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Remarks:
The application is published incomplete as filed (Article 93 (2) EPC). The point in the description or the claim(s) at which the omission obviously occurs has been left blank.

(54) Method for separately collecting waste

(57) A method for separately collecting waste, wherein the waste is collected in containers at a place where the waste is produced and subsequently carried off to a place where the final processing of the waste will take place, characterized in that the waste is collected in separate containers (1,2,3), which are substantially box-shaped, whereby the waste, once it has been collected in a particular container, is carried off in the same container and remains present therein until final processing takes place.

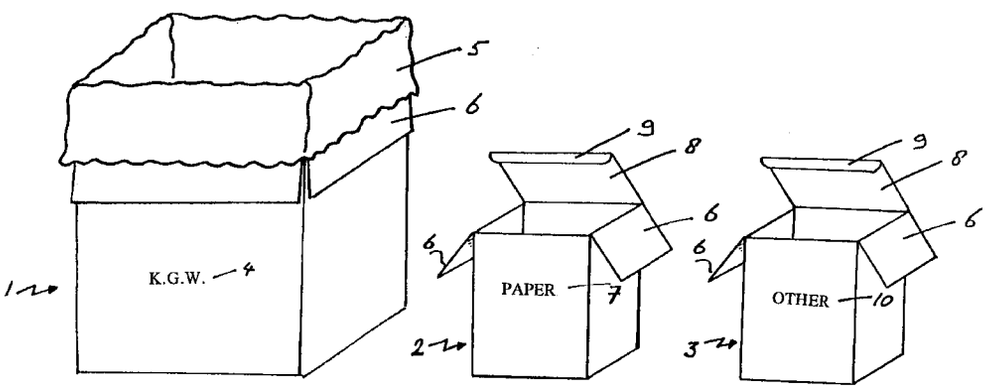

FIG. 1

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Description

The invention relates to a method for separately collecting waste, wherein the waste is collected in containers at a place where the waste is produced and subsequently carried off to a place where the final processing of the waste will take place.

According to a known method for separately collecting waste the waste is classified in the waste types compostable (putrescible waste or kitchen and garden waste) (hereinafter called KGW), paper and cardboard waste (hereinafter called paper waste) and other waste (the waste which is classified as "other waste"). The waste is thereby collected in containers at the place where it is produced. The main part of the waste, which is classified as other waste, is thereby collected in a plastic waste bag, which is present in a holder. Once a sufficient amount of waste has been collected in the waste bag, said waste bag is carried off, possibly after interim storage, to the place where the final processing will take place. The KGW is collected in a separate container and is transferred to a larger container, possibly after interim storage, by emptying the former container therein, after which the waste is carried off separately, possibly after interim storage, to a place where the final processing of the waste will take place. After the paper waste has been collected, it is preferably placed in stacks, and carried off separately in bundles after being tied together by means of a string.

The drawback of this known method for separately collecting waste is that the waste is easily mixed with other waste. Once a waste bag has been taken from its holder, it is easily damaged and torn open, as a result of which the waste can easily be mixed with other waste. Also waste which is collected in a separate container the invention the waste remains present in the container until final processing is completed. The advantage of this is that there is no return flow of empty waste containers to the place where the waste is produced, which enhances efficiency. With this embodiment it is important that the container be made of a material which is easy to process, for example (recycled) cardboard.

According to another embodiment of the method according to the invention the container is sealed before it is carried off. The advantage of this is that it can be guaranteed until the moment the container is opened for final processing what its contents are.

According to yet another embodiment of the method according to the invention the containers are placed in several departments of a business. This makes it possible to collect the waste separately at each department. In combination with another embodiment of the method according to the invention the waste can be classified into various waste types in that case, and be collected separately for each individual type of waste in containers which have been differentiated according to the type of waste. Possible types of waste into which the waste can be classified are for example: paper and cardboard waste; kitchen and garden waste; glass waste; meat waste; batteries and electrical waste; chemicals and paint waste; pharmaceutical waste; metal waste; other waste. The containers can thereby be differentiated according to the type of waste, in particular according to one of the following characteristics: dimensions; colour; print; type of material.

According to another embodiment of the method according to the invention the dimensions of the containers are differentiated according to the amount of waste of a particular type which is produced at a particular place, whereby the dimensions of the containers are always a natural multiple of each other. As a result of this it can be achieved that the containers of the various types of waste will all be full at the same time, whilst the containers can be readily stacked in spite of the fact that their dimensions are different.

Further embodiments and aspects of the invention, which may be used both separately and in combination with each other, are disclosed in the description of the figures and defined in the claims.

The invention also relates to a container to be used with a method according to the invention. In a preferred embodiment the container is in the form of a cardboard box comprising an inner bag of plastic material, which is provided with an odour-free closure. More in particular said cardboard box is made of one cardboard flat sheet. The advantage of this is that the transport and storage space of the boxes in the form of flat sheets is minimized. The minimal storage volume of unused flat boxes makes it possible to accommodate sudden peaks in the production of waste material. Each container according to the invention is ready for direct use. As a matter of fact the present containers meet the hygiene requirements according to the so-called HACCP standard, as a result of which the risk of cross-infection between containers present in one room or in rooms which have communication with each other has been reduced to a minimum.

For a better understanding of the invention a preferred embodiment of the method for collecting waste will be discussed hereafter with reference to the drawing.

In the drawing:

- Figure 1 shows containers for collecting waste at the vegetable department of a department store;
- figure 2 shows containers for collecting waste at the do-it-yourself department of a department store;
- Figure 3 shows containers for collecting waste at the pharmaceutical department of a department store;
- Figure 4 shows containers for collecting waste at the meat department of a department store.

The Figures are merely diagrammatic representations of the embodiment.

In department stores waste is separately collected

at the place where it is produced, for example directly behind the counter of a department. A number of box-shaped containers are placed in various departments of the department store for that purpose, in which containers the waste is collected. A department may count more than one place where one or more containers are placed. The figures show containers for collecting waste which are used for collecting waste at the vegetable department (Figure 1), the do-it-yourself department (Figure 2), the pharmaceutical department (Figure 3) and the meat department (Figure 4). For easy reference only a limited number of waste types and departments are distinguished in the example.

Figure 1 shows the containers which are placed in the vegetable department of a department store. The waste which is produced at this department is classified into waste types KGW (kitchen and garden waste), paper waste (paper and cardboard waste) and other waste. The waste is separately collected according to the type of waste in containers 1, 2 and 3 respectively, which are placed in the department and which are box-shaped. The containers are self-contained, that is, they form an independent unit and no aids are required for keeping them in position. The containers are differentiated as to dimensions, colour, print and type of waste. Container 1 is intended for collecting KGW, it is provided with the print "KGW" 4 and is made of wax-impregnated cardboard. The container is furthermore provided with a watertight inner lining 5, for example of a biodegradable plastic. The colour of the container is green. The container can be closed by means of flaps 6. From a range of dimensions "small", "medium" and "large", dimension "large" has been selected for container 1, since a relatively large amount of KGW is produced at the vegetable department. Container 2 is intended for collecting paper waste, it is made of recycled cardboard and it is provided with the print "paper" 7. Container 2 can be closed by means of flaps 6 and lid 8 comprising lip 9. Since the amount of paper waste produced per time unit at the vegetable department is smaller than the amount of KGW, dimension "medium" has been selected for container 2. Container 3 is intended for collecting other waste and is coloured black. Container 3 is provided with the print "other" 10. The other properties of container 3 are identical to those of container 2.

In Figure 2 containers 11, 12 and 13 can be distinguished, which are used for collecting waste at the meat department of the department store. The waste which is produced at the meat department is classified into waste types meat waste, paper waste and other waste. The meat waste is collected in container 11, which is identical to container 1 of the vegetable department, print 14 reads "meat", however, and the colour is pink. Container 12 is used for collecting paper waste. Container 12 is identical to container 2 of the vegetable department. Also in the meat department the dimensions of the containers are selected according to the respective amounts of meat waste, paper waste and other waste that are produced.

In Figure 3 containers 15, 16 and 17 are distinguished, which are used for collecting waste at the pharmaceutical department. At this department waste is classified into the types paper waste, pharmaceutical waste and other waste. The paper waste is collected in container 15, which, except for its dimensions, is identical to the paper waste container 2 which is used at the vegetable department. Dimension "large" has been selected for this container, in connection with the amount of paper waste which is produced at the pharmaceutical department. Furthermore container 17 is placed in the pharmaceutical department, in which container pharmaceutical waste is collected. This container is provided with a safety lid 18, which is provided with recesses 19, through which rejected medicine can be disposed into the container. The container is coloured bright yellow and is provided with the print "TOXIC" 20. Dimension "small" has been selected, obviously in dependence on the extent to which pharmaceutical waste is produced at the pharmaceutical department. In connection with the required resistance to chemical substances the container intended for pharmaceutical waste is made of plastic material. Container 16 is used for collecting other waste. Container 16 is identical to container 3 of the vegetable department.

Figure 4 shows containers 21, 22, 23, 24 and 25, which are used for collecting the waste produced at the do-it-yourself department. At this department waste is classified into wood waste, metal waste, paper waste, batteries and electrical waste and other waste. Container 21 is used for collecting wood waste. Container 21 is made of wood and is strengthened by means of a steel frame 26. Container 21 has a lid 27, which is provided with hinges 28 and with catches 29. In connection with the weight of container 21, recessed grips 30 are furthermore present on either side of the container. The container is coloured brown and carries the print "wood" 31. In connection with the extent of the flow of wood waste which is produced at the do-it-yourself department, dimension "large" has been selected for this container. Container 22 is used for collecting metal waste. This container is blue and carries the print "metal" 32. With the exception of the colour, the print and the dimension container 22 is identical to container 21. In connection with the weight of metal and with the amount of metal waste that is produced at the do-it-yourself department, dimension "medium" has been selected for this container. Container 23 is used for collecting paper waste. Container 23 is identical to container 2 of the vegetable department. Container 25 is used for collecting batteries and electrical waste. Container 25 is identical to the container 17 that is used at the pharmaceutical department, it is coloured orange, however, and carries the print "bat.". Container 24 is used for collecting other waste. Container 24 is identical to container 3 of the vegetable department.

The relative dimensions of the containers used at

the various departments have been selected such that it is possible that the containers will be full at practically the same time, for example within one day. When the containers are full, or when the moment of collection has come, the containers are carried off to a place where the final processing of the waste will take place. Containers of the various waste types are carried off simultaneously and without being separated and without the waste being transferred to another container. Possibly the containers are sealed (in particular to make them odour-free), and the origin of the containers is registered. Once the waste has been put in a particular container, it will remain in the same container during transport, therefore.

The containers are carried off by means of an ordinary flat lorry. The relative dimensions of the various containers "small", "medium" and "large" have been selected such that the various dimensions are always a natural multiple of each other, that is, 8 "small" containers can be stacked to comprise the dimension of 1 "medium" container, and 8 "medium" containers can be stacked to comprise the dimension of 1 "large" container. The container system is a "modular" system, therefore.

When the waste has arrived at final processing site, the waste will still be present inside the container in which is was originally collected. At the final processing site some containers, for example the containers 2, 15 for paper waste and container 1 for GKW waste, will be processed along with the waste. There will be no return shipment of said containers, therefore. Other containers, such as the containers for wood waste 21 and metal waste 23, will be reused. Consequently there will be a return shipment of said containers. When the waste containers are being collected, empty containers, new ones and recycled ones, are brought along, which containers will be placed in the various departments again.

The illustrated embodiment is to be considered as a mere example, the invention may also be implemented in many other ways.

Claims

1. A method for separately collecting waste, wherein the waste is collected in containers at a place where the waste is produced and subsequently carried off to a place where the final processing of the waste will take place, characterized in that the waste is collected in separate containers, which are substantially box-shaped, whereby the waste, once it has been collected in a particular container, is carried off in the same container and remains present therein until final processing takes place.

2. A method according to claim 1, wherein the waste remains present in the container until final processing is completed.

3. A method according to claim 1 or 2, wherein the container is sealed before it is carried off.

4. A method according to any one of the preceding claims 1 - 3, wherein the containers are placed in several departments of a business.

5. A method according to any one of the preceding claims 1 - 4, wherein the waste is classified into waste types, and collected separately for each individual type of waste in containers which have been differentiated according to said type of waste.

6. A method according to claim 5, wherein the waste is classified into at least one of the types of waste from the range comprising:

   - paper and cardboard waste;
   - kitchen and garden waste;
   - glass waste;
   - meat waste;
   - batteries and electrical waste;
   - chemicals and paint waste;
   - pharmaceutical waste;
   - metal waste;
   - other waste.

7. A method according to claim 5 or 6, wherein the containers are differentiated according to the type of waste with regard to at least one of the characteristics from the range comprising:

   - dimensions;
   - colour;
   - print;
   - type of material.

8. A method according to claim 7, wherein the dimensions of the containers are differentiated according to the amount of waste of a particular type which is produced at a particular place, whereby the dimensions of the containers are always a natural multiple of each other.

9. A container to be used with the method for collecting waste according to any one of the preceding claims 1 - 8.

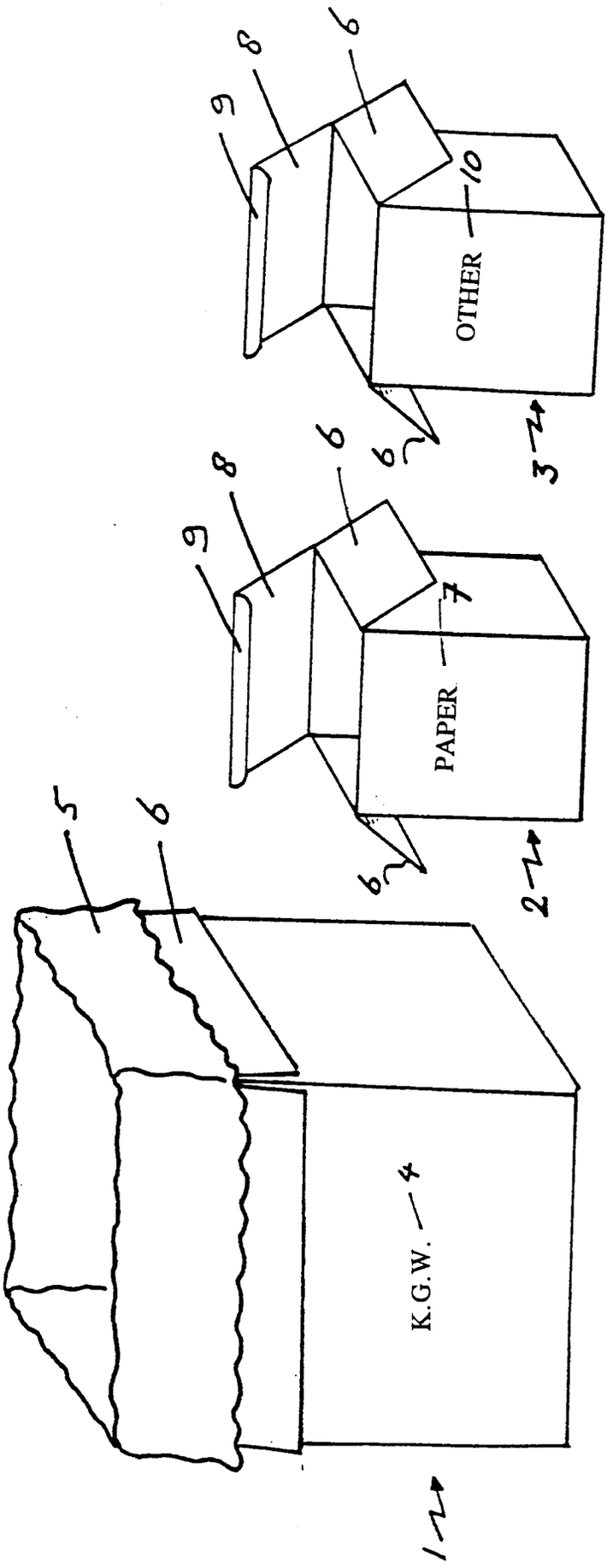

FIG. 1 / 4

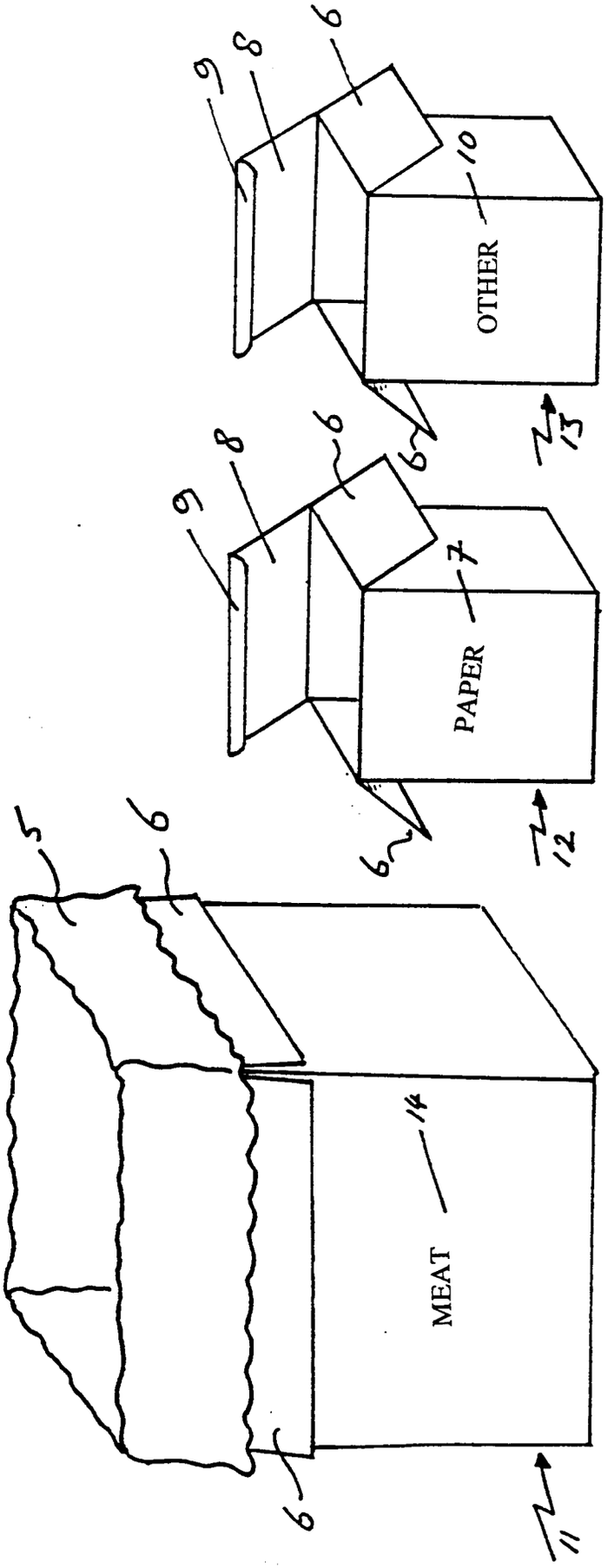

FIG. 2 / 4

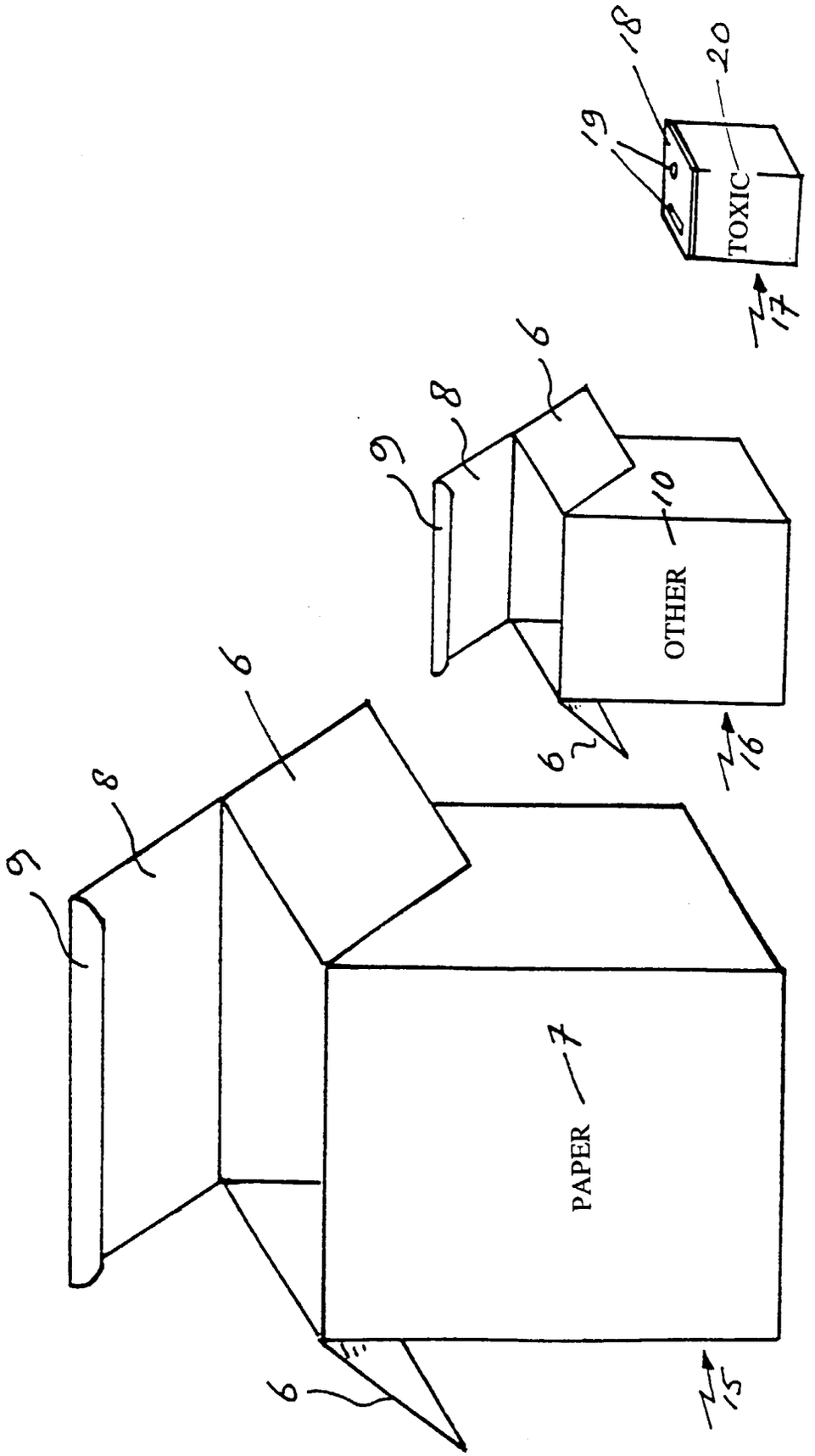

FIG. 3 / 4

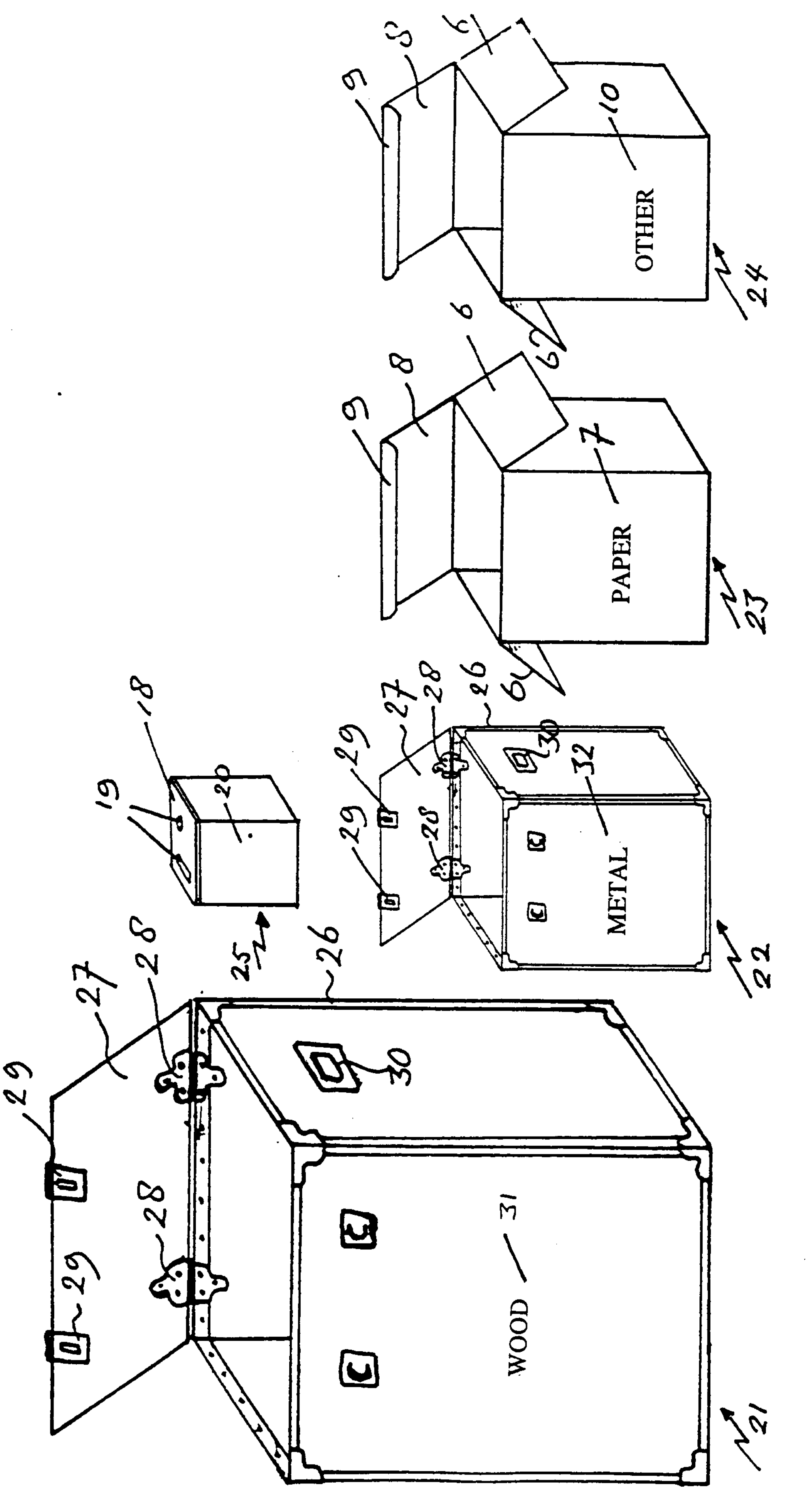

FIG 4 / 4

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EUROPEAN SEARCH REPORT

Application Number
EP 98 20 0033

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.6)
X	DE 41 34 451 A (R. WÜRTZ) 16 July 1992	1,2,5-7, 9	B65F1/00
Y	* column 4, line 24 - column 5, line 41 * * figures 1-3 *	3,4,8	
Y	FR 2 684 360 A (SCA PROMOTION FRANCE) 4 June 1993 * the whole document *	3,4,8	
X	US 5 425 456 A (S. ERICKSON) 20 June 1995 * column 10, line 50 - column 11, line 31; figures 1,2 *	1-3,5-7, 9	
X	WO 96 31296 A (ALTAMONT, INC.) 10 October 1996 * page 9, line 8 - page 15, line 6; figure 1 *	1,2,5-7, 9	
X	DE 33 28 827 A (BATTELLE-INSTITUTE E.V.) 28 February 1985 * the whole document *	1-3,9	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
X	DE 44 16 082 A (I. KLAUSE) 9 November 1995 * claim 1 *	1,2,9	B65F
X	US 5 072 833 A (D. HANSEN ET AL.) 17 December 1991 * column 7, line 64 - column 8, line 34 *	1,2,9	
X	WO 91 01818 A (PLASTICS RECOVERY, INC.) 21 February 1991 * page 4, line 30 - page 6, line 24; figure 1 *	1,2,9	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	11 May 1998	Smolders, R

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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