaced in the container 102 as required. They can be stored vertically within the container 102, so reducing the amount of floor space they occupy. Because the container 102 is provided with wheels 122, the container 102 and the waste collection bins 104 can be moved easily from one location to another, for example so that the waste collection bins can be conveniently emptied.

As with the first container described above, the body 108 is designed to allow it to be stacked with a similar body in a nested condition prior to attaching the wheels 122 and the handle 130. To permit nesting, the walls 118, the base 114 and the top plate 112 diverge away from one another towards the open side of the body 108, and the shelf 116 includes a recess 132 in its front edge, in the form of a tapered slot. In addition, a pair of recesses 134 are provided in the rear of the body member, which are complementary to the shelf 116 and accommodate the front portion of the shelf on a second body in which the first body is nested. These rear recesses 134 are located beneath the base of the upper compartment 117b and above the lower compartment 117a, the rear portion of the upper compartment 117b being supported by two vertical ribs 136 located between the two rear recesses 134. These features allow two or more bodies to be stacked in a nested condition, thereby significantly reducing the space occupied.

Various modifications of the container are of course possible. For example, the container may have more than two compartments and its shape and construction may be adapted to suit the

shape of the bins. It may be made of various different plastics materials or of other suitable materials, such as metal. The handle may also take different forms and the wheels may if necessary be replaced by a kerb-climber device, for example of the type described in WO2006/048592A.

CLAIMS

1. A bin container comprising a hollow body having a plurality of compartments, each for receiving a bin, said body being open on at least one side to allow bins to be inserted into and removed from the compartments, said body being constructed and arranged to allow stacking with a similar body in a nested condition.

2. A bin container according to claim 1, wherein the compartments are defined by a plurality of walls that diverge towards the open side of the body, allowing one body to be nested within another.

3. A bin container according to claim 1 or claim 2, wherein adjacent compartments are separated by a shelf, which includes a recess adjacent the open side of the container to allow one body to be nested within another.

4. A bin container according to claim 3, wherein at least one recess is provided in a rear portion of the body, which is complementary to the shelf and is constructed and arranged to accommodate a portion of the shelf when two such bodies are nested.

5. A bin container according to any one of the preceding claims, wherein the bin container includes a plurality of wheels.

6. A bin container according to claim 5, wherein the wheels are located on an opposite side of the container to the open side.

7. A bin container according to any one of the preceding claims, wherein the bin container includes a handle.

8. A bin container according to claim 5, wherein the handle is located on an opposite side of the container to the open side.

9. A bin container according to any one of the preceding claims, wherein the body comprises a plastics moulding.

10. A bin container according to any one of the preceding claims, wherein the compartments are arranged vertically, one above another.

11. A bin container according to any one of the preceding claims, wherein the hollow body includes a drawer for receiving individual waste items.

12. A bin container according to any one of the preceding claims, wherein the walls are tapered and/or include outwardly-curved upper portions, and/or include an outwardly-extending flange at the open side of the container, for increased strength and rigidity.

13 A waste container system, including a plurality of waste collection bins and a bin container according to any one of the preceding claims, for storing the waste collection bins.

14 A waste container system according to any one of the preceding claims, wherein each waste collection bin comprises an open-topped box having a base and an upstanding wall.

Intellectual Property Office

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Application No: GB0721936.3 **Examiner:** Stephen Smith

Claims searched: 1-14 **Date of search:** 12 February 2008

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1, 2, 5-14	GB 2393104 A (HUMPHRIES) lines 3-7 & 24-28 of page 6

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category	P	Document published on or after the declared priority date but before the filing date of this invention
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC[X] :

Worldwide search of patent documents classified in the following areas of the IPC

B65D; B65F

The following online and other databases have been used in the preparation of this search report

EPODOC, WPI

International Classification:

Subclass	Subgroup	Valid From
B65F	0001/08	01/01/2006