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(58) Field of Search
UK CL (Edition L) **B8P PN PS PU**
INT CL^5 **B65D 21/06**

(54) Plastic stackable/nestable boxes

(57) A stackable/nestable box has stacking members (9) including stubs (11) movable in vertical tracks, the members (9) being movable by pivoting/sliding between two positions: a vertical one for nesting empty boxes and a horizontal one for stacking full boxes.

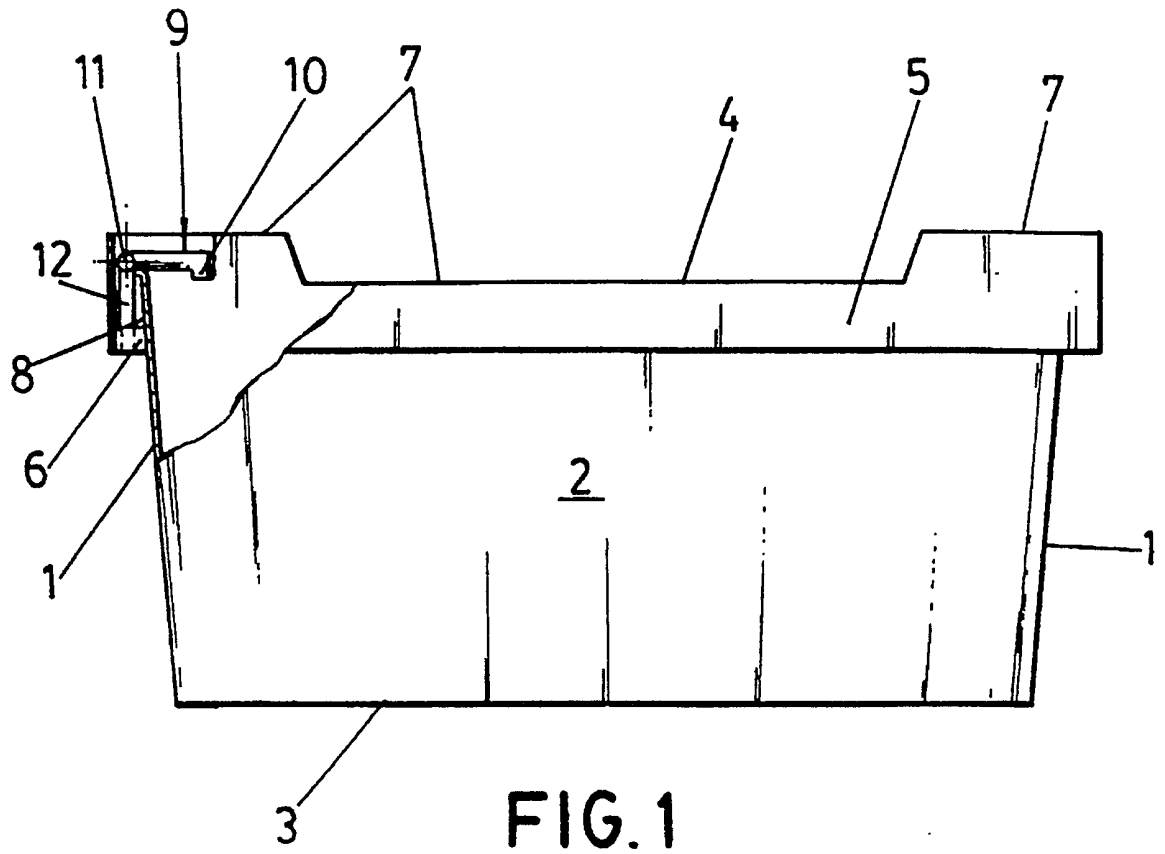


FIG. 1

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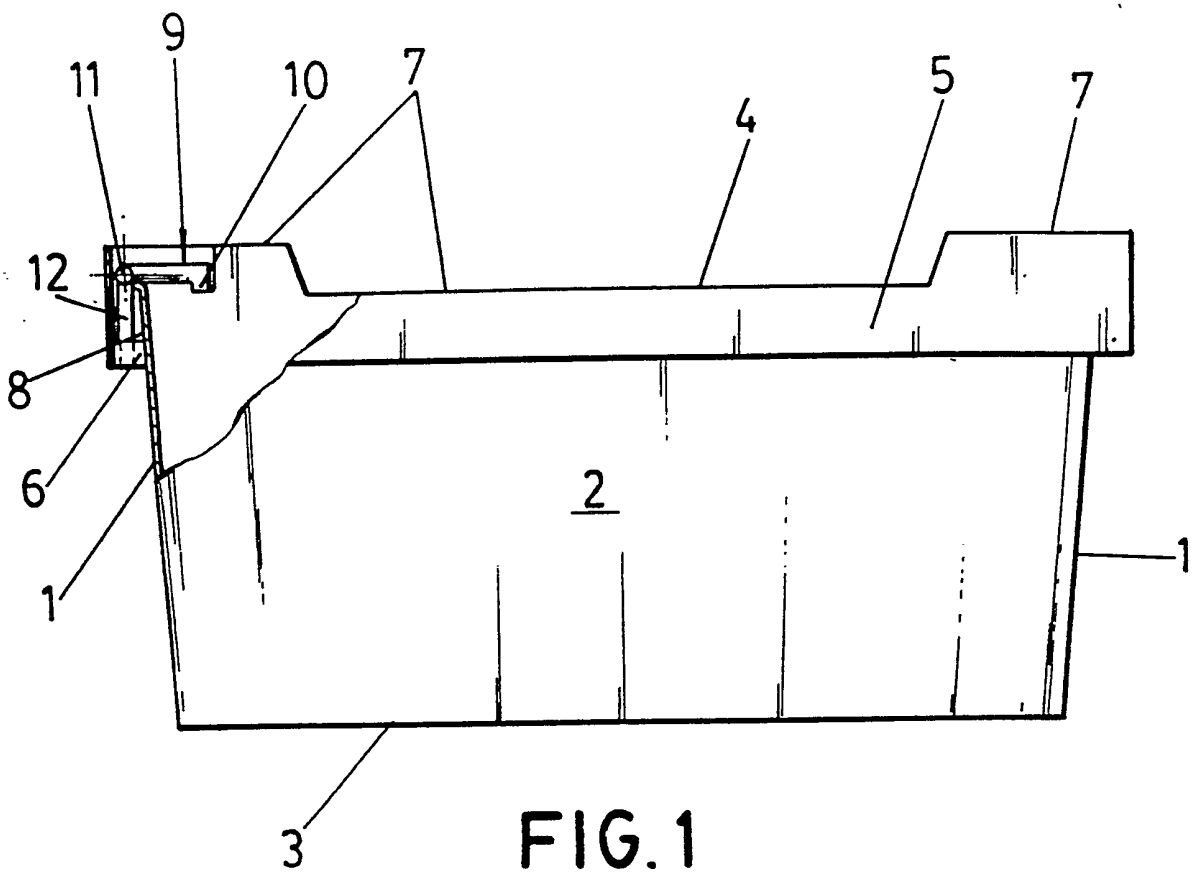


FIG. 1

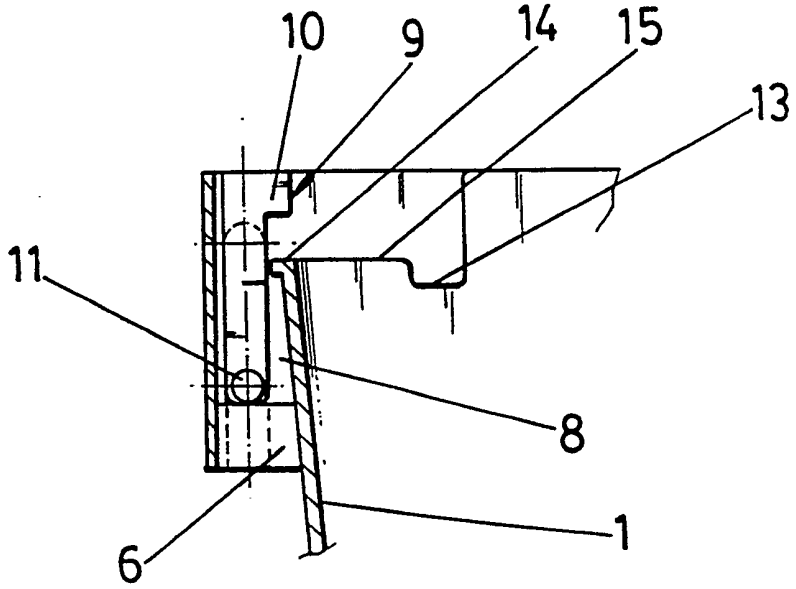


FIG. 2

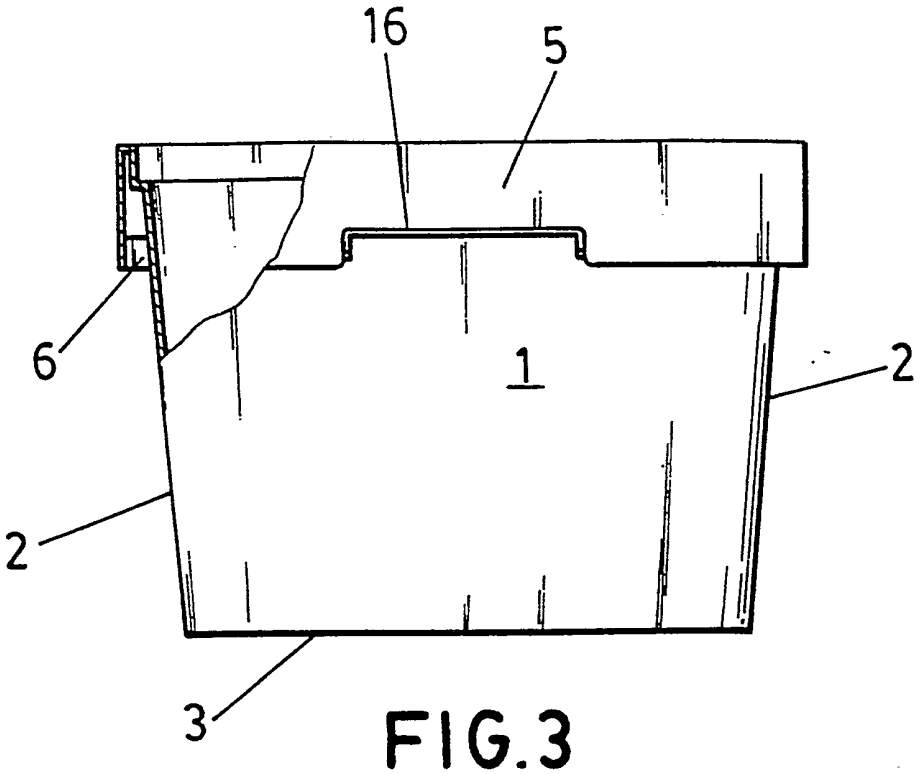


FIG.3

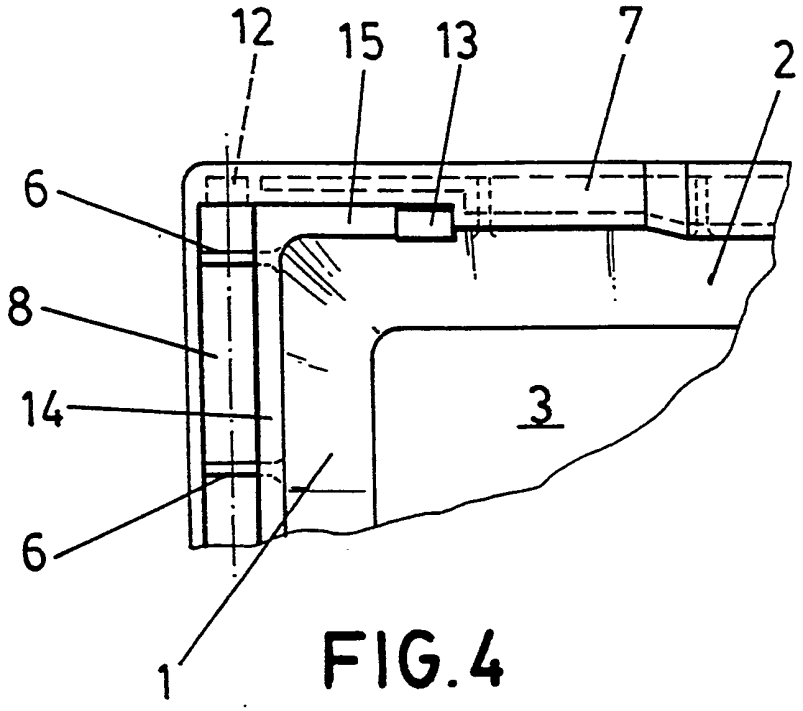


FIG.4

IMPROVEMENTS IN PLASTIC STACKABLE BOXES

As is expressed in the title of this specification, the present invention refers to some improvements introduced in plastic stackable boxes. These boxes have a certain taper on their side walls for the purpose of being able to stack some in each other when they are empty, thus taking up little space, a very important advantage for transport.

The basic novel element of the invention is based on the top part of the boxes having some plates that can adopt two positions: a vertical one, when empty boxes are to be stacked and the other horizontal one, a position in which a top box will sit on said plates of another box underneath when the same are filled with some product.

Presently, plastic containers and boxes whose side walls are inclined convergingly towards the bottom, so that in stacking the same when they are empty they take up little space, being inserted in one another of course, are known. On the other hand, when said boxes are filled with some product, for stacking, the bottom of a top box will necessarily rest on the product of another one underneath, unless some intermediate element is placed in between. This problem is advantageously solved in the invention of the present specification.

On the other hand, there are other plastic boxes and containers whose side walls are vertical, the stacking of the same when they are empty is somewhat difficult as they cannot be inserted in one another. In this way they take up almost as much space as if they were full. In this case, transport of the same turns out to be very expensive, since although there is a large load volume, for example in a truck, a very small amount of said load volume will be taken advantage of as it is not possible to insert

the boxes in each other.

In order to solve the problems mentioned above, some improvements in plastic stackable boxes, whose side walls are inclined convergingly towards the bottom, in such a way that the stacking of empty boxes can be done by inserting them in one another for the purpose of taking up less space, are proposed. In the top part of the sides there are two broad trapezoidal notches. An outer perimetric partition wall joined to the side walls by means of a plurality of bottom ribs and also by means of some surfaces that join the top edges of the sides with the corresponding areas of the edges of the cited perimetric partition wall has been provided for in the top part.

In the top part of the front ends, between each one of them and the part of the corresponding partition wall a longitudinal opening is defined for the housing of a flat movable plate for sitting another top box, said plate having along its top longitudinal edge a bent section, while in the bottom ends thereof some side stubs that fit in and are guided in some vertical grooves established in the outer perimetric partition wall are distinguished in an area very close to the vertical corners of the box.

The cited flat plate can have a vertical position and another horizontal support one. In the first one a box will sit on the bottom ribs that join the partition wall with the front ends. This vertical position will be adopted when empty boxes are going to be stacked, where boxes can be easily fit into one another in order to take up little space.

On the other hand, the horizontal support position is established for stacking boxes when they are filled with some product, a top box sitting on one underneath right on the cited flat plate. The bent section of the plate fits into some recesses of the sides when it is, of

course, in the horizontal position. Besides, the plate remains seated on the top edge of the front end and on two small sections of the sides that finish off the cited recesses.

Hereinafter, to provide a better understanding of this specification and forming an integral part of the same, a series of figures in which with an illustrative and non-restrictive nature the object of the invention has been represented, has been attached.

Figure 1.- It is a raised view of a plastic stackable box, to which some improvements, object of the invention, have been introduced. A part section in one of the top edges of the front ends where a novel movable plate is shown in a horizontal support position of a top box is included.

Figure 2.- It is a raised section view of one part of the top edge of a front end of the box of the invention. The novel plate in a vertical position to facilitate stacking of empty boxes is basically shown.

Figure 3.- It is a raised view where a front end that includes a U-shaped handle is shown, also showing the profile of the top edge of one of the sides and of the perimetric partition wall.

Figure 4.- It is a top plan view of one of the corners of the box of the invention, where mainly an opening along the front end for housing the novel movable plate is shown.

Making reference to the numbers used in the figures, the plastic stackable boxes to which some improvements have been introduced, include some side walls, front ends 1 and sides 2; which are inclined convergingly towards the bottom 3; which is preferably rectangular. With this arrangement, when empty boxes are stacked it is possible to insert them in each other with the advantage of taking

up little space.

The top part of the sides 2 have both broad trapezoidal notches 4, also defining an outer perimetric partition wall 5 connected to the side walls 1 and 2 by means of a plurality of bottom ribs 6 and also by means of a surface 7, that connects the top edges of the sides 2 with the top parallel edges belonging to the cited perimetric partition wall 5 , thus forming a perimetric flap.

In the top area of the front ends 1 , right between each one of them and the part of the corresponding partition wall a longitudinal opening 8 where a movable flat plate 9 is housed, used mainly to facilitate the sitting of another top box, is defined. Said plate 9 , on its top longitudinal edge, defines a small bent section 10 while sideways and on the bottom part of the same 9 some stubs 11 that are guided and fit in some vertical grooves 12 established in some thickenings of the perimetric partition wall 5 (fig. 4), right in the areas close to the slightly inclined vertical corners of the box, are defined. The cited flat plate can adopt a first vertical position (fig. 2) and a second horizontal support one (fig. 1.) In the first position, the corresponding bottom ribs 6, that join the perimetric partition wall 5 with each one of the front ends 1 are rested on. In this way, the bent section 10 of the movable plate 9 will remain level with the top edge of the perimetric partition wall 5. In short, this vertical position will be adopted when empty boxes are going to be stacked, it being possible to easily insert boxes into each other, thus obtaining a reduced amount of space taken up.

On the other hand, the horizontal support position (fig. 1), is established for the stacking of boxes filled with some product, the sides of bottom 3 of a top box sit on the flat plate 9 of another box underneath.

The bent section of the plate is inserted or fit into some recesses 13 of the sides when, it is, of course, in a horizontal position. Besides, the plate 9 remains perfectly seated on a U-shaped horizontal surface (fig. 4). This horizontal surface is determined by a top edge 14 of each one of the front ends, that continues by the ends thereof in both sections 15 of the sides that are finished off in the cited recesses 13.

The side walls are subject to including a plurality of holes or openings of a different shape in order to aerate the product. There is also the possibility that the bottom includes said openings or holes, as well as an intercrossing of reinforcement ribs.

Both reversed U-shaped sections 16 that enter an area of the perimetric partition wall 5 and that serve as handles of the box project from the front ends 1.

In order to go from a vertical position to a horizontal position the flat plate 9 moves vertically upward guided in the side grooves 12 where the stubs 11 are fit in. Afterwards, once the stubs have come up against the top edge of said grooves 12, each one of plates 9 will collapse inward until the bent section 10 is introduced in the corresponding recesses 13 of the sides. The same steps but in the reverse order will be effected in order to go to the vertical position.

CLAIMS:

1. Improvements in plastic stackable boxes, said boxes being of the type whose side walls have a certain slant converging towards the bottom, preferably rectangular, in order to stack them on each other, each one of the boxes including some handles, at the same time that the side walls as well as the bottom are subject to including some aeration holes or openings, characterised because in the top part of the box an outer perimetric partition wall connected to the side walls by means of a plurality of small bottom ribs and by means of a surface that joins each one of the top edges of the sides with the top edge of the perimetric partition wall is provided for, in such a way that in the part corresponding with the front ends both longitudinal openings established between the perimetric partition wall and the respective front end are defined, a movable flat plate for sitting the box being housed in each one of said openings, said plate having a bent section on its top longitudinal edge, while the bottom ends of the same are provided with some side stubs that are guided in some vertical grooves established in the perimetric partition wall, in an area very close to the vertical corners of the box; it being foreseen that the cited bent section fits in some recesses of the sides when the plate remains in the horizontal position, the same

sitting on the top edge of the front end that continues in two short sections belonging to the sides and that finish off in the cited recesses, the plate also sitting on said sections; it also being foreseen that the flat plate in the vertical position, sits on the corresponding bottom ribs that connect the perimetric partition wall with the front ends, the same remaining level with the top edge of said perimetric partition wall.

2. A plastics stackable box substantially as hereinbefore described with reference to, and as shown in, the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under Section 17 (The Search Report)

Application number

GB 9307812.9

Relevant Technical fields

(i) UK Cl (Edition L) B8P (PN,PS,PV)

(ii) Int Cl (Edition 5) B65D 21/06

Search Examiner

MIKE HENDERSON

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

14 MAY 1993

Documents considered relevant following a search in respect of claims 1 AND 2

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2124588 A (CRAYONNE LTD) whole specification relevant)	1

		to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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