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EUROPEAN PATENT APPLICATION

21 Application number: **86201859.5**

51 Int. Cl.4: **B 65 D 5/52, B 65 D 19/20**

22 Date of filing: **24.10.86**

30 Priority: **25.10.85 NL 8502921**

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43 Date of publication of application: **06.05.87**
Bulletin 87/19

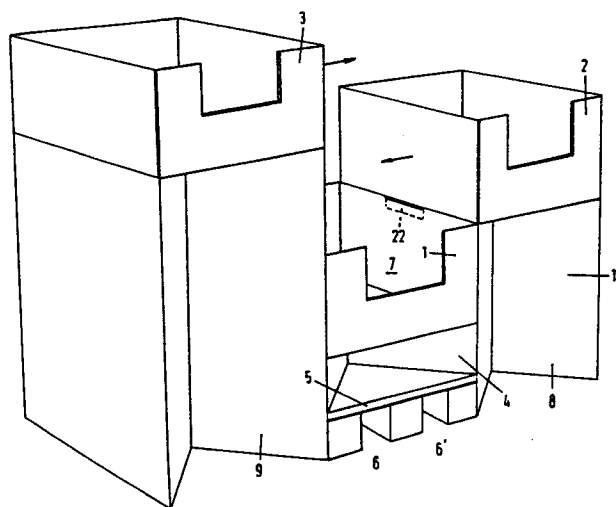
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54 **An unfoldable display box.**

57 An unfoldable display box comprising at least a first, a second and a third display tray (1, 2, 3), the second tray (2) resting on a collapsible base (8) extending at least up to the top of the first tray (1), having one side wall attached to a first side wall of the first tray and being collapsible into a flat condition against said side wall. The third tray (3) rests on a second collapsible base (9) extending up to the top of the second tray (2), having one side wall attached to a second side wall of the first tray and being collapsible into a flat condition against said side wall. The arrangement is such that, in the collapsed condition of the display box, the second tray (2) is located above the first tray (1) and the third tray (3) above the second tray (2).



Title: An unfoldable display box.

The present invention relates to an unfoldable display box. Such boxes are known for displaying all kinds of articles. The display box has the object to draw the attention of the buying public to the product displayed and to display the product in an attractive manner. There is a preference for display boxes which, already in folded-in condition, preferably can contain a large quantity of the products to be displayed and which can be quickly unfolded and set up at the intended location, e.g. in a shop.

For some time past it has been customary e.g. in multiple stores to transport trays with the articles to be sold bodily into and out of the shop, the tray being placed on or attached to a pallet, so that the tray-pallet combination can be moved particularly quickly and in a simple manner by means of a fork lift truck. However, this concerns trays or racks of a simple form and no display boxes.

It is an object of the present invention to provide an unfoldable display box wherein the products to be displayed can already be contained and which, in folded condition occupies little space, and in the unfolded condition, has a large display surface area. More specifically it is an object of the present invention to provide a display box which is placed on a pallet, with the

box, in folded-in condition, having in horizontal cross section basically the same surface area as the pallet, so that the display box, in folded-in condition, occupies a standardized floor area, which is particularly advantageous for storage and transport, while the display box, 5 due to the pallet disposed at its bottom, can be moved easily by means of a fork lift truck to a desired location in a shop or the like, where the box, preferably adapted to contain a great many products, which are already 10 present in the box in its folded condition is made ready for use by merely unfolding it, and which has an appearance which arouses consumer interest.

To that end, the present invention provides an unfoldable display box comprising at least a first and 15 a second display tray, said second tray resting on a foldable base, said base extending at least up to the top of the first tray, having one side wall attached to a first side wall of the first tray and being adapted to be collapsed into a flat condition against said side 20 wall, the arrangement being such that in the folded condition of the display box, the second tray is located above the first tray.

In a preferred embodiment, the bottom portion of the first tray rests on a pallet and the bottom surface 25 of the first tray is essentially equal to the surface of the pallet.

In a further preferred embodiment, there is provided

a third tray resting on a second foldable base which has one side wall attached to a second side wall of the first tray and is foldable against said side wall, the top surface of the second base being essentially
5 co-planar with the plane wherein the upper edges of the second tray are situated, the arrangement being such that, in the folded condition of the display box, the third tray is situated above the first and the second tray.

10 Preferably, the first side wall of the first tray is situated opposite the second side wall thereof, while preferably the first, the second and the third tray are identically shaped, so that in the folded condition of the box, said trays are located in one row one above
15 the other. The identical shape of the trays is desirable for the sake of simplicity of the production process, but is not necessary.

One embodiment of the present invention will now be described, by way of example, with reference to the
20 accompanying drawings, in which:

Fig. 1 is a perspective view of an embodiment of the display box according to the present invention in unfolded condition;

Fig. 2 is a perspective view of the display box
25 shown in Fig. 1 in folded condition;

Fig. 3 is a bottom view of the display box in the condition shown in Fig. 1, with the pallet omitted;

Fig. 4 is a diagrammatic bottom view of a different embodiment; and

Fig. 5 is a diagrammatic bottom view of still another embodiment.

5 Fig. 1 shows the display box according to the present invention in unfolded condition, having a central tray 1, a first outer tray 2 and a second outer tray 3. In this embodiment, the trays have a basically flat bottom and may all be filled with articles which, also
10 in the folded condition as shown in Fig. 2, may be present in the trays, although this is naturally not necessary.

 The first tray 1 is supported on a base 4 attached to, or placed on, the top of a pallet 5. This pallet has a conventional configuration with openings 6, 6'
15 at the bottom thereof, adapted to receive the prongs of a fork lift truck. The use of the base is optional and will depend, among other things, on the desired height of the tray 1 and on the type of articles for which the tray is destined. The use of pallet 5, although
20 highly advantageous for a number of applications, is not necessary either.

 Tray 1, as viewed in Figs. 1 and 2, has a left upright side wall, invisible in the figure, and a right side wall 7. The outer tray 2 is supported on a collapsible
25 base 8 and the outer tray 3 on a collapsible base 9. As clearly shown in Fig. 3, base 8 has first and second parallel side walls 10 and 11, respectively, said side

walls being connected by a front wall 12 and a rear wall 13. Base 9 has first and second parallel side walls 14 and 15, respectively, connected by a front wall 16 and a rear wall 17. Cross-sectionally, bases 8, 9 have
5 basically the same shape, while the front and rear walls are connected through fold lines to the upright sides of the respective side walls. The front and rear walls 12, 16 and 13, 17, respectively, have a V-shape, with the apices of the Vs always pointing to the interior
10 of the base, and forming fold lines. By pressing side wall 10 or 14 towards side wall 11 or 15, respectively, base 8 or 9 can be collapsed into a flat condition, with the apices of the V-shaped front and rear walls sliding along each other, and the front and rear walls
15 being received in flat condition, collapsed along the fold lines, between the side walls.

Naturally, various forms for the bases 8, 9 are possible wherein these can be collapsed to a flat condition. However, the embodiment shown has the advantage that
20 the bases, in collapsed condition, have a small thickness. The use of e.g. a plurality of fold lines in the front and/or rear wall would result in that the base in collapsed condition would have a larger thickness, which increases dimensions cross-sectionally of the display box without
25 increasing the surface area on which products can be displayed. However, this latter need not be a drawback in certain applications.

Although the base 4 need not be collapsible, it preferably also has a V-shaped front and rear wall 18 and 18', respectively, for the sake of the appearance of the display box. As shown in Fig. 3, these front and rear walls can be attached to the bottom of the tray 1 by means of folded lips 19 at its upper edge. Base 4 also has side walls 20, 21.

Side wall 11 of base 8 is attached, e.g. by gluing, to the side wall 20 of base 4 and/or to the side wall 7 of tray 1. Similarly, the side wall 15 of base 9 is attached to the side wall 21 and/or to the superposed left side wall of tray 1.

Although trays 2, 3 may be placed loose on bases 8, 9, to which they may be connected e.g. through insert lips, one of which is shown diagrammatically at 22 in Fig. 1, the bottoms of trays 2 and 3 are preferably affixed on one side to said bases by means of folding lips 23 and 24, respectively formed at the upper edges of side walls 10 and 14. The other side walls of the respective trays 2 and 3, facing tray 1 may be connected releasably to the associated base e.g. by means of insert lips, as indicated at 22, for the sake of the stability of the display box.

The base 8 of tray 2 is so high that the bottom of tray 2 is essentially co-planar with the upper edges of the upright walls of tray 1. Thus, during the collapsing of base 8, the bottom of tray 2 can slide over the top

surface of tray 1 and come to rest on the upper edges of the upright walls thereof.

The base 9 of tray 3 is so high that the bottom of tray 3 is essentially co-extensive with the plane
5 containing the upper edges of the upright walls of tray 2. After base 8 has been collapsed, base 9 can thus be collapsed, while the bottom of tray 3 comes to rest on the upper edges of the upright walls of tray 2. After this collapsing, the display box obtains the configuration
10 shown in Fig. 2. By sliding over this assembly shown in Fig. 2 a tubular sleeve having a closed top surface and recesses at the lower edge for the prongs of a fork lift truck, corresponding with the openings 6, 6', there is obtained a highly compact, collapsed display box
15 wherein a maximum quantity of articles, well protected against external influences, can be obtained and the dimensions of which correspond, in cross section, with those of a pallet, so that a standardized floor area is necessary for transit and transport. At the destination,
20 as will be clear from the above, by unfolding bases 9 and 8, with trays 2, 3 coming to rest on their associated bases, and by the insertion of insert lips, if any, such as 22, for fixing the trays relative to the bases, the display box can be set up very quickly, so that
25 this is ready for use in a very short time.

Although in the above a display box is described having three trays, it is also possible to apply the

principle of the present invention with only one outer tray, such as 2, and an associated collapsible base, such as 8. It is also possible to set up the trays in a slightly inclined position, in which case the trays
5 should naturally be slidable one over the other for the purpose of collapsing the display box.

Fig. 4 is a diagrammatic bottom view of a configuration of a different embodiment, wherein instead of tray 2 and base 8, there is attached to the rear wall of
10 base 4' and/or tray 1', a side wall of a collapsible base 25 carrying a tray 26, when in collapsed condition, e.g. the bottom of tray 26 is supported on tray 1' and the bottom of tray 3' on tray 26. The configuration of base 4' can be adjusted to the appearance of the
15 embodiment shown in Fig. 4.

Fig. 5 is a diagrammatic bottom view of another embodiment, wherein the embodiments of Figs. 3 and 4 are combined to one display box having four trays 1", 2", 3" and 26'. In collapsed condition, e.g. the bottom
20 of tray 26' is supported on tray 3", and for the rest the situation is identical to that shown in Fig. 2.

Still other embodiments are possible, with e.g. a fifth tray placed on a base against the front of tray 1" in Fig. 5, wherein, however, tray 1" itself is difficult
25 of access. It is also possible to attach to e.g. the outer side wall 10 or 14 of base 8 or 9, a further base which in its turn, carries a tray which during collapsing

comes to lie with its bottom on the top of the adjoining tray. In this manner, the display box can be enlarged towards one side with a plurality of trays and bases, while always in the collapsed condition, a more outwardly
5 located tray comes to rest on the adjoining, more inwardly located tray.

When the trays, such as 2 and 3 in Fig. 1, are to be located at one level, it is possible to impart e.g. to tray 2 a cross-sectional area that is only a
10 part of that of tray 1. Tray 3 is then placed on a base 9 having the same height as base 8, with tray 3 having a cross-sectional area forming at most the complementary part of the cross-sectional area of tray 2, in order that the cross-sectional areas of tray 2 and 3 jointly
15 are at most equal to that of tray 1, and the two trays 2, 3 may come to rest on tray 1 in side-by-side relationship. Trays 2, 3 may then have the form e.g. of a triangle.

Another possibility is to impart to base 9 the same height as base 8 and to attach trays 2, 3 tiltably
20 to the upper edge of side wall 11 of base 8 and the upper edge of side wall 15 of base 9, with the bottoms of trays 2, 3 resting freely on the upper edge of side wall 10 and the upper edge of side wall 14. In the collapsed condition, trays 2, 3 will then come to lie with the
25 open tops facing one another above tray 1, when at least the sum of the height of tray 2 and the height of tray 3 does not exceed the total width of tray 1. When the

display box should thus contain products in the collapsed condition, trays 2, 3 should naturally be provided with a closure for the open top thereof, e.g. in the form of a cover.

5 Finally, it is possible to make an integral unit of the assembly of bases, e.g. bases 4, 8 and 9, which will be clear to those skilled in the art. It will also be clear to those skilled in the art that many modifications are possible without departing from the scope of the
10 present invention, a number of embodiments of which are described above.

CLAIMS

1. An unfoldable display box, characterized by at least a first and a second display tray, the second tray resting on a collapsible base extending at least up to the top of the first tray, having one side wall
5 attached to a first side wall of the first tray and being collapsible into a flat condition against said side wall, the arrangement being such that, in the collapsed condition of the display box, the second tray is located above the first tray.
- 10 2. A display box according to claim 1, characterized in that there is provided a third display tray resting on a second collapsible base attached by one side wall to a second side wall of the first tray and being collapsible into a flat condition against said side wall.
- 15 3. A display box according to claim 2, characterized in that the second base essentially has the same height as the first base and that the second and the third tray are fixedly connected through a fold line to the side walls of the associated base secured to the side
20 walls of the first tray, the arrangement being such that, in the collapsed condition, the second and the third tray have one side wall resting on the first tray, with their open tops facing one another.
4. A display box according to claim 2, characterized
25 in that the second base essentially has the same height

as the first base and that the second and the third tray have complementary cross-sectional areas, with the joint cross-sectional areas of said two trays being atmost equal to that of the first tray.

5 5. A display box according to claim 2, characterized in that the top surface of the second base is essentially co-planar with the plane defined by the upper edges of the second tray, the arrangement being such that, in the collapsed condition of the display box, the third
10 tray is located above the first and the second tray.

6. A display box according to any one of claims 2-5, characterized in that the first side wall of the first tray is located opposite the second side wall.

7. A display box according to claim 6, characterized
15 in that there is provided a fourth display tray resting on a third collapsible base having one side wall attached to a third side wall of the first tray, said side wall connecting the first and the second side wall, and being collapsible into a flat condition against said side
20 wall, and that the base has such a height that, in the collapsed condition of the display box, the fourth tray is located in a row with the other trays.

8. A display box according to at least any one of claims 4-7, characterized by there being attached to
25 a side wall of one of the collapsible bases a further collapsible base carrying a further tray, said further base extending essentially up to the top of the tray

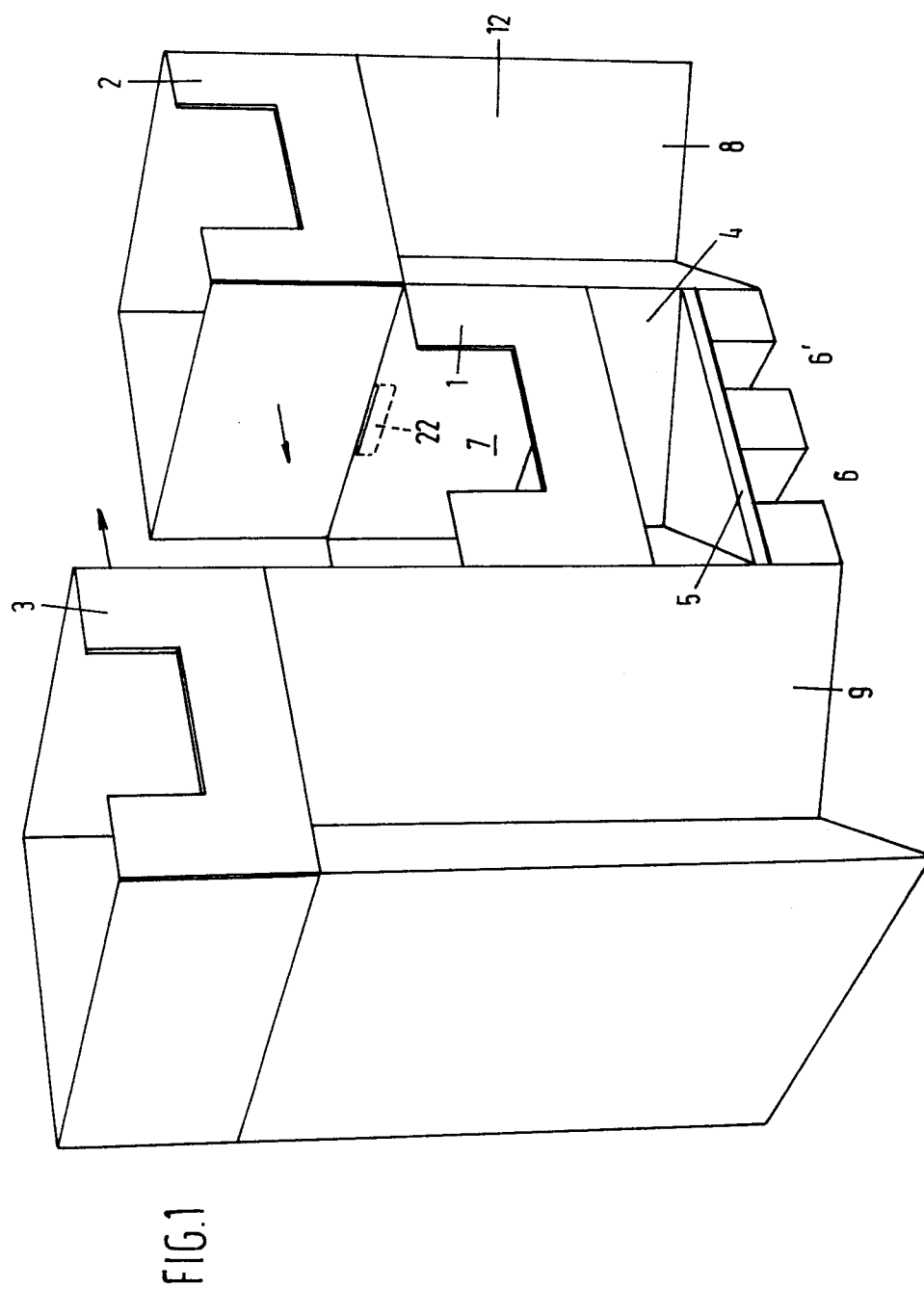
resting on the adjoining base.

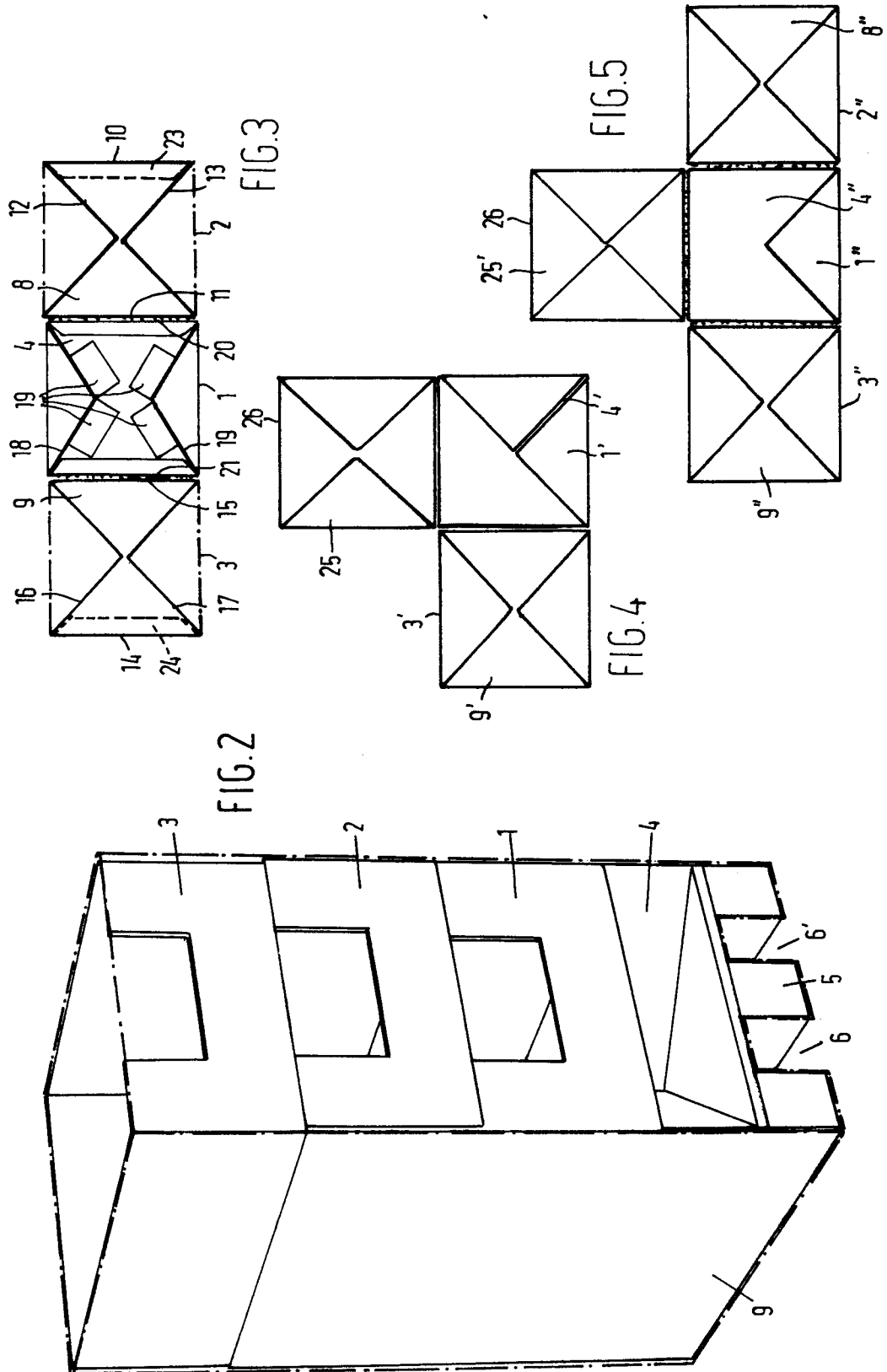
9. A display box according to at least any one of the preceding claims, characterized in that the bottoms of the second and possibly the third and further display
5 trays are fixedly connected to the side walls of the associated collapsible bases, said side walls being always located opposite the side wall attached to the adjoining tray.

10. A display box according to at least any one of the
10 preceding claims, characterized in that the bottom portion of the first display tray rests on a pallet, while the bottom surface of the tray is essentially equal to the surface of the pallet.

11. A display box according to at least any one of
15 claims 1-9, characterized in that the bottom portion of the first tray rests on a base resting on a pallet.

12. A display box according to claim 11, characterized in that the side walls of the first and possibly the second and the third base are clear of the opposite
20 side wall of the first tray and are attached to the opposite side wall of the base of the first tray.







European Patent
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EUROPEAN SEARCH REPORT

0220778

Application number

EP 86 20 1859

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.4)
A	US-A-2 108 096 (BARSI) * Page 1, column 2, line 19 - page 2, column 2, line 50; fig- ures 1-8 *	1	B 65 D 5/52 B 65 D 19/20
A	--- US-A-2 170 356 (STOCKER) * Page 1, column 2, lines 16-33; page 1, column 2, line 48 - page 2, column 1, line 12; figures 1-4 *	1	
A	--- US-A-2 920 852 (HENNESSEY) * Column 2, lines 25-60; figures 1-5 *	1	
A	--- EP-A-0 054 884 (SCHRÖTER) -----		TECHNICAL FIELDS SEARCHED (Int. Cl.4) B 65 D A 47 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27-01-1987	Examiner VANTOMME M.A.
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