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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 :		(11) International Publication Number:
B66F 1/08, 1/02, 1/16 B66F 3/00	A1	WO 93/20006
		(43) International Publication Date: 14 October 1993 (14.10.93)

(21) International Application Number: PCT/AU93/00142

(22) International Filing Date: 1 April 1993 (01.04.93)

(30) Priority data:

PL 1694	1 April 1992 (01.04.92)	AU
PL 5637	3 November 1992 (03.11.92)	AU

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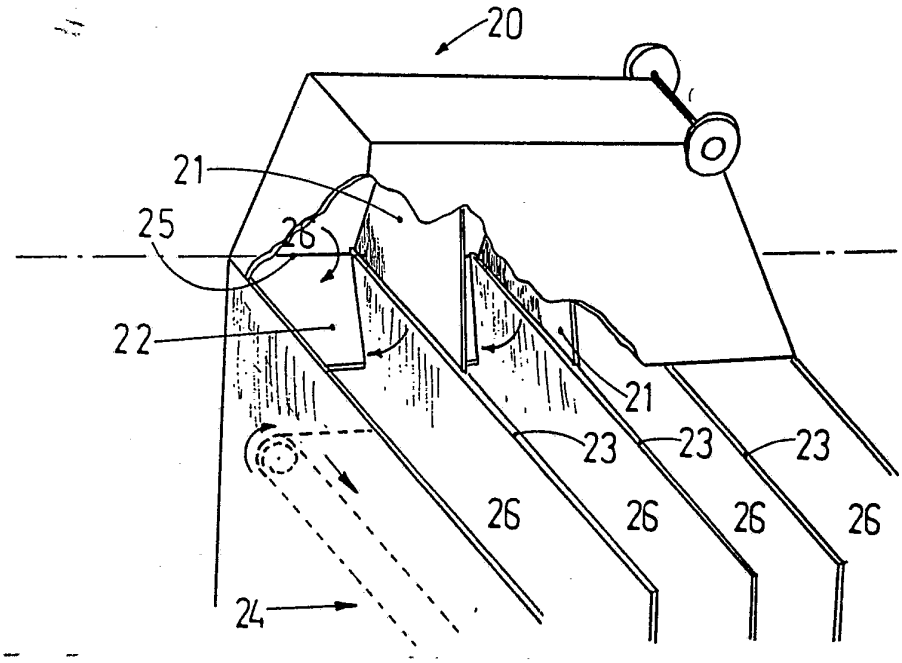
(81) Designated States: AT, AU, BB, BG, BR, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: WASTE PROCESSING METHOD AND DEVICE



(57) Abstract

A container for receiving separated materials and for transferring said materials to a transfer device (24), said container comprising: a housing (20) having at least one separating wall (21) dividing said housing (20) into at least two discrete compartments, each compartment for receiving a respective one of said separated materials; lid means (22) attached to said housing (20), comprised of at least one lid, each lid having at least one slot at least partway therethrough or being spaced apart from an adjacent lid by a gap, each slot or gap substantially aligning with an upper edge portion of a respective separating wall (21), wherein in a transferring operation, said container (20) is lifted and tilted above said transfer device (24) whilst maintaining said lid (22) in a closed position until each slot or gap in said lid (22) is substantially aligned with respective walls (23) of said transfer device (24), and then, said lid (22) is opened to simultaneously transfer said materials into respective locations (26) in said transfer device (24).

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WASTE PROCESSING METHOD AND DEVICE

The present invention relates to a method and device for the processing of waste material, and in particular, a method and device for the separation, storage and transportation of waste material, particularly recyclable waste material.

Present day society is becoming more aware of environmental issues, and this includes increased awareness of the need to minimise the quantity of non-recyclable waste material expended, such that environmental damage is also minimised. This increased awareness has led to the use of recyclable materials in place of non-recyclable materials. For instance, manufacturers of products, such as food stuffs are tending to use recyclable containers for packaging of their goods wherever possible.

One of the problems with recyclable materials is the separation of the materials after the use thereof, for recycling purposes. There have been attempts by various parties to encourage the ultimate user to convey the recyclable material to a deposit location. For instance, aluminium can deposit locations have been established, and persons are given financial reward, dependant upon the weight of recyclable aluminium cans brought to the deposit location. More recently, local Government councils have organised periodic collections for the pick up of other types of recyclable material, such as newspaper, glass bottles, and "PET" bottles.

Whilst all these programs have some degree of merit, it will be appreciated that the ultimate success of these programs is dependant upon the willingness of persons to adopt changes in their practices and attitudes to participate in these recycling programs, and this is ultimately dependant upon the convenience to the person and efficiency to the collector. That is, some people find it quite inconvenient to convey their recyclable waste material to the deposit location, or separate their different types of recyclable waste material for collection.

The present invention seeks to provide a waste processing device and method which obviates the disadvantages of the known art by providing a more convenient and efficient system to the ultimate user.

The present invention also seeks to provide a device and method which is simple to use, and which may be used to process a variety of waste materials.

The present invention also seeks to provide a waste processing device and method which recognises that different persons utilise different quantities of different types of waste material and therefore the storage volumes of such different quantities of waste material is optionally variable.

The present invention also seeks to provide a device and method whereby simultaneous transfer of different materials from discrete compartment of a primary container to separate respective locations in a transfer device is enabled.

The present invention also seeks to provide a device and method by which such "cross contamination" of different types of materials, as material is transferred from a primary container to a transfer device, is substantially eliminated.

In one broad form, the present invention provides a container for receiving separated materials and for transferring said materials to a transfer device, said container comprising:

a housing having at least one separating wall dividing said housing into at least two discrete compartments, each compartment for receiving a respective one of said separated materials;

lid means attached to said housing, comprised of at least one lid, each lid having at least one slot at least partway therethrough or being spaced apart from an adjacent lid by a gap, each slot or gap substantially aligning with an upper edge portion of a respective separating wall;

wherein in a transferring operation, said container is lifted and tilted above said transfer device whilst

maintaining said lid in a closed position until each slot or gap in said lid is substantially aligned with respective walls of said transfer device, and then, said lid is opened to simultaneously transfer said materials into respective locations in said transfer device.

Preferably, said lid is hingedly attached to said housing.

Also, preferably, each of said separating walls and/or the side walls of said housing is positioned such that the upper portion of each compartment is wider than the lower portion of each compartment.

Preferably, said housing is moulded such that at least a lower portion each a dividing wall is formed integral with a bottom surface of said housing, such that spillage/overflow between each compartment is minimised.

Also, preferably, each upper end portion of each separating wall is provided with means to receive the edges of said slots in said lid, such that rain water and the like does not enter said compartment.

The device is preferably implemented wherein said upper end portion is substantially U-shaped, and wherein said edges of said slots on said lid are provided with downwardly extending lip means received by said U-shaped end portion.

A preferred feature is that the device further comprises a passive transponder or like identification means.

Preferably, said transfer device provided on a vehicle.

Also, preferably, said transfer device is provided with conveyor or pushing means to remove each of said separated materials to said locations.

A further preferred form of the invention is to provide a secondary container being smaller than said container and comprising:

a housing, having a dividing wall divided into two discrete compartments, each compartment for receiving one of said separated materials;

lid means, attached to said housing, comprised of a single lid having a slot at least partway therethrough and aligned with said dividing wall;

such that, said secondary container is emptied into

said container by manually lifting same and aligning said slot of said secondary container about upper edge portions of a separating wall on said container.

Most preferably said lid is shaped to receive further containers thereon.

The present invention will become more fully understood from the following detailed description of a preferred but non limiting embodiment thereof, described in connection with the accompanying drawings wherein:

Fig. 1 illustrates an isometric view of a first embodiment of a waste processing device in accordance with the present invention;

Fig. 2 illustrates the device, the lid in the open position, receiving a supplementary or secondary bin on the upper surface thereof;

Fig. 3 illustrates the secondary or supplementary bin showing details thereof in the closed position;

Fig. 4 illustrates the sedondary or supplementary bin in the open position, having the housing walls thereof shown in a cut away view to illustrate the interior configuration thereof, with the sliding base in the half open position;

Fig. 5 illustrates an isometric view of the device of Fig. 1 in the open position being unloaded onto a conveyor device;

Fig. 6(a) illustrates a side elevational view of a vehicular conveyor device, Fig. 6(b) illustrating the device in the unloading position adjacent the conveyor;

Fig. 7 shows a second embodiment of a container in use, inverted above a transfer device, in perspective view;

Fig. 8 shows a preferred embodiment of the lid means of the container of Fig. 7, comprised of a slotted lid;

Fig. 9 shows a side view of a container in accordance with a third embodiment of the present invention;

Fig. 10 illustrates a top view of the container shown in Fig. 9;

Fig. 11 illustrates an elevational cross-sectional view of the container shown in Fig. 9;

Fig. 12 details an isometric view of a secondary

container adapted to be emptied into the container of Fig. 9;

Fig. 13 shows the secondary container of Fig. 12 being emptied into the primary container; and,

Fig. 14 details a preferred arrangement of the manner in which the lid edges engage with the upper portions of the dividing walls of the container to avoid water ingress into the container.

It will be appreciated that whilst the present invention is described in relation to the waste processing device embodied as a primary container, the "kitchen tidy" bin arrangement to be received by the waste processing device, and the transportation device to transport the waste material away, the invention as described hereinafter is not limited to the described combination of these three components, but should be understood to also cover each discrete component of the system. It should also be appreciated that whilst particular embodiments of these three components are described in the following detailed description, the invention is not limited to these specific configurations depicted and described. As will become obvious to persons skilled in the art, numerous variations and modifications will be envisaged to the devices described hereinafter, and these variations and modifications should also be considered to fall within the ambit of the invention.

A first embodiment of the waste processing device in accordance with the present invention, is illustrated in Figs. 1 to 6 and is generally designated by the numeral 1, comprising a housing 2, having a lid 3 on the upper end thereof, wheels 4 at the lower portion thereof, and a handle 5 for ease of transportation. Viewing Fig. 2, the device 1, shown in the open position, can be seen to be divided into compartments 6 by separating walls 7. As shown, the compartments 6 are not necessarily of equal volumes, but rather, some compartments may be much larger than others. The object of providing the compartments is to enable different types of waste material to be provided in each of the compartments, remaining separate for recycling purposes. That is, for example, the following compartment

arrangements could be utilised.

Compartment 1 Organics

Materials carried in this compartment could be compostable materials, which include food scraps, garden waste, wood, dust/dirt, and other compostables.

Compartment 2 Clean white paper

Materials carried in this compartment could be high-grade paper which is suitable for recycling into medium to high quality writing/typing/copying paper. The types of high grade paper to be admitted to this compartment would be dictated by the paper recycling industries who will be the ultimate users of the materials carried in this compartment.

Compartment 3 Low grade paper

Materials carried in this compartment would include low grade papers which are suitable for recycling into low-grade writing/typing/copying paper, newsprint and cardboard. The types of low grade papers to be admitted to this compartment would be defined by the paper recycling industries who will be the ultimate users of the materials carried in this compartment. Materials likely to be carried in this compartment include newsprint, magazines, brochures, etc.

Compartment 4 Co-mingled

The compartment would house 'Co-mingled' materials. Co-mingled materials may include Aluminium cans, Steel cans, 'PET', 'HDPE', 'PVC' containers, green, Clear, and brown glass, and
Other materials which would be expected to be recyclable in the near future, such as dry cell batteries, etc.

Compartment 5 Other

This compartment will carry the rest of the materials which are not currently recyclable, and will be processed utilising known methods.

It will be appreciated that separation of the different types of waste material into these compartments will enable the different types of materials to be simply transferred without further manual separation by the householder from hereon, for recycling.

The separating walls may be embodied to be adjustable in a variety of ways. For instance, the walls could be pivoted from an end or central portion thereof. For example, if a user uses a large amount of recyclable newsprint paper, then compartment 3 which houses this recyclable paper may be of much larger size than compartments 1, 2 , 4 and 5. To make the device more "user friendly", the lid could be provided with icons thereon, depicting the required contents of various compartments.

It will be appreciated that an identification means may be provided on the device, for instance, a passive transducer, or a "tag", which could identify the bin as belonging to a certain owner. This could be used to enable the weight of materials from various households to be recorded and monitored, perhaps for providing statistics identifying the amount of recyclable material received from various households, for instance, for charging purposes. Perhaps a most preferred arrangement is to have a dedicated housing, connecting piece or attachment means to be able to "click on" an identification "tag".

As described, the bin is preferably provided with wheels at a lower portion thereof, and a handle at an upper portion thereof, for ease of manoeuverability.

Whilst the device has been hereinbefore described and illustrated as being of substantially square-shaped cross-section having a single lid at the upper extremity thereof, it will be appreciated that any other shape

facilitating the functional operation of the device, and any other entry/exit arrangement for the refuse may be provided. By way of example, an exit door, for instance a sliding door, could be provided at the lower extremity of the device, and this door could be mechanically, electromechanically or manually operated.

The primary device will now be described in conjunction with an "interior bin" device, indicated by the numeral 8 and described in more detail in relation to Figs. 3 and 4, however, the interconnection of the bin 8 onto the upper portion of the "exterior" or primary device 1 is perhaps best understood by referring to Fig. 2. Locating means may be provided for ease of locating the bin 8 on the device 1, for content transfer purposes.

The bin 8 is particularly designed for use in domestic situations such that persons can deposit relatively smaller quantities of recyclable and non-recycable waste material into the bin 8. The "interior bin" 8 is a portable bin which does not take up a large amount of space, for instance, in a kitchen. The bin 8 is filled within waste material, and then, when full, is transported manually and placed on top of the "exterior device" 1, such that the contents of the "interior bin" may be transferred into the "exterior device" 1. For ease of transportation, carry handles 10 are provided on both sides of the device 8. The device 8 is preferably provided with a lid 11, a slidable base 12, and as shown in Fig. 4 a plurality of dividers 13. Icons may be provided at appropriate positions 14 on the lid of the bin 8 to indicate the type of materials to be supplied in the various compartments. In use, in a domestic situation, the lid 11 of the "interior bin" 8 is opened, the waste material is provided into the allocated compartment, and the lid is closed. Once the bin 8 is filled, the "interior bin" 8 is carried to the location of the "exterior device" 1, positioned thereon by locating means 9 provided thereon, and the sliding base 12 is opened, allowing waste material from within the bin 8 to be transferred to the corresponding compartments in the device 1.

It will be appreciated that the provision of such a bin

which enables separation of waste material as it is used, allows a simple one-step operation by a householder. The transportation of the material from "interior bin" to the "exterior bin", requires no more effort than is currently required in transferring refuse from known "kitchen tidy" to external garbage bins. It will however be appreciated that the utilisation of the "interior bin" and its associated "exterior device" as hereinbefore described provides unique advantages in achieving and maintaining separation of waste material. Once again, as with the "external device" 1, the "interior bin" 8 is also preferably provided with adjustable dividers, such that, where larger compartment sizes to receive particular types of waste material are required, they can be easily embodied. The dividers may be hinged from upper, lower or intermediate hinges or, in a simplified version may be fixed dividers.

Obviously, it will be appreciated that the lower positions of the dividers 13 of the "interior bin" 8 should align with the upper positions of the separating walls 7 of the "exterior device" 1 such that the "correct" waste material is transferred from the correct compartment in the "interior bin" 8 to the corresponding compartment in the "exterior device" 1.

It will be appreciated that whilst a trapezoidal shaped bin 8 is shown, other shapes of bin may also be embodied, however, it will also be appreciated that this trapezoidal shape may have advantages in that waste materials would not tend to become jammed, consequently hindering transfer of the materials from the "interior bin" 8 to the "exterior device" 1.

Refering now to Figs. 5 and 6, the collection vehicle will now be described. It will be appreciated that once the waste material is provided within the "exterior device" 1, it also is necessary to convey this waste material via a suitable transportation system to a final deposit location or recycling plant. Again, with the objective of making the collection and transportation of the recyclable waste material more convenient for all concerned, it would be envisaged that a single vehicle could be utilised. This

should therefore require the provision of separating walls therein, such that waste material is transferred from the device 1 to respective compartments within the vehicle. It will be appreciated that many types of transfer system will become apparent, however, by way of illustration, an embodiment of a "conveyor system" will be hereinafter described.

Presently, it is known to have vehicles which pickup, tip over and deposit waste material into a collection facility. The emptying operation envisaged for implementation would be considered to be somewhat similar to these known processes, however, could, for instance, when the device is provided with a sliding door at the lower extremity thereof be simply lifted and then the door opened to empty the contents thereof into the collection facility. At present however, it is known to tip all the contents of the bin into a single housing. Obviously, in the present invention, the material from the various compartments would have to be tipped into correspondingly designated compartments in the vehicle. To achieve this purpose, it is therefore envisaged that a conveyor type system with separating type walls thereon could convey the material from the bin to the compartment in the vehicle. This is illustrated in Figs. 5 and 6, Fig. 5 showing an isometric view of the bin being tipped, Fig. 6a showing an elevational view of the conveyor and divider on the truck body, and Fig. 6 illustrating the bin being tipped up such that the contents thereof are deposited onto the appropriate section on the conveyor belt. Another advantage of utilisation of such a conveyor system is that a weighing device could integrated with the conveyor device, allowing the monitoring of the quantities of various types of recyclable material, to correlate statistical information for industry, Government and charging purposes. It would be envisaged that the device 1 be therefore provided with some form of identification means, such as a passive transducer thereon such that the bin could be identified, at this time with a particular household or office.

As illustrated in Figs. 7 and 8, the lid 22 is designed

such that it can open within the transfer device 24. This may either be embodied by having separate lids which each open between the confines of the compartments of the transfer device 24, or, by providing slots at equivalent distances to the compartment walls of the transfer device 24 such that the lid can still open to within the transfer device 24.

As illustrated, to empty the container 20, the container 20 is supplied in the upturned position, preferably with the lid 22 thereof held in the closed position. Once the bin is lifted and inverted such that the separating walls 21 of the container align with separating walls 23 of the transfer device 24, the lid is opened, for example, pivoted about the hinge 25 in the direction of arrow 26, allowing the contents within each compartment of the container 20 to be transferred to its respective compartment 26 of the transfer device 24. It will be appreciated that by such an operation, it is not possible for material within adjacent compartments to "spill" into any compartment other than its respective compartment on the transfer device. It will also be appreciated that in transferring the material from the container to the transfer device, wind and other environmental factors will not affect the transfer operation further elminating the possibility of any "cross contamination".

A preferred embodiment of the invention is wherein the hinge 25 of the container 20 is used for the dual purpose of hinging the lid 22, and for lifting and tilting the container 20 over the transfer device.

It will be appreciated that the preferred embodiment of the invention is wherein the lid is retained in a closed position until the container 20 is turned to emptying position as illustrated in Fig 1. Once in position the lid 22 of the container 20 is then released allowing the lid to pivot within the confines of compartments 26. This will either be facilitated by having separate hinged lids 22 for each compartment, or more preferably, a single slotted lid 22 as shown in Fig 8.

An alternative and perhaps more preferred embodiment of

the invention will now be described with reference to Figures 9 to 14. Shown in Fig. 9 is an elevational view of a preferred embodiment of the waste container of the invention, generally designated by the numeral 30. This embodiment of the waste container has a unique design which is shaped to ensure a simple but, balanced, and unhindered movement of the container, ensuring that it will not topple, is easy to move both on flat surfaces and up stairs, is aesthetically pleasing having rounded shapes, etc. The plan view of the device, shown in Fig. 10, shows two separate lids 31 and 32 covering four compartments 33, 34, 35 and 36 spaced along the length of the container 30 from handle 37. Each of the lids 31 and 32 is shown having a slot intermediate their ends. Fig. 11 shows an elevational cross sectional view of the container 30, detailing the slight trapezoidal shape of each of the compartments 33, 34, 35 and 36. That is, the dividers 38 placed between each of the compartments, and the end walls 39 and 40, are angled such that they are slightly more closely spaced at their lower portions than at their upper portions. The container shown in Fig. 11 also details how the bottom surface 40 of each compartment 33, 34, 35 and 36 is substantially U-shaped to avoid cross-contamination between the various compartments. For example, if wet material is to be placed in one of the compartments, which would naturally settle in the bottom of the U-shaped portion, it will not easily be transferred to adjacent compartments. An alternative is to mold the entire compartments such that each compartment is totally segregated from adjacent compartments, the walls of each compartment abutting the lids of the container.

In Fig. 12 is shown a secondary container which may be utilised as a "kitchen tidy" bin, being small in size, and which may be adapted to be located over two adjacent compartments of the container of Fig. 13 for emptying. The lid 41 of the secondary container 42 shown in Fig. 12 is shown to have recesses 43 which may for example be adapted to receive stackable containers 44. Any other type of engagement between the containers 44 and containers 42 may equally be envisaged. Fig. 13 details the emptying

operation such that the material is exchanged from the container 42 to the container 30.

One of the problems inherent with such primary bins, noting that they are used externally, is that rain, etc. is prone to be received in the containers. Therefore, to overcome this problem, a detail such as illustrated in Fig. 14 is proposed. The upper end of each dividing walls 38 and/or the upper portions of the U-shaped scoops 40 may be itself provided with a U-shaped recess 45 adapted to receive a downwardly depending lip or gutter on the lid such that water, etc., is not permitted to enter the containers. Most preferably, this "rain gutter" mechanism is embodied whereby any protrusions external to the longitudinal surfaces of the dividers 38 is avoided, such as shown in Fig. 14.

It will be appreciated that whilst the embodiments described hereinbefore provide a lid means which has a slot at least partway therethrough, separate lids are also envisaged which are provided in slightly spaced apart relationship from each other in plan view, such that an elongated gap is provided between such separate lids. The purpose of the gaps or the slots as hereinbefore described are such that the lid, when opened and during the transferring operation, opens into the locations between the walls of the transfer device, whereby it is ensured that all the material to be transferred from the container to the transfer device is deposited between the walls of the transfer device such that spillage etc., into other locations on the transfer device does not occur.

It will be appreciated that many other variations and modifications will become apparent to those persons skilled in the art, and that all such variations and modifications should be considered to fall within the scope of the present invention as hereinbefore described and as hereinafter claimed.

THE CLAIMS

1. A container for receiving separated materials and for transferring said materials to a transfer device, said container comprising:

a housing having at least one separating wall dividing said housing into at least two discrete compartments, each compartment for receiving a respective one of said separated materials;

lid means attached to said housing, comprised of at least one lid, each lid having at least one slot at least partway therethrough or being spaced apart from an adjacent lid by a gap, each slot or gap substantially aligning with an upper edge portion of a respective separating wall;

wherein in a transferring operation, said container is lifted and tilted above said transfer device whilst maintaining said lid in a closed position until each slot or gap in said lid is substantially aligned with respective walls of said transfer device, and then, said lid is opened to simultaneously transfer said materials into respective locations in said transfer device.

2. A container as claimed in claim 1, wherein said lid is hingedly attached to said housing.

3. A container as claimed in claims 1 or 2, wherein each of said separating walls and/or the side walls of said housing is positioned such that the upper portion of each compartment is wider than the lower portion of each compartment.

4. A container as claimed in any one of claims 1 to 3, wherein said housing is moulded such that at least a lower portion each a dividing wall is formed integral with a bottom surface of said housing, such that spillage/overflow between each compartment is minimised and/or such that jamming.

5. A container as claimed in any one of claims 1 to 4, wherein each upper end portion of each separating wall is provided with means to receive the edges of said slots or gaps in said lid, such that rain water and the like does not enter said compartment.

6. A container as claimed in claim 5, wherein each said upper end portion of said separating wall is substantially U-shaped, and wherein said edges of said slots or gaps on said lid are provided with downwardly extending lip means received by said U-shaped end portion.

7. A container as claimed in any one of claims 1 to 6, further comprising a passive transponder or like identification means.

8. A container as claimed in claim 7, wherein said passive transponder or like identification means is attached by a compatible housing or attachment means to said container.

9. A transfer device, to receive said separated materials from the container claimed in any one of claims 1 to 8, wherein said transfer device provided on a vehicle.

10. A transfer device, as claimed in claim 9, wherein said device is provided with conveyor or pushing means to remove each of said separated materials to said locations in said transfer device.

11. A secondary container, for use with the container claimed in any one of claims 1 to 7, said secondary container being smaller than said container and comprising:

a housing, having a dividing wall divided into two discrete compartments, each compartment for receiving one of said separated materials;

lid means, attached to said housing, comprised of a single lid having a slot or gap at least partway therethrough and aligned with said dividing wall;

such that, said secondary container is emptied into said container by manually lifting same and aligning said slot or gap of said secondary container about upper edge portions of a separating wall on said container.

12. A secondary container as claimed in claim 11, wherein said lid is shaped to receive further containers thereon.

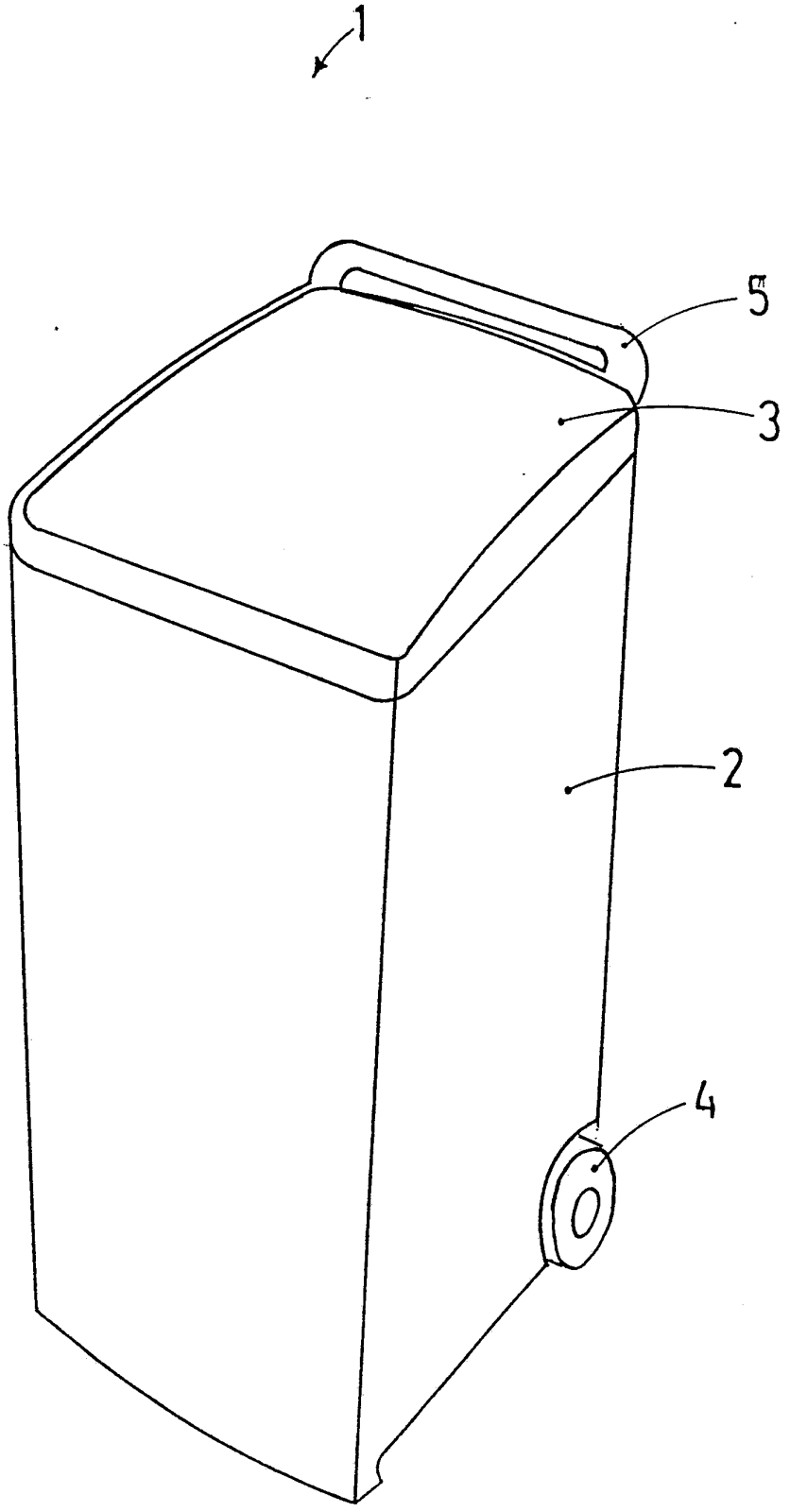


FIG 1

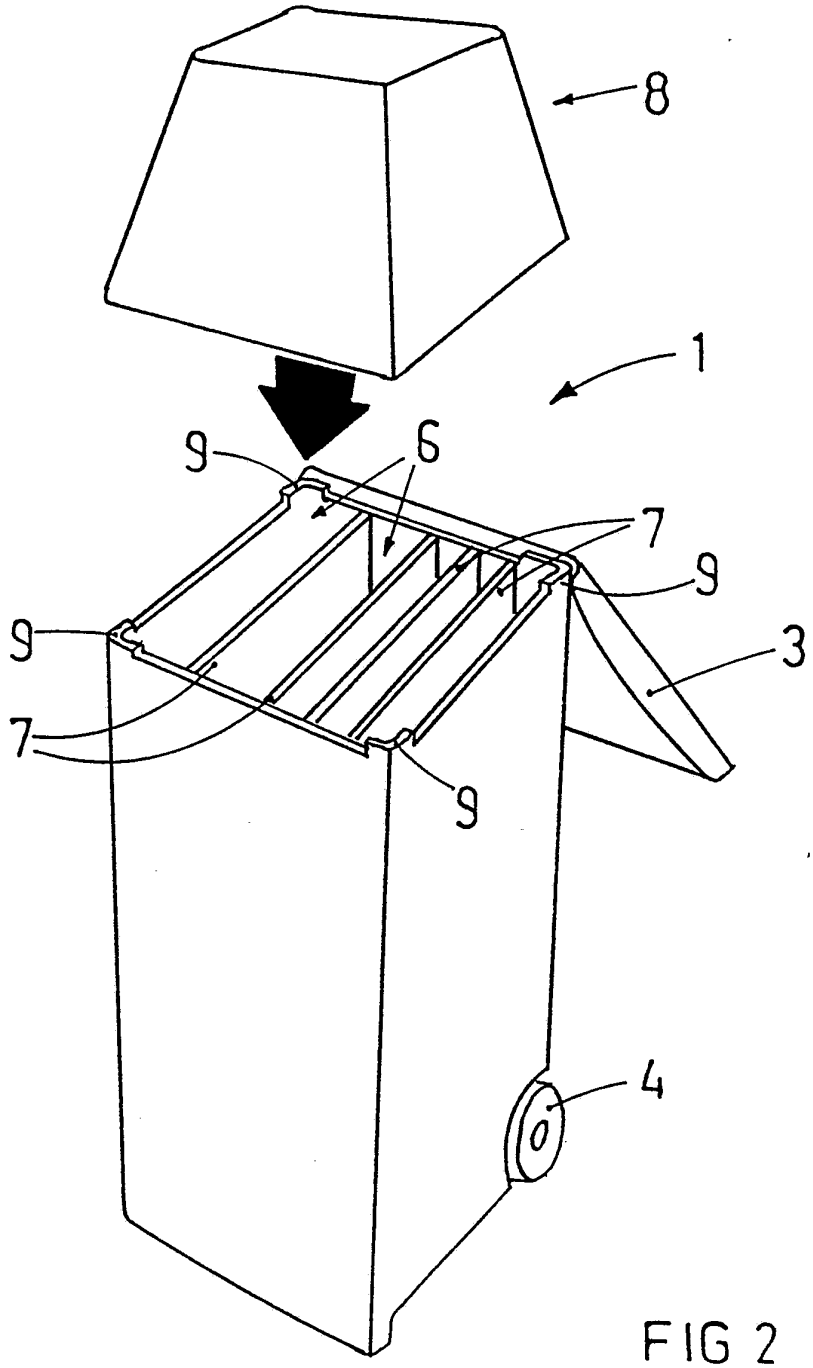


FIG 2

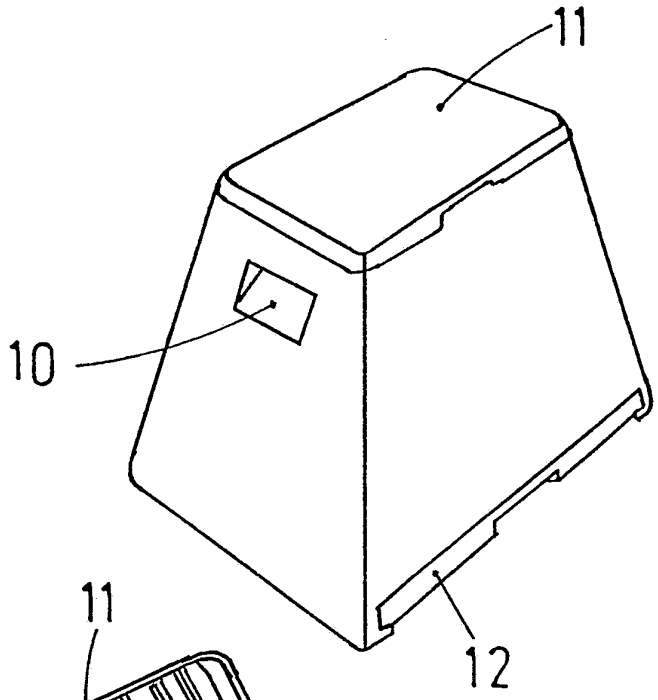


FIG 3

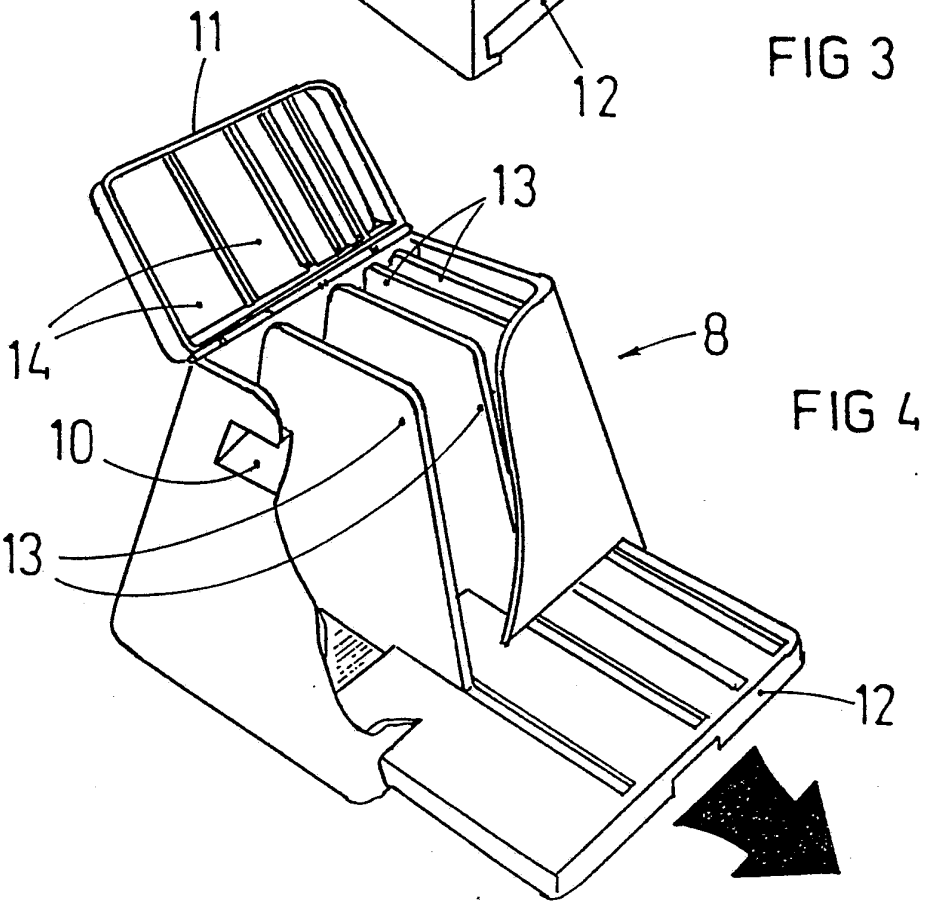


FIG 4

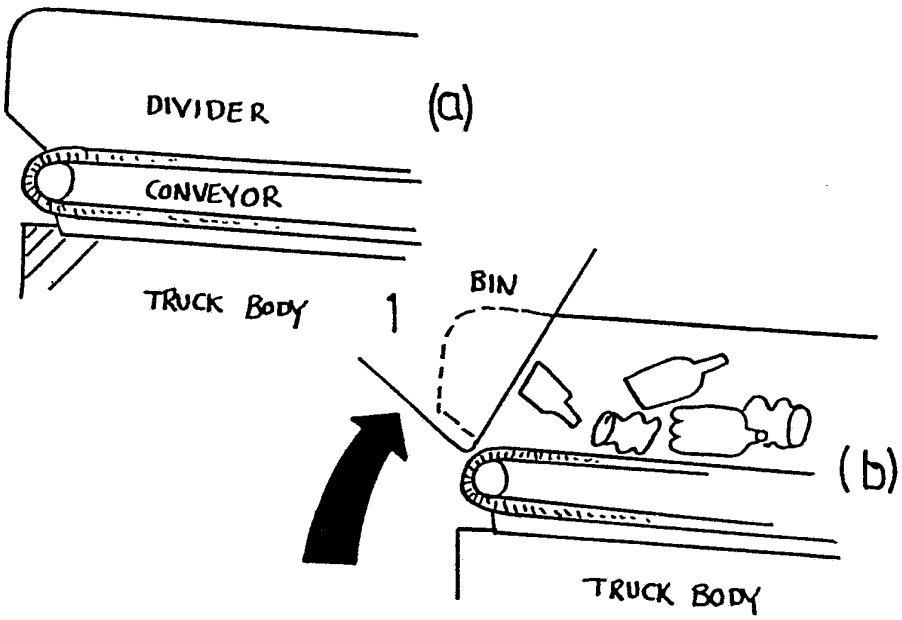


FIG 6

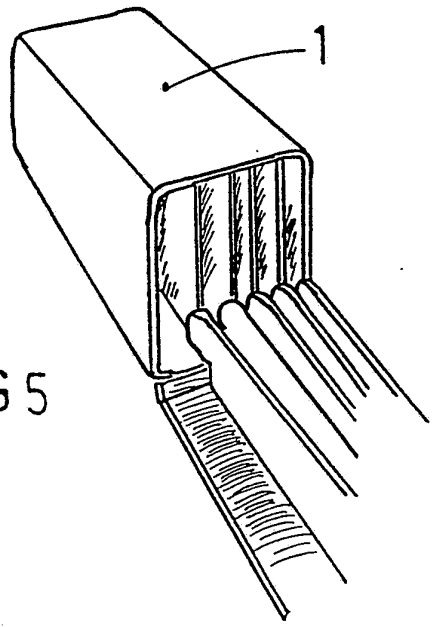


FIG 5

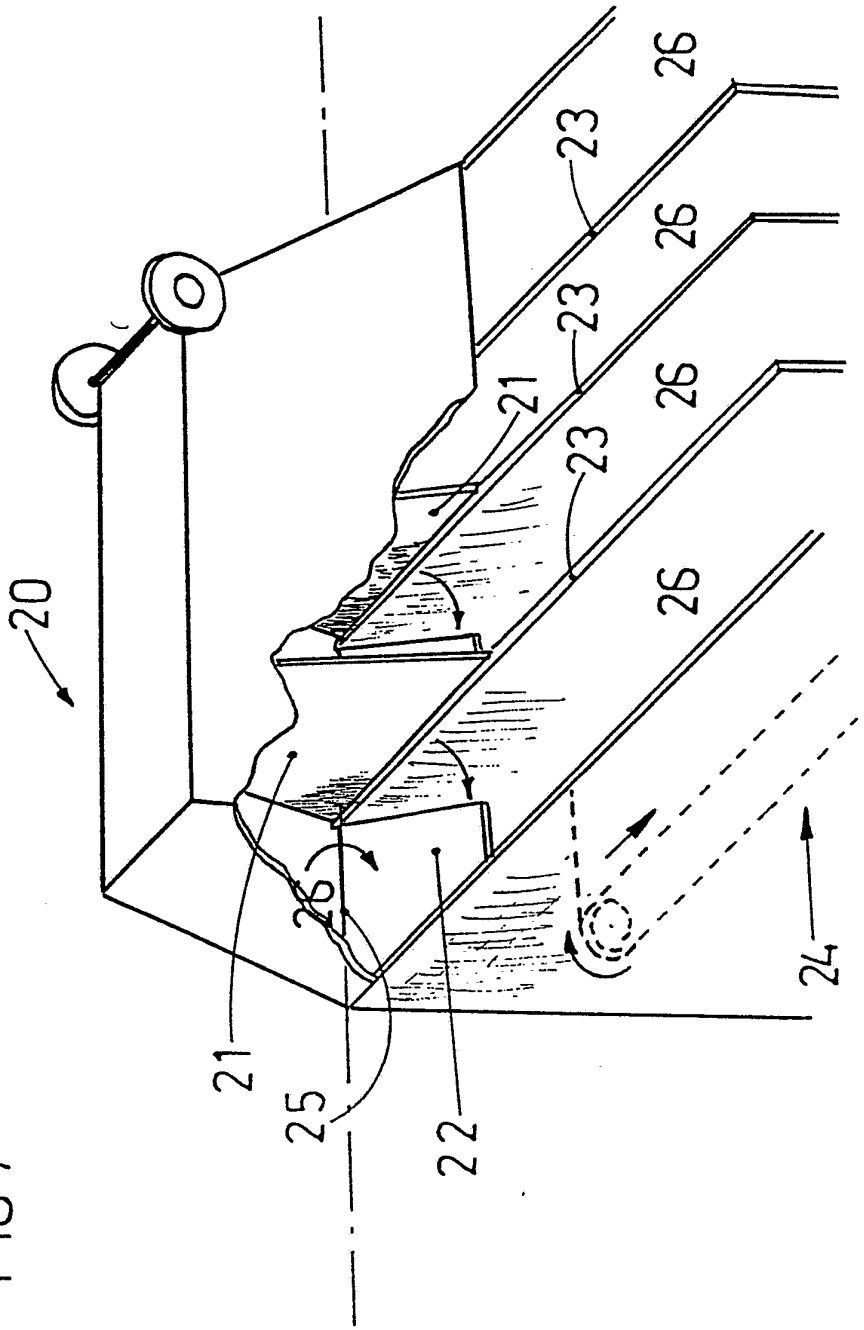


FIG 7

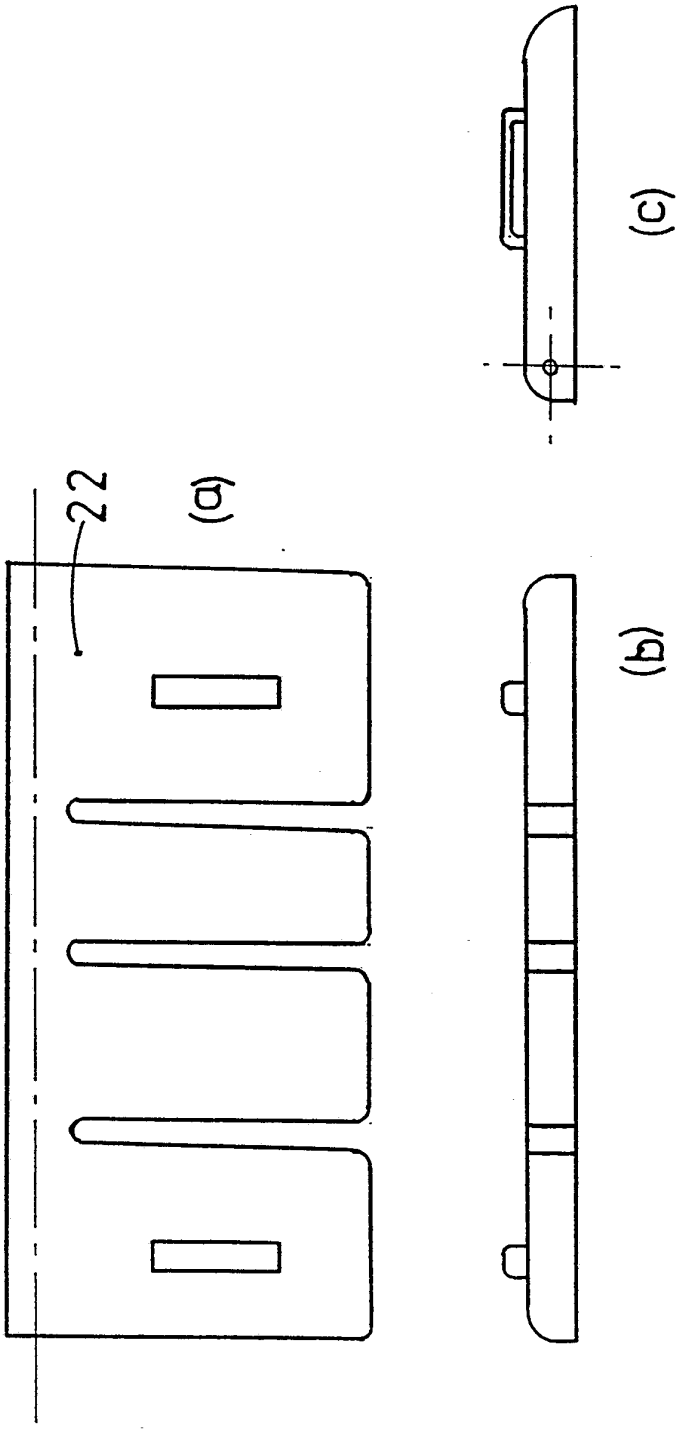


FIG 8

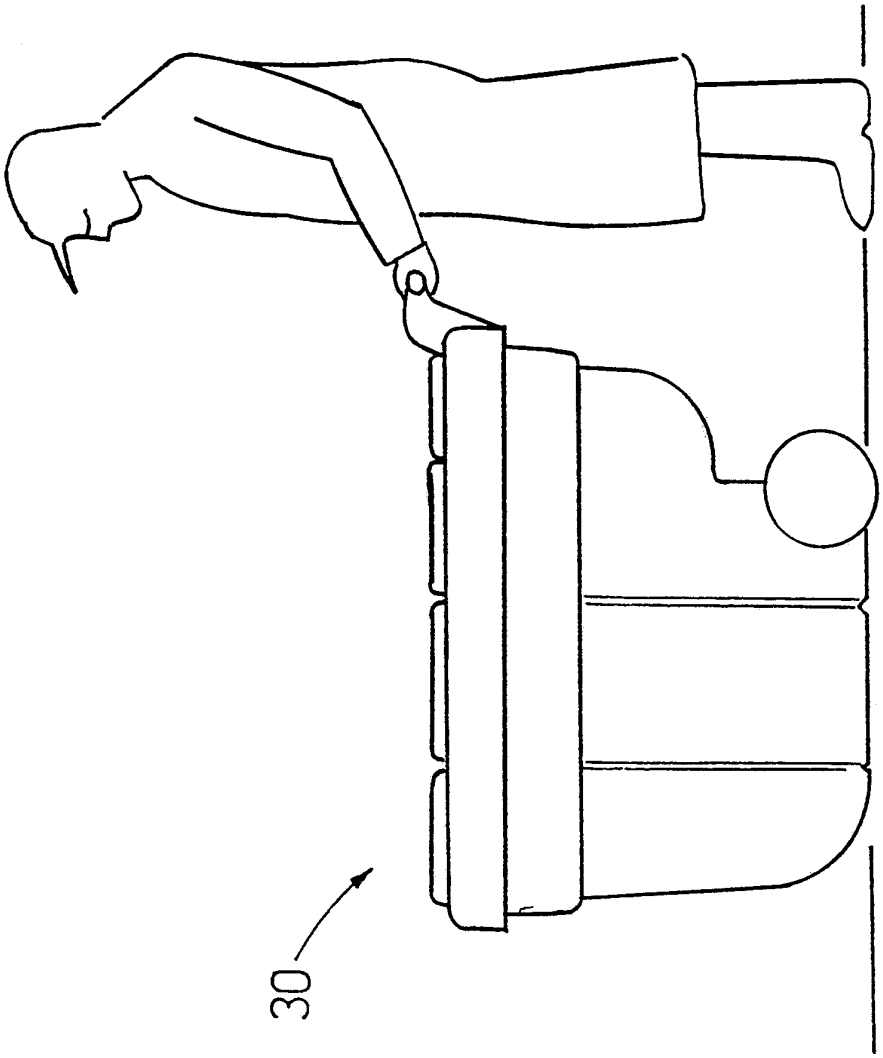


FIG 9

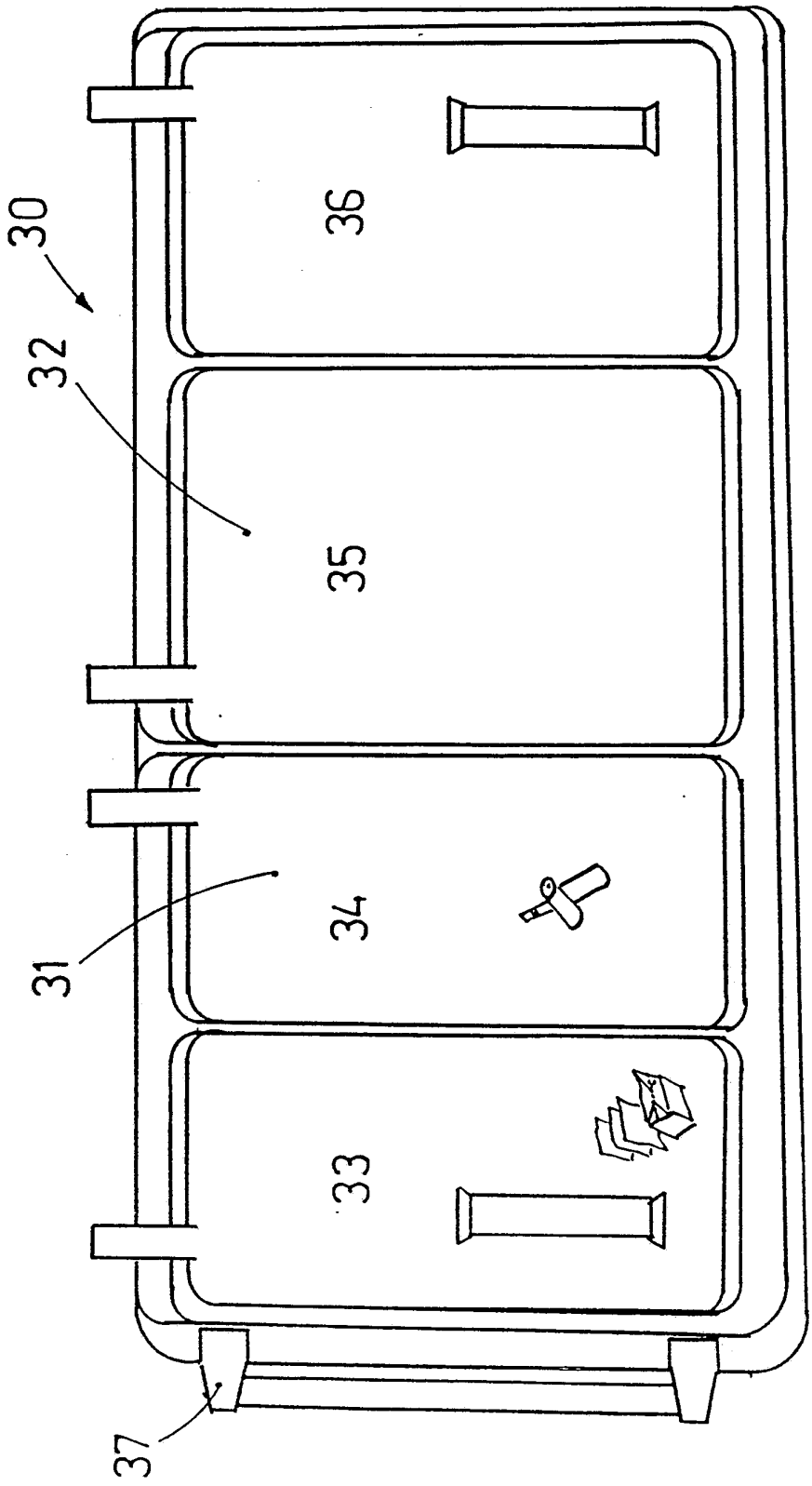
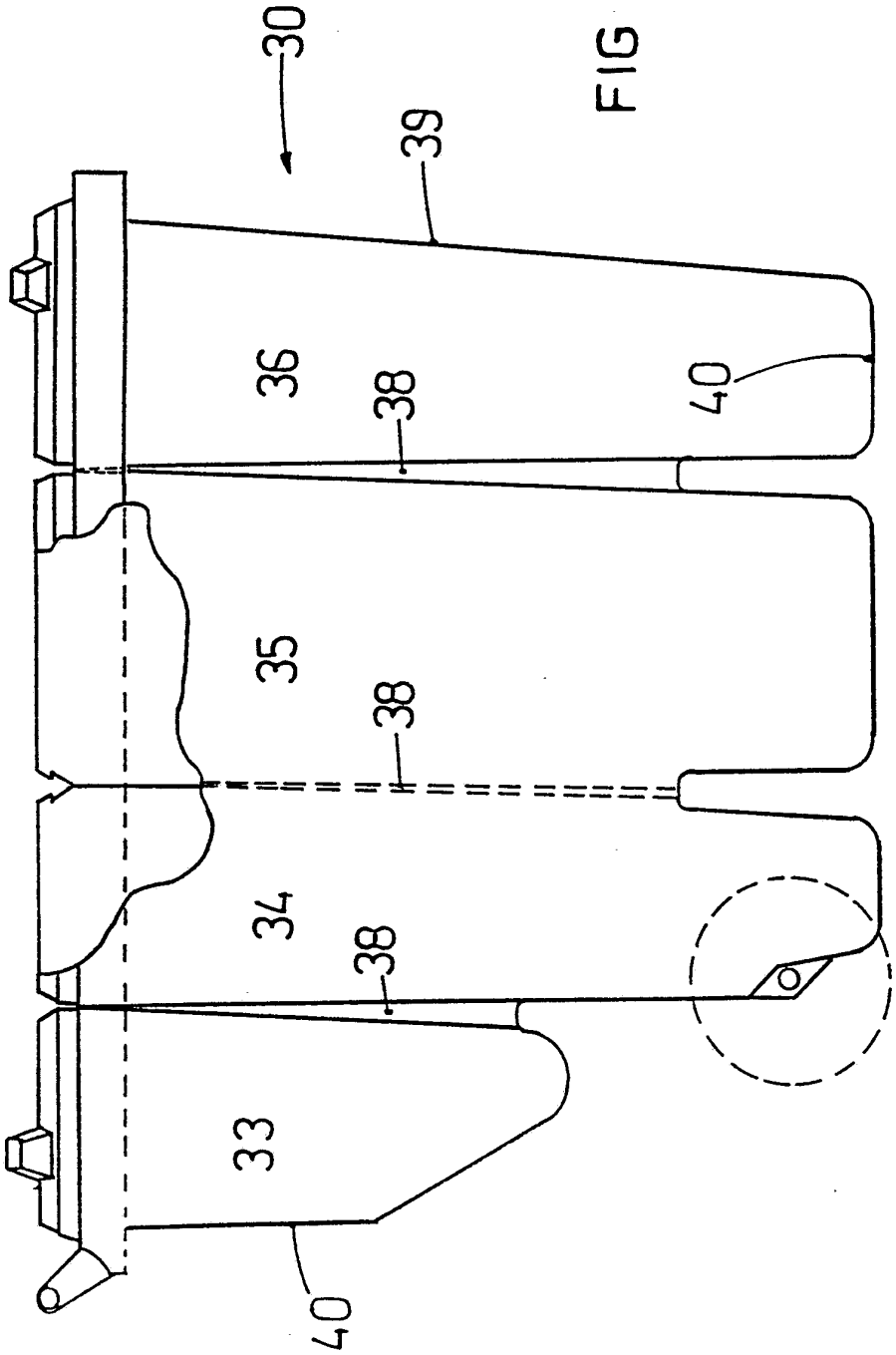


FIG 10

FIG 11



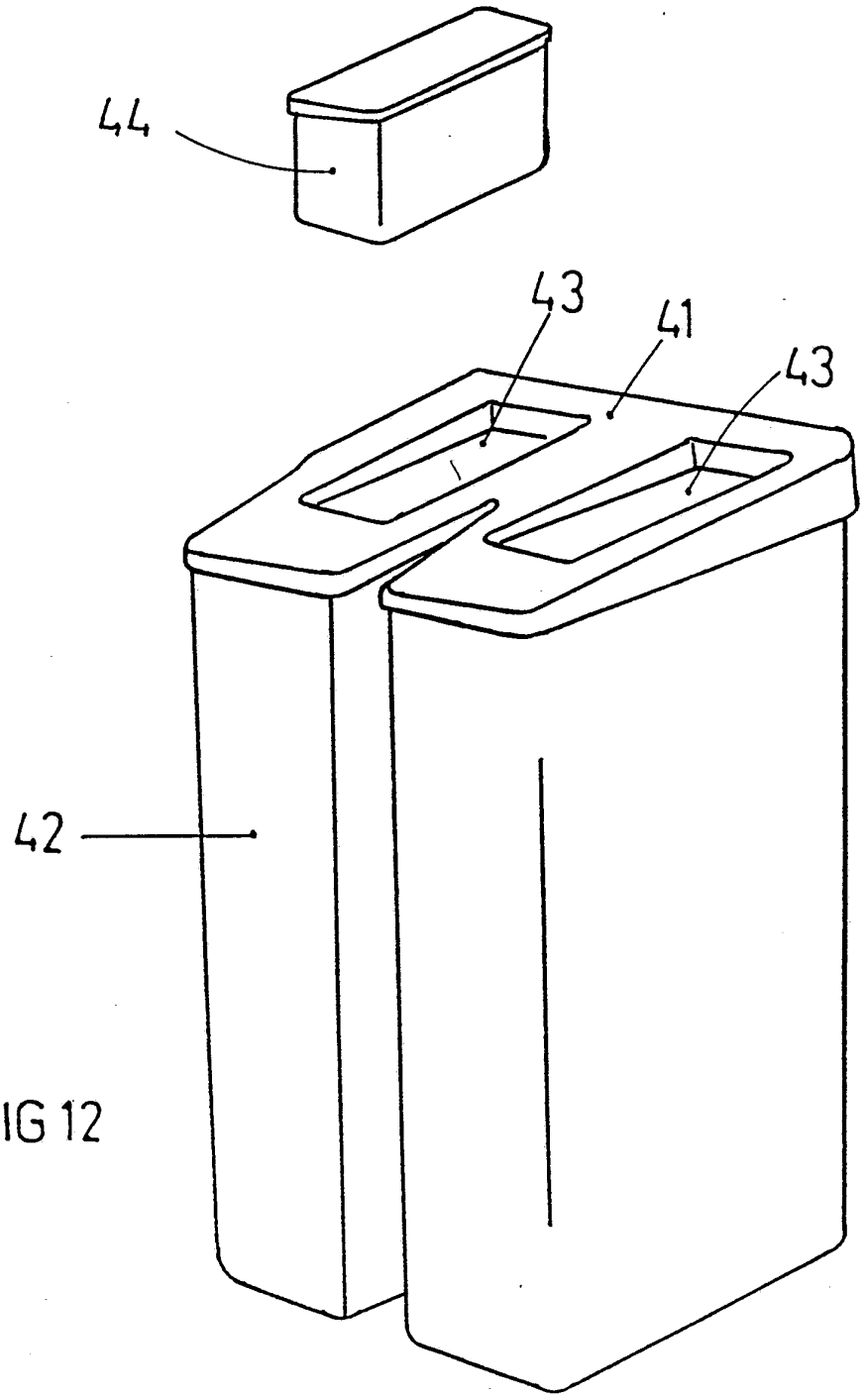


FIG 12

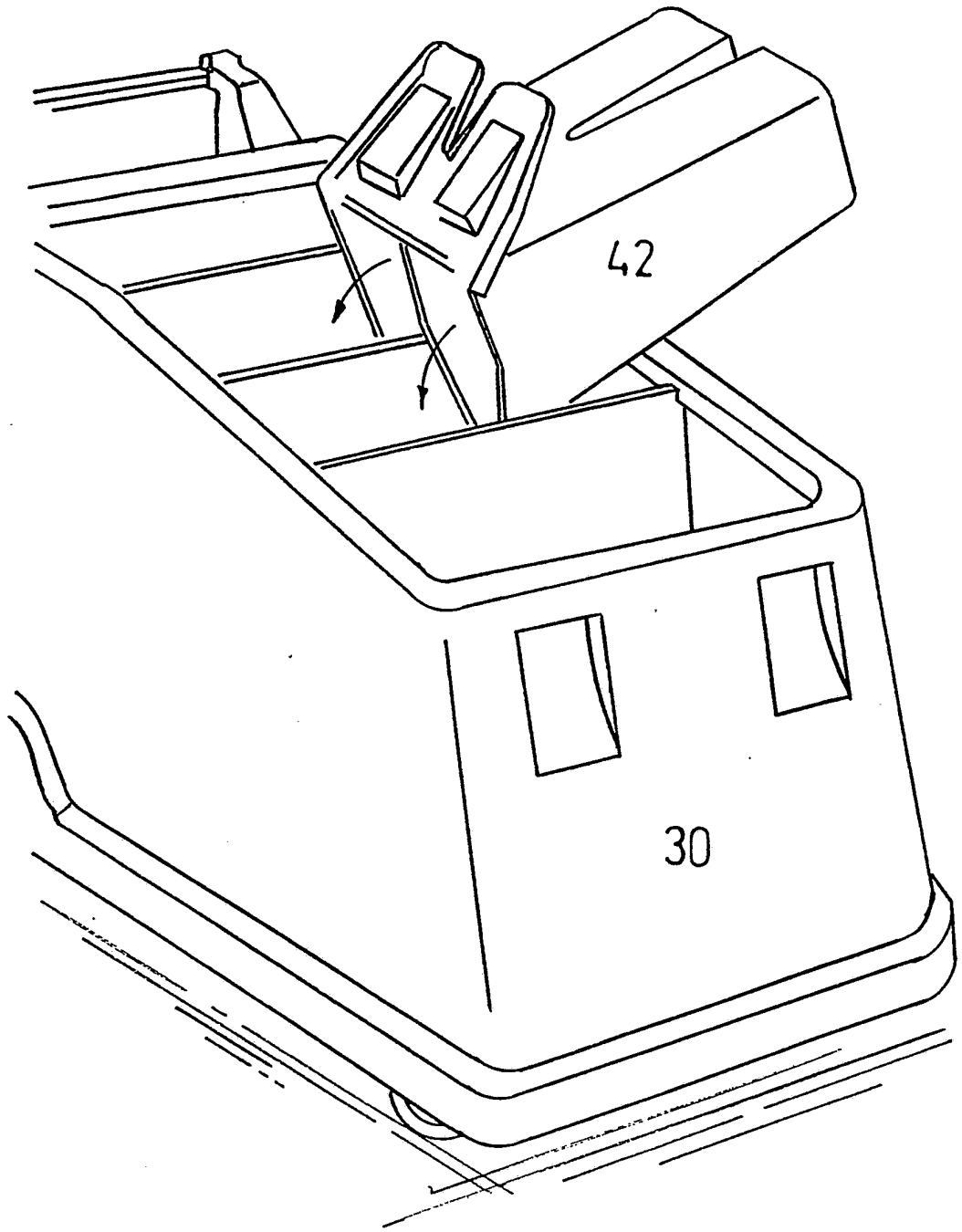


FIG 13

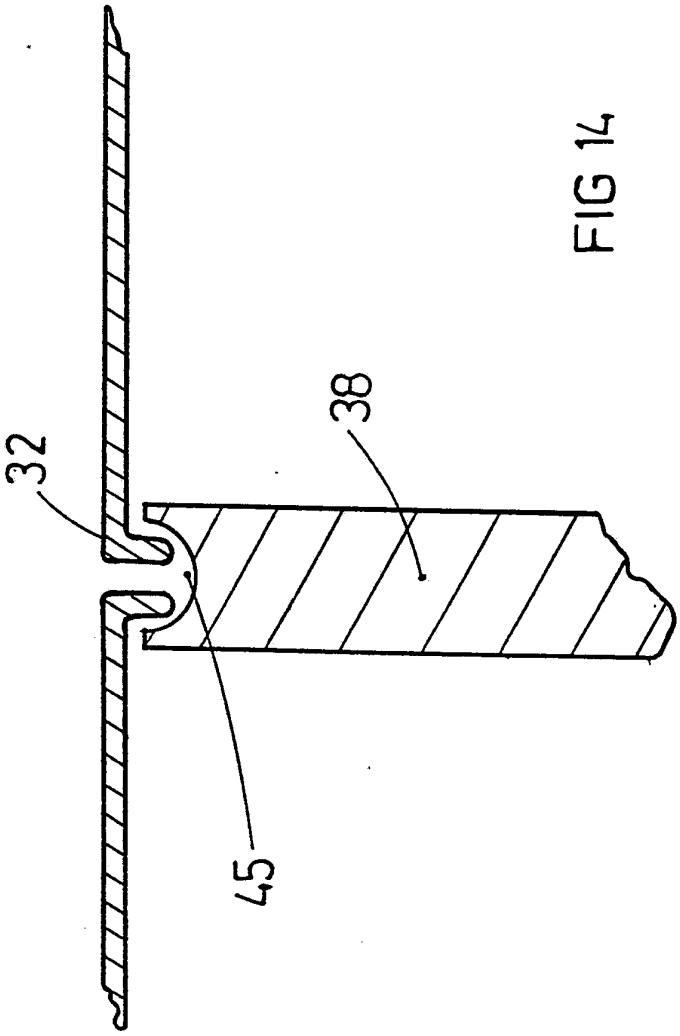


FIG 14

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU93/00142

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.[5] B66F 1/08, 1/02, 1/16, 3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC : B66F 1/08, 1/02, 3/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU : B66F 1/00 - 1/16

Electronic data base consulted during the international search (name of data base, and where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
X	DE,A, 4121442 (VC-RECYCLING--GmbH) 16 January 1992 (16.01.92) See figures 1,1a,5b. (Derwent Abstract, N92-019570)	1,2,9,10
X	DE,A, 4001717 (HOFFEND) 4 July 1991 (04.07.91) See figures 1,2,3,8. (Derwent Abstract, N91-154195)	1-10
X	DE,A, 3524781 (HESCH) 22 January 1987 (22.01.87) See figures 4,5	1-4
X	AU,A, 74229/91 (WALKER et al) 10 October 1991 (10.10.91) See figures 1-5.	1-10

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
26 May 1993 (26.05.93)	28 MAY 1993 (28.05.93)
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No. 06 2853929	Authorized officer DAVID LEE Telephone No. (06) 2832107

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate of the relevant passages	Relevant to Claim No.
X	GB,A, 2240914 (HENLEY) 21 August 1991 (21.08.91) See figures 1-16.	1-3,9,10
A,Y	AU,A, 45983/89 (BERRY et al) 14 June 1990 (14.06.90) See figures 1,2.	1
A,Y	DE,A, 4001768 (D-TEAM DESIGN GmbH) 25 July 1991 (25.07.91) See figure 9. (Derwent Abstract N91-170847)	1
A	DE,A, 3937670 (LOGISTIK-TECHNOLOGIE GmbH) 16 May 1991 (16.05.91)	

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report	Patent Family Member
DE 4121442	EP 535072 WO 9200232
DE 4001717	
DE 3524781	
AU 74229/91	
GB 2240914	
AU 45983/89	
DE 4001768	EP 511998 WO 9111376
DE 3937670	
	END OF ANNEX