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(54) DEVICE AND METHOD FOR STORING AND TRANSPORTING WASTE PRODUCTS

VORRICHTUNG UND VERFAHREN ZUR LAGERUNG UND ZUM TRANSPORT VON MÜLL

DISPOSITIF ET PROCEDE DE STOCKAGE ET DE TRANSPORT DES DECHETS

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DE-U- 8 714 214 **US-A- 4 878 592**

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Description

The invention relates to a device for separate storage and combined transport of sorted waste products, in particular household refuse, comprising a primary holder which is open on at least the top side and one standing side and closable by closing means and which has at least two separate compartments, one of which is accessible from the open top side and the other of which is accessible from the open standing side, the compartments being separate secondary holders arranged removably in the primary holder. A device having all these features, although not intended for separate storage and combined transport of sorted waste products is known from the German Utility Model DE-U-8714214.

This known device is a fixed wardrobe for storing disposable protective clothing prior to its use in a clean room. This wardrobe has two removably arranged pivotable holders opening to the front side of the wardrobe, and a box-like holder removable arranged in a frame on top of the wardrobe, and covered by a lid covering the entire device. The lid has a separate opening giving access to the box-like holder, which is closable by a separate cover. The box-like holder may alternatively be slidably arranged in the frame on top of the device, and thus be removable through the side face of the device. Although this known device is primarily meant for storing clean clothing, it is stated in this prior art document that at least one of the holders may be used for storing dirty and stained clothing after use.

The increasing concern for the environment has recently resulted in intensified interest for the manner in which the continually growing waste product flows are processed. One of the most important components of the waste flows is household refuse. At the present time most households collect all the household refuse in one common holders, for instance a refuse bag or bin, which is then processed by a sanitation department. This method of collecting or processing household refuse entails great drawbacks and is to a large degree environmentally unfriendly.

Household refuse comprises a great number of different components, each of which requires a different treatment. Household refuse can generally be divided into waste products which are environmentally harmful, waste products which are not environmentally harmful and substances which can be recycled. The drawback of tendering all those waste products together for processing is that those materials which are recyclable are lost, which results in an unnecessarily high consumption of (scarce) raw materials. At the same time, because of the combined collection and processing, harmful waste products are released into the environment.

The invention therefore has for its object to provide a device with which waste products, specifically household refuse may be sorted according to type, collected in separate holders and transported together, e.g. to the

curbside, where the separate holders may be removed from the device and emptied in for instance a collection vehicle. According to the invention, this is achieved by modifying the known device as described in the preamble of claim 1, such that the secondary holder arranged in the top side is removable in an upward direction, the secondary holder arranged in the standing side is mounted slidably in lying guide means, and in that rotatable transport means are arranged close to its underside. This arrangement of the secondary holders provides for easy filling and unloading thereof, while the provision of transport means makes the device suitable for use in a household refuse collection system.

It should be noted that from the German Offenlegungsschrift DE-A-3531554 a transportable refuse holder is known having separate compartments for collecting waste products sorted according to type and offering the thus separated waste products to a sanitation department for processing. The separate compartments of this device are separated by a fixed or movable partition wall, and the device can therefore only be emptied into a special collection vehicle in which the location of the unloading device relative to the separate vehicle compartments must be adapted to the constructions and dimensions of the device. Furthermore, the separate compartments of this known device are particularly difficult to clean, which is a disadvantage from a public health point of view.

In a possible embodiment of the invention, the primary holder has a bend about halfway down and the open side is oriented at least substantially transversely of the upper part. This improves the accessibility and stability of the device.

In yet another embodiment of the invention at least one of the secondary holders is provided with a separate, child-proof closing member.

The invention further relates to a method for separate storage and combined transport of sorted waste products, in particular household refuse, comprising sorting the waste products according to type and depositing the sorted waste products into separate compartments of a device according to the invention. Chemical waste products are preferably deposited into a closable compartment of the device.

Mentioned and other features of the invention are further elucidated hereinafter with reference to the annexed drawing, in which corresponding reference numerals designate corresponding components and wherein:

- fig. 1. shows a dismantled view of a first embodiment of the device according to the invention;
- fig. 2. shows a view of this embodiment when assembled;
- fig. 3. is a view of a second embodiment of the device according to the invention; and
- fig. 4. is another view of this embodiment.

A primary holder 1 comprises a standing frame 2 and plates 3, 4, 5 fixed thereto (fig. 1). On the top side the frame 2 has openings 6, which give access to separate compartments of the holder 1. The compartments are formed by secondary holders 7 arranged removably in the openings 6. The secondary holders 7 comprise standing dividing means 8 and lying dividing means 9.

The primary holder 1 is provided on the top side with first closing means 10 consisting of a covering plate 11, which is provided with a hand-grip 12 and edges 20 gripping round the holder 1 and which is mounted swivellably about a lying axis in bearing means 13 fixed on the plate 5.

The primary holder 1 has a bend about halfway and the upper part of the frame 2 and the secondary holders 7 arranged therein are oriented transversely of the upper part of the first holder 1. Below the bend the frame 2 has lying guide means 14, in which secondary holders 15 are mounted slidably. The primary holder 1 is provided underneath the bend and adjoining the plate 4 with second closing means 16 consisting of two doors 17 provided with hand-grips 18 and mounted swivellably about a standing axis in bearing means 19 fixed on the plates 3.

The device displays a first gripping member 21 fixed directly on the upper and lower part of the frame 2, which member is provided on the underside with lying shafts 22 on which transport means 23 are rotatably mounted. The transport loads on the device are thus admitted directly into the frame 2.

When domestic refuse is stored and transported in the household with the method according to the invention, the user sorts the waste products according to type, whereafter the first and second closing means 10, 16 of the primary holder 1 are opened and the secondary holders 15 for use are pulled outward over the guide means 14 (fig. 2). The secondary holders 7, 15 are filled with the correct waste products, wherein an information carrier, for instance instructions for use, arranged on the inside of the closing means 10, 16, makes it clear to the user in which of the secondary holders 7, 15 the waste products should be deposited. Harmful waste products, so called small chemical waste, are deposited in a holder 24 arranged as high as possible in the device and provided with a separate, child-proof closing member 25.

After use the closing means 10, 16 are closed and the device can be transported by being tilted by means of the gripping member 21 so far backward that the front part of the device leaves the ground and the device can be moved by rolling, using the transport means 23.

When the transport means 23 are mounted about a single lying shaft 22', which is arranged between flanges 26 fixed on the plate 5 (fig. 3), a device is obtained with a minimal total width. In this embodiment of the device, the hand-grip necessary for handling the device is formed by a second gripping member 27 lying in the main plane of the upper part of the frame 2.

When it is not being transported, the device stands on a number of elongate supporting bodies 28 arranged on the underside of the frame 2 (fig. 4) which are formed such that the device can stand stably thereon and can still be tilted without undue exertion when it has to be transported.

The embodiments of the device shown in the drawing have the following advantages:

- through the use of separate compartments it is possible to collect waste products sorted according to type whereby recycling is encouraged and the release of harmful waste products into the environment is prevented;
- because the compartments are embodied as removable secondary holders, the device is simple to empty and to clean;
- because the primary holder displays a bend and the upper part thereof faces forward, the centre of gravity in the rest position is practically straight above the supporting bodies, which helps stability, and in the tilted transporting position it is practically straight above the transport means whereby the device is simple to transport;
- because the holder for harmful waste products is placed as high as possible in the device and provided with a child-proof closing member, it is virtually impossible for children to come into contact with harmful waste products.

Claims

1. Device for separate storage and combined transport of sorted waste products, in particular household refuse, comprising a primary holder (1) which is open on at least the top side and one standing side and closable by closing means (10,16) and which has at least two separate compartments, one of which is accessible from the open top side and the other of which is accessible from the open standing side, the compartments being separate secondary holders (7,15) arranged removably in the primary holder (1), **characterized in that** the secondary holder (7) arranged in the top side is removable in an upward direction, the secondary holder (15) arranged in the standing side is mounted slidably in lying guide means (14), and in that rotatable transport means (23) are arranged close to its underside.
2. Device as claimed in claim 1, **characterized in that** the primary holder (1) has a bend about halfway down and the open side is oriented at least substantially transversely of the upper part.
3. Device as claimed in claim 1 or 2, **characterized in that** at least one (24) of the secondary holders (7,15) is provided with a separate, child-proof closing member (25).

4. Method for separate storage and combined transport of sorted waste products, in particular household refuse, comprising sorting the waste products according to type and depositing the sorted waste products into separate compartments of a device as claimed in any of the foregoing claims. 5
5. Method as claimed in claim 4, **characterized in that** chemical waste products are deposited in a closable compartment (24) of a device as claimed in claim 3. 10

Patentansprüche

1. Vorrichtung zum gesonderten Lagern und kombinierten Transport von sortierten Abfallprodukten, insbesondere von Haushaltsabfall, mit einem ersten Halter (1), der zumindest auf der Oberseite und einer Standseite offen ist und der durch Verschlusseinrichtungen (10, 16) verschließbar ist und der zumindest zwei gesonderte Fächer aufweist, deren eines von der offenen Oberseite her zugänglich ist und deren anderes von der offenen Standseite her zugänglich ist, wobei die Fächer gesonderte zweite Halter (7, 15) sind, die in dem ersten Halter (1) herausnehmbar angeordnet sind, **dadurch gekennzeichnet**, daß der in der Oberseite angeordnete zweite Halter (7) in einer Aufwärtsrichtung herausnehmbar ist, daß der in der Standseite angeordnete zweite Halter (15) in einer liegenden Führungseinrichtung (14) verschiebbar angeordnet ist und daß nahe deren Unterseite drehbare Transporteinrichtungen (23) angeordnet sind. 15 20 25 30 35
2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet**, daß der erste Halter (1) einen Knick etwa in der Mitte nach unten aufweist und daß die offene Seite zumindest weitgehend quer zu dem oberen Teil ausgerichtet ist. 40
3. Vorrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet**, daß zumindest ein Halter (24) der zweiten Halter (7, 15) mit einem gesonderten kindersicheren Verschlussteil (25) versehen ist. 45
4. Verfahren zur gesonderten Lagerung und zum kombinierten Transport von sortierten Abfallprodukten, insbesondere von Haushaltsabfall, umfassend das Sortieren von Abfallprodukten den Typ nach und das Lagern der sortierten Abfallprodukte in gesonderten Fächern einer Vorrichtung nach einem der vorhergehenden Ansprüche. 50 55
5. Verfahren nach Anspruch 4, **dadurch gekennzeichnet**, daß chemische Abfallprodukte in einem verschließbaren Fach (24) der Vorrichtung nach Anspruch 3 gelagert werden.

Revendications

1. Dispositif pour le stockage séparé et le transport combiné de produits de déchets triés, en particulier des déchets ménagers, comprenant un support principal (1) qui est ouvert sur au moins la face supérieure et une face latérale et pouvant être fermé par des moyens de fermeture (10, 16) et qui comprend au moins deux compartiments séparés, dont un est accessible à partir de la face supérieure ouverte et dont l'autre est accessible à partir de la face latérale ouverte, les compartiments étant des supports (7, 15) secondaires séparés disposés de manière amovible dans le support principal (1), caractérisé en ce que le support (7) secondaire disposé dans la face supérieure est amovible vers une direction dirigée vers le haut, en ce que le second support (15) disposé sur la face latérale, est monté coulissant dans des moyens de guidage (14) horizontaux, et en ce que des moyens de transport (23) rotatifs sont disposés près de sa face inférieure.
2. Dispositif selon la revendication 1, caractérisé en ce que le support principal (1) possède, à peu près à mi-chemin vers le bas, une inclinaison et la face ouverte est orientée au moins essentiellement transversalement par rapport à la partie supérieure.
3. Dispositif selon la revendication 1 ou 2, caractérisé en ce qu'au moins un (24) des supports secondaires (7, 15) est muni d'un élément de fermeture (25) de sécurité pour enfants.
4. Procédé pour le stockage séparé et le transport combiné de produits de déchets triés, en particulier des déchets ménagers, comprenant le tri des produits de déchets selon le type et le dépôt des produits de déchets triés dans des compartiments séparés d'un dispositif suivant une quelconque des revendications précédentes.
5. Procédé selon la revendication 4, caractérisé en ce que des produits de déchets chimiques sont disposés dans un compartiment (24) pouvant être fermé, d'un dispositif suivant la revendication 3.

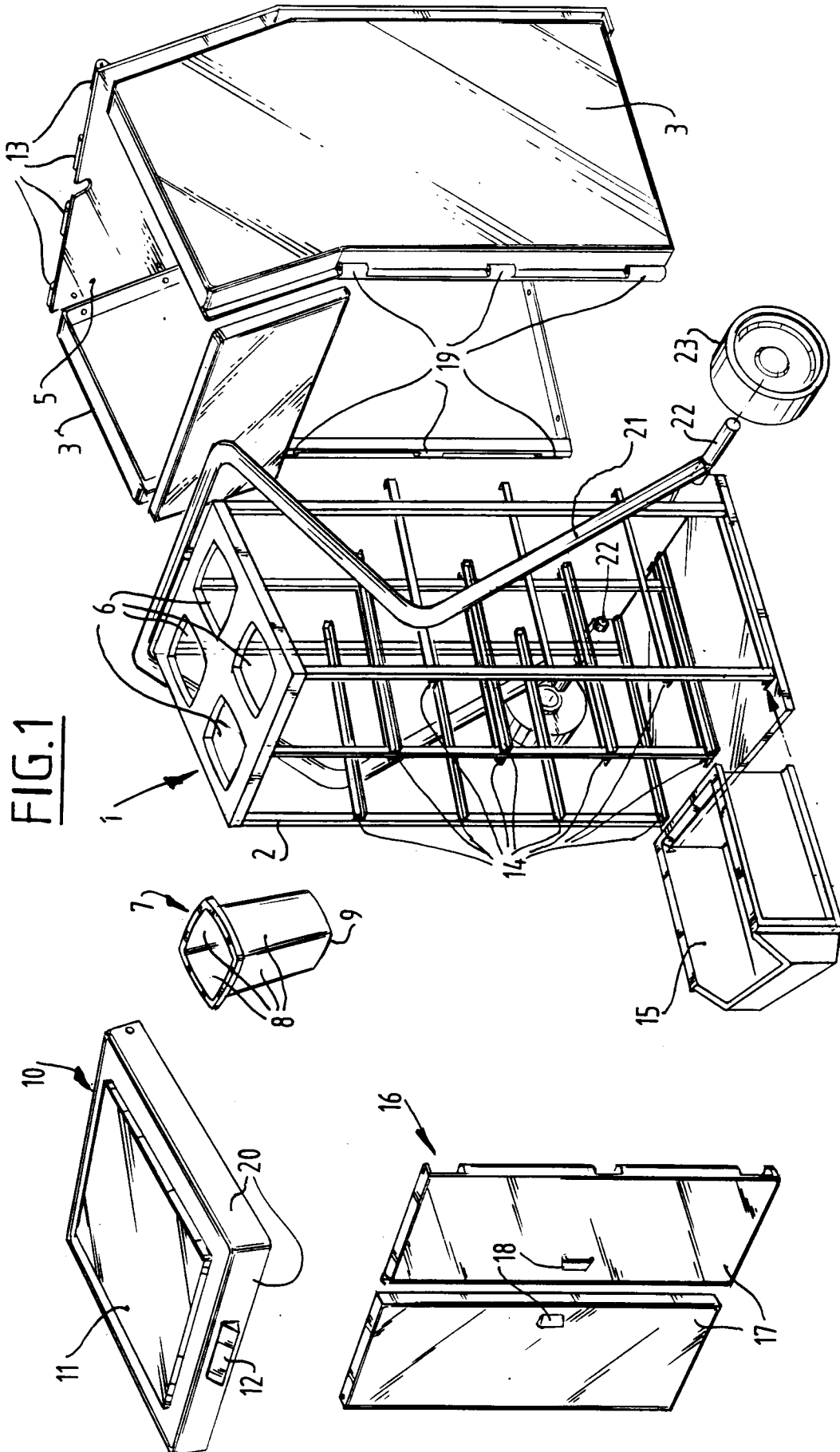
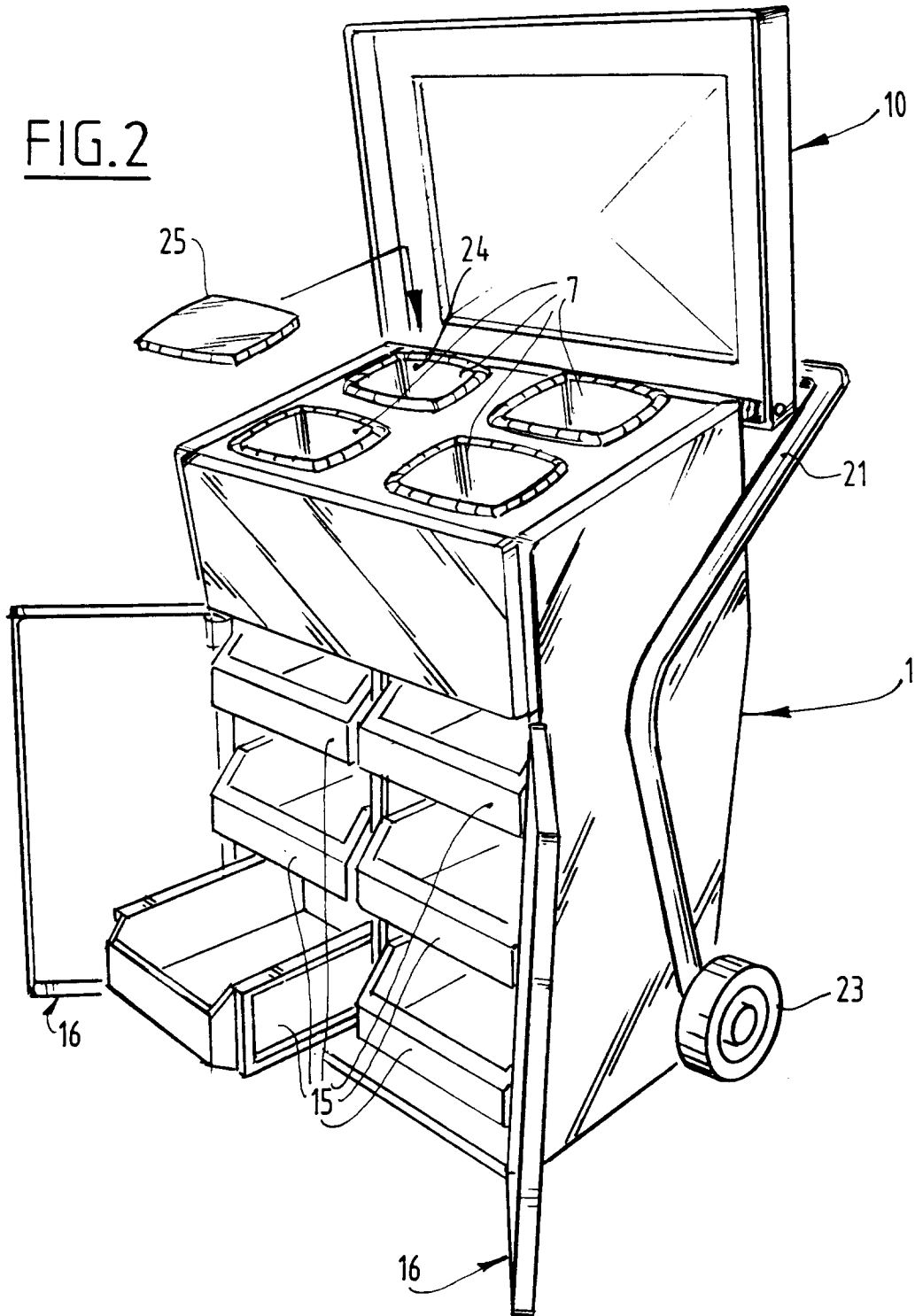


FIG.2



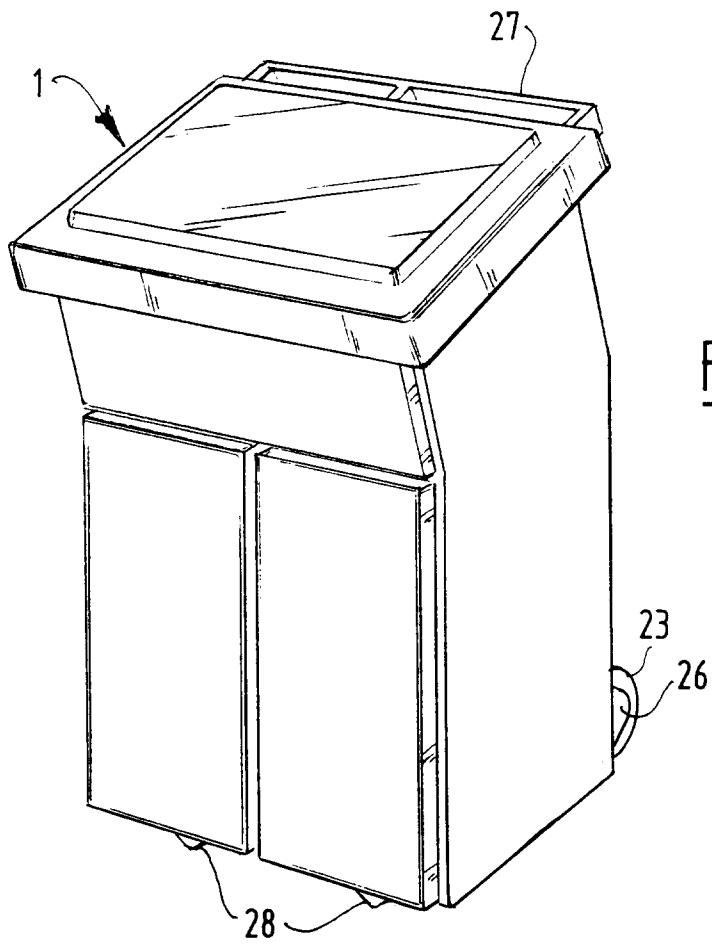


FIG. 3

FIG. 4

