(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 839 482 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
06.05.1998 Bulletin 1998/19

(51) Int Cl.[6]: **A47F 3/04**, A47F 3/14

(21) Application number: **97650040.5**

(22) Date of filing: **07.10.1997**

(84) Designated Contracting States:
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

(30) Priority: **07.10.1996 IE 960712**

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(54) A display system

(57) A display system for freezer cabinets has a number of open topped plastics display bins (1) arranged within the freezer cabinet subdividing the freezer cabinet into a number of smaller display compartments each containing products for sale. Each bin (1) has a number of sidewall ventilation openings (12) to provide good air circulation through the bin (1). Drainage holes in a base of the bin (1) prevent moisture build-up in the bin (1). Outwardly projecting ribs (18) are provided on the sidewalls (6, 7, 8, 9) to keep sidewalls of adjacent bins apart when mounted in the cabinet promoting good air circulation around the bins (1) for optimum cooling and minimising frost build-up.

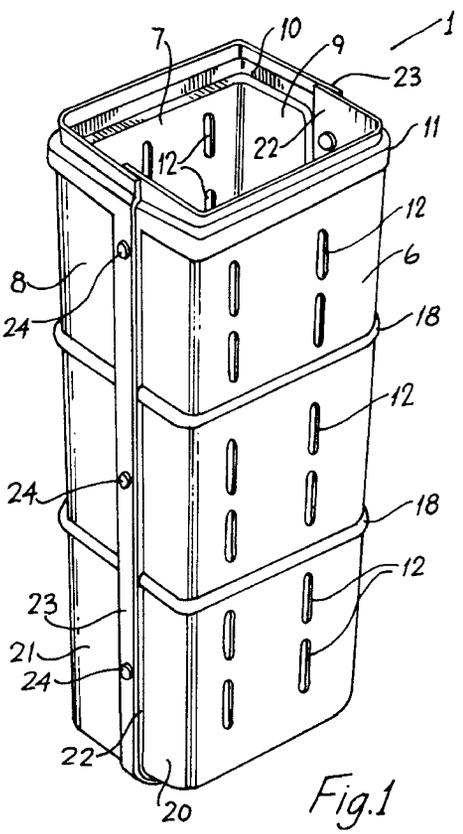

Fig.1

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Description

This invention relates to a display system and to a display bin for use in the display system. The invention is particulary concerned with the display of goods for sale in shops and the like. More particularly, the invention is primarily concerned with the display of chilled goods for sale in freezer cabinets. The term "freezer cabinet" includes refrigerated cabinets for storing chilled or frozen food products.

It is known to sub-divide a freezer cabinet into a number of smaller compartments by the use of divider panels which are inserted in the freezer cabinet. Typically different products are stored in different compartments to provide a range of different products within the freezer cabinet. A disadvantage of the dividers is that they essentially form a fixed display. Over a period ice will tend to form on the inner side walls of the freezer cabinet and this must be removed. To do so the goods must be removed from the freezer cabinet and then the dividers can be removed to provide access for cleaning the cabinet. Also, when replenishing stocks of goods in the cabinet ideally old stock within each compartment should be first removed from a compartment before new stock is delivered into the compartment and then the old stock should be returned to the top of the compartment so that it is used before the new stock. It will be appreciated that this is somewhat laborious and because of this it is not always done, the new stock simply being delivered into the compartment on top of the old stock. Thus, effectively the old stock never gets used and will eventually pass its sell-by date. This leads to considerable wastage.

It is also well known that some positions or compartments within the freezer cabinet are more effective than others for displaying and selling goods. To ensure a good turnover in all the products on display ideally the locations of the products in the cabinet should be rotated with each product being displayed for some time in the optimum selling position. Many product manufacturers insist on this. However, with the use of dividers to segment the freezer cabinet all the products must be lifted out of one compartment and then delivered to the new compartment after this has been emptied. It will be appreciated that this is a very laborious task particularly with large freezer cabinets.

The present invention is directed towards overcoming these problems.

According to the invention there is provided a display system for a display cabinet, the display system comprising a plurality of independent display bins for mounting in the display cabinet to sub-divide the display cabinet into a number of smaller display units or compartments. The use of the independent display bins has a number of advantages. A set of display bins can be mounted within the cabinet, each for storing and displaying selected goods. For restocking, a bin is simply removed and replaced with a charged bin and any remaining old stock in the old bin can simply be tipped into the new bin. Thus, restocking can be carried out quickly and advantageously the old stock will always be uppermost in the bins. Further, for cleaning it is only necessary to simply remove bins positioned along a side wall of the cabinet for cleaning the side walls and then the bins can be replaced. This greatly simplifies and speeds up the regular cleaning of the cabinet which is required. Also the products can be readily easily and quickly rearranged within the cabinet by simply swopping the positions of the display bins in the cabinet.

In a particularly preferred embodiment, the display system has means for defining cooling air circulation passages around the bins when a set of juxtaposed bins are mounted within the display cabinet.

A display bin for use in the system has a number of ventilation openings in the side walls for ventilating the bin during use. Preferably the ventilation openings comprise a number of spaced-apart slots in opposite side walls of the bin. This encourages air flow through the bin in use for optimum cooling with minimal frost build up. If desired, ventilation openings may be provided in all the side walls. Conveniently, the slots may comprise elongate slots arranged in either a vertical or horizontal orientation on the side walls. Various other ventilation slot configurations are possible.

In a preferred embodiment one or more drainage holes is provided in a base of the bin. Preferably also a support leg or legs are provided on the base to raise the base from a support surface on which the bin is mounted. This construction advantageously prevents moisture collecting in the bin which might adversely affect goods within the bin or lead to frost build-up which is undesirable. The drainage holes also allow air circulation through the bin.

In a further embodiment one or more ribs or projections are provided on side walls of the bin. Preferably the ribs extend around the side walls intermediate the ends of the side walls. The ribs strengthen the side walls. Also, when a number of bins are mounted for example in a freezer cabinet the ribs essentially ensure air passageways are formed between the bins for good circulation of cooling air around and through the bins which again promotes good cooling and minimises frost formation. The ribs may comprise a broken line of projections extending outwardly from the side walls. Any other suitable arrangement of projections may be provided to keep the bins spaced-apart from each other and from side walls of the cabinet in which they are mounted in use.

Further, advantageously the spacing of a rib which extends around the side walls above the base may be selected so that the depth of the bin may be reduced by cutting around the side walls at the rib leaving a rim at a top of the bin. Thus a standard sized bin may be produced for use in a range of different display cabinets, the depth of the bin simply being adjusted as necessary for the particular display cabinet in which the bin is to be

mounted.

Conveniently the bin may be of two-part construction comprising a pair of interengagable bin halves with means for securing the bin halves together to form the display bin. Each bin half comprises portion of the base and the associated side wall portions. The two bin halves may be secured together by any suitable means, for example using fasteners such as rivets, stitching, welding or gluing. This construction of display bin is advantageous from a manufacturing point of view in that it is generally simpler and cheaper to mould two halves than a complete bin, particularly with larger sized bins. Further, for transport a plurality of bin halves can be nested together for more efficient packing during transport.

In some cases if desired an internal divider may be provided for a display bin to separate the interior of the bin into a number of smaller compartments.

If desired, the bin may be provided with tapered side walls to allow nesting of a number of the bins together to facilitate storage and transport of bins.

It is also envisaged that in some cases it may be desirable that the base and the upper rim of the bins are interengagable for stacking bins.

Ideally the display bin is constructed of a translucent material. Most preferably the bin is of transparent material to assist in displaying goods contained within the bin. The material may be coloured or tinted if desired.

In a particularly preferred embodiment the display bin is constructed of a plastics material. Any suitable plastics material may be used, however most preferably the plastics material is PET (polyethylene terephthalate). The term PET is to be understood to include the following: crystallizable and amorphous PET homopolymers, crystallizable and amorphous PET oopolymers, crystallizable and amorphous PET compounds, crystallizable and amorphous recycled PET and other variants of amorphous and crystallizable PET.

The invention will be more clearly understood by the following description of an embodiment thereof, given by way of example only, with reference to the accompanying drawings in which;

Fig. 1 is a perspective view of a display bin according to the invention;

Fig. 2 in an elevational view of the display bin;

Fig. 3 is a plan view of the display bin;

Fig. 4 is an underneath plan view of the display bin;

Fig. 5 is a detail perspective view showing a base portion of the bin;

Fig. 6 is a perspective view of a display system according to the invention comprising a number of the display bins mounted in a freezer cabinet;

Fig. 7 is a perspective view similar to Fig. 1 of another display bin; and

Fig. 8 is a view similar to Fig. 1 of another display bin.

Referring to the drawings and initially to Figs. 1 to 6 thereof, there is illustrated a display bin according to the invention indicated generally by the reference numeral 1. A number of the display bins 1 are used to form a display system according to the invention comprising a number of the display bins 1 arranged within a freezer cabinet 2 (Fig. 6) subdividing the freezer cabinet 2 into a number of smaller display compartments each containing products 3 for sale.

Each bin 1 comprises a rectangular base 5 with upstanding side walls on the base, the side walls comprising a front wall 6, a rear wall 7, interconnected by sides 8, 9. An access opening 10 for filling and removing products 3 from the bin 1 is defined by a rim 11 extending around an upper end of the side walls 6, 7, 8, 9.

A number of ventilation openings 12 are provided by spaced-apart slots in the front wall 6 and rear wall 7. Although not illustrated, additional ventilation openings 12 may be provided in the sides 8, 9 also if desired. It will be noted that the ventilation openings 12 extend between the base 5 and the rim 11 to provide good air circulation throughout the bin 1.

Referring to Figs. 2 to 5 it will be noted that a number of drainage holes 14 are provided in the base 5. Also, support legs 15 project downwardly from the base 5, to raise the base 5 from a support surface 16 (Fig. 2) on which the bin 1 is mounted. The drainage holes 14 prevent build up of moisture in the bin 1 which might adversely affect goods in the bin 1 particularly those goods at the bottom of the bin 1, and also assist in air circulation through the bin 1.

A plurality of ribs 18 extend around the side walls 6, 7, 8, 9 intermediate the base 5 and the rim 11. In this case the ribs 18 are generally horizontal however it will be appreciated that various other rib formations or projections are possible. The ribs 18, and indeed the rim 11 keep the side walls of adjacent bins 1 apart when mounted in the cabinet 2 shown in Fig. 6, thus effectively forming cooling air circulation passageways between and around the bins 1 for good air circulation around and through the bins 1. This promotes optimum cooling of the products within the bins 1 and minimises frost build-up.

An advantage of the generally horizontal arrangement of the ribs 18 as shown in the drawings is that the ribs 18 can be spaced above the base 5 at selected intervals. This provides the possibility of cutting around the side walls 6, 7, 8, 9 at a rib 18 to reduce the depth of the bin 1 if desired for fitting the bin 1 into different sized display cabinets.

It will be noted that in this case the bin is of two-part construction comprising a pair of interengagable bin halves 20, 21 with overlapping and interengagable flanges 22, 23 respectively. The two bin halves 20, 21 are interconnected by a number of spaced-apart rivets 24 which interlock the flanges 22, 23. Various other methods for securing the bin halves 20, 21 together are possible.

As can be seen in the drawings each bin half 20, 21 comprises roughly one half of the base 5, one of the front wall 6 and rear wall 7, and roughly one half of each of the sides 8, 9. It will be noted that the bin halves 20, 21 can be nested together for storage which is convenient for transport.

Ideally the bin 1 is constructed of a substantially transparent PET material, although other materials may be used if desired.

In use, a number of the bins 1 are mounted in a freezer cabinet 2 as shown in Fig. 6. Products 3 for sale are then stored in each of the bins 1 which display the products 3 for sale in an attractive manner. It is well known that some positions within a display cabinet 2 are better than others for selling goods. Conveniently with the display system according to the present invention the goods 3 in the bins 1 can be readily easily moved around the freezer cabinet 2 to display different goods 3 in the optimum selling position at different times. Further, because of the improved air circulation throughout the cabinet provided by the display system and display bins 1 according to the invention cooling of the products is optimised and the build up of frost within the cabinet is minimised. Any frost build-up on the side walls of the freezer cabinet 2 is readily, easily and quickly removed by taking out the bins 1 along the freezer cabinet side wall to provide immediate access to the side wall for cleaning.

Also, when restocking the freezer cabinet 2 a bin 1 can simply be removed and replaced with a fresh bin 1 containing the fresh stock. Any few remaining goods 3 in the old bin can be simply be tipped into the new bin so that the old stock will be used first. Thus advantageously there is no build-up of old stock at the bottom of the freezer cabinet 2 which can lead to wastage.

Fig. 7 shows a display bin 30 according to another embodiment of the invention. Parts similar to those described previously are assigned the same reference numerals. In this case, the display bin 30 is of one piece construction. Ventilation openings in the front wall 6 and rear wall 7 are provided by a number of spaced-apart elongate slots 32, each slot 32 arranged in a generally horizontal orientation on the bin side walls 6, 7.

Fig. 8 shows another display bin 40. Parts similar to those described previously are assigned the same reference numerals. In this case, each rib 18 is formed by a broken line of projections 42 extending around the side walls 6, 7, 8, 9. Also, ventilation openings 43 are provided in all side walls 6, 7, 8, 9.

It will be appreciated that the display bin according to the invention may be made in the two-part construction or it may be of one piece construction. Various different materials may be used for construction the bin, however plastics material is preferred and in particular PET material. Various different arrangements of the ventilation holes and drainage holes in the bin may be provided and in some cases the drainage holes and/or the ventilation holes may be omitted if desired.

In some cases bins may be provided without support legs on the base. It may be desirable to fit rails or other raised supports along a bottom of the freezer cabinet instead to support the bins above the bottom of the freezer cabinet facilitating drainage from the bins.

The invention is not limited to the embodiments hereinbefore described which may be varied in both construction and detail.

Claims

1. A display system for a display cabinet, the display system comprising plurality of independent display bins for mounting in the display cabinet to sub-divide the display cabinet into a number of smaller display units or compartments.

2. A display system as claimed in claim 1 having means for defining cooling air circulation passages around the bins when a set of juxtaposed bins are mounted within the display cabinet.

3. A system as claimed in claim 1 or 2, wherein each display bin has a number of ventilation openings in side walls of the bin for ventilating the bin during use.

4. A system as claimed in claim 3, wherein the ventilation openings comprise a number of spaced-apart slots in opposite side walls of the bin.

5. A system as claimed in any preceding claim, wherein one or more drainage holes are provided in a base of the bin and a support leg or legs are provided on the base to raise the base from a support surface on which the bin is mounted.

6. A system as claimed in any preceding claim, wherein one or more ribs or projections are provided on side walls of the bin.

7. A system as claimed in claim 5, wherein the ribs extend around the side walls intermediate the ends of the side walls.

8. A system as claimed in any preceding claim, wherein the bin is of two-part construction comprising a pair of interengagable bin halves with means for securing the bin halves together to form the display bin.

9. A system as claimed in claim 8, wherein each bin half comprises portion of the base and the associated side wall portions.

10. A system as claimed in any preceding claim, wherein the display bin is constructed of a translucent ma-

terial.

11. A system as claimed in any preceding claim, wherein the display bin is constructed of a plastics material.

12. A display bin for a display cabinet display system, the display bin comprising a base, upstanding side walls on the base, an access opening being defined by a rim extending around an upper end of the side walls, a plurality of spaced-apart ventilation openings in the side walls and spacing projections extending outwardly of an exterior face of the side walls.

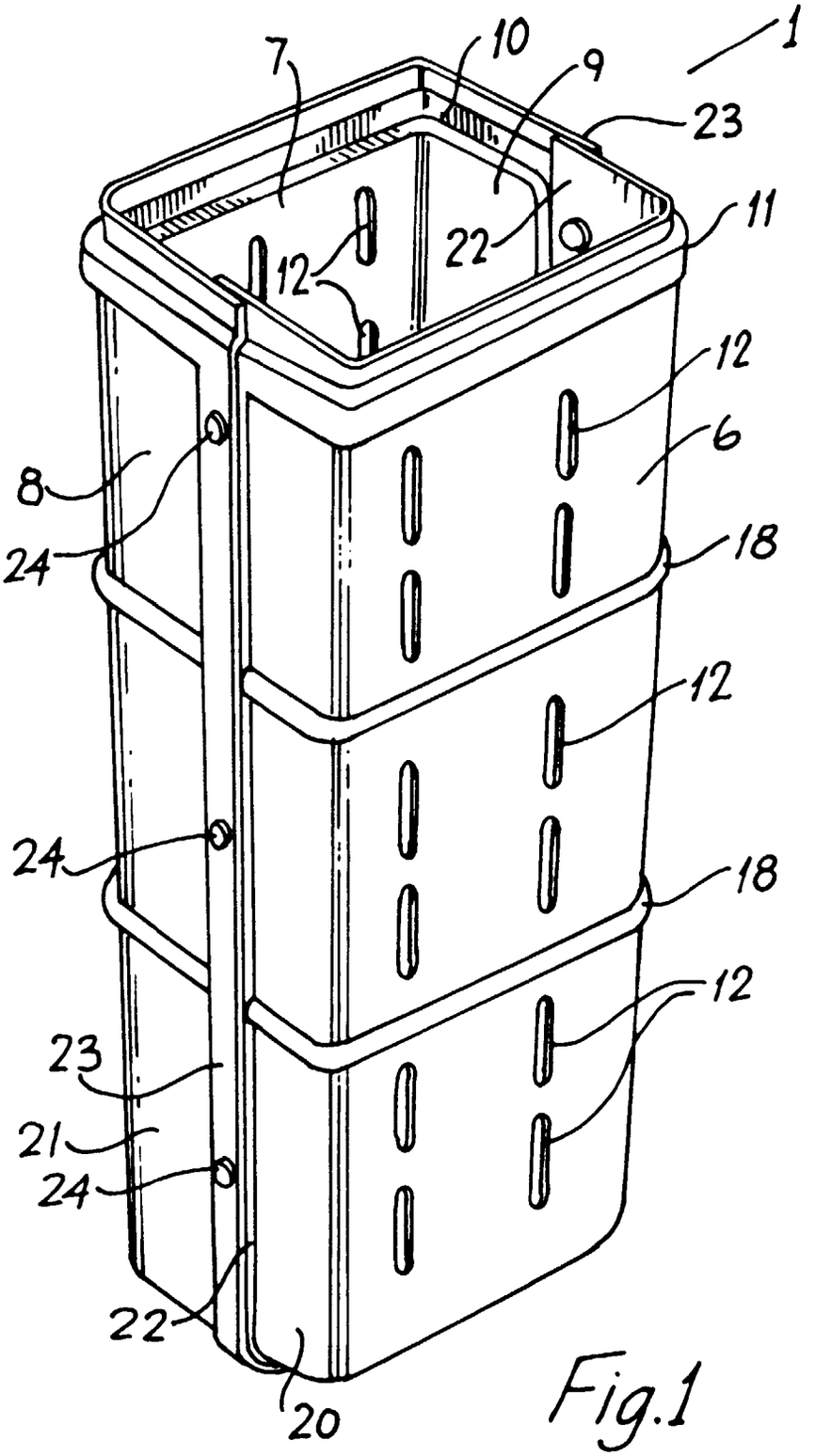


Fig.1

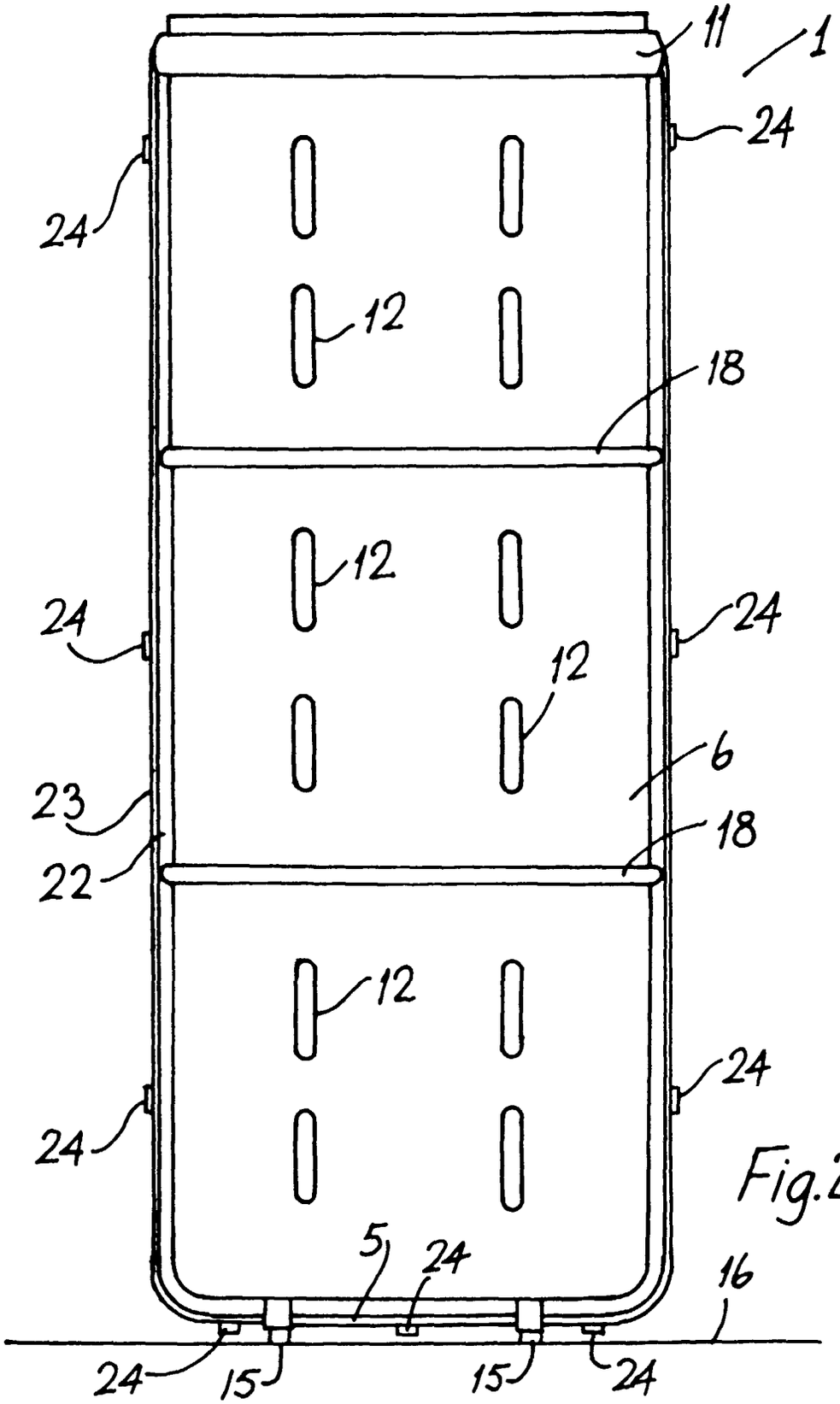


Fig.2

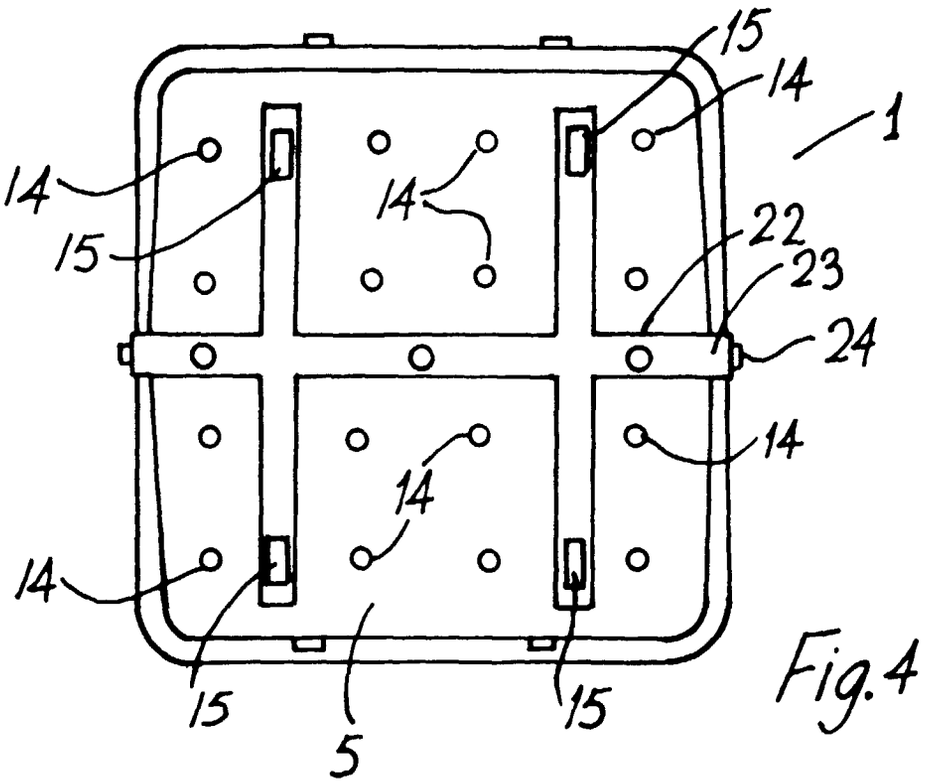
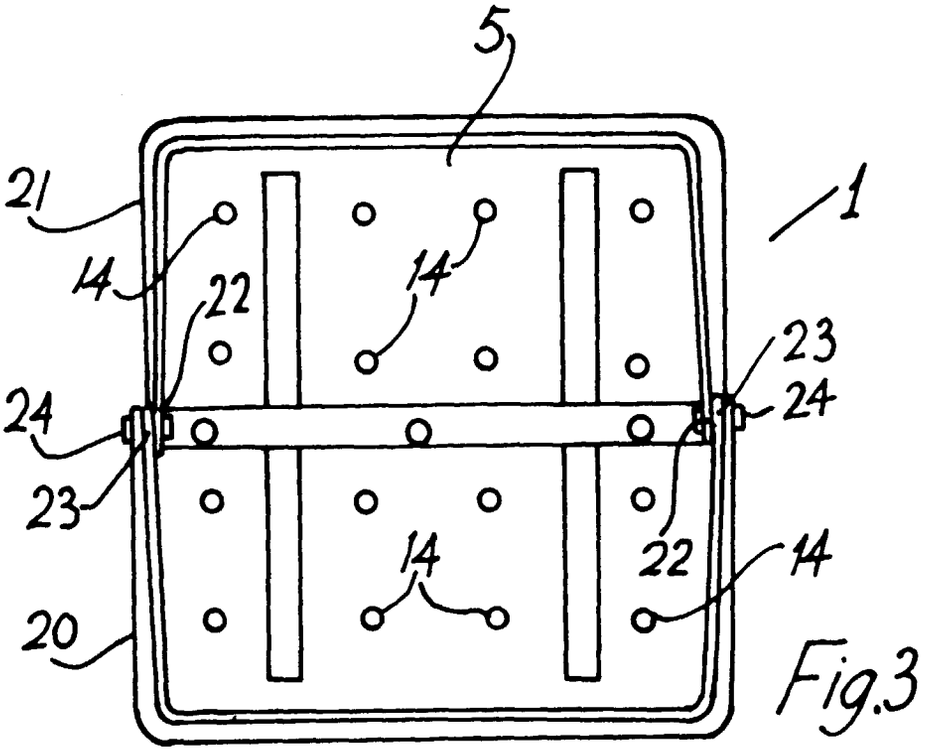

15
14
1
14
14
15
22
23
24
14
14
14
15
15
5

Fig.4


5
21
1
14
14
22
23
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23
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22
14
20

Fig.3

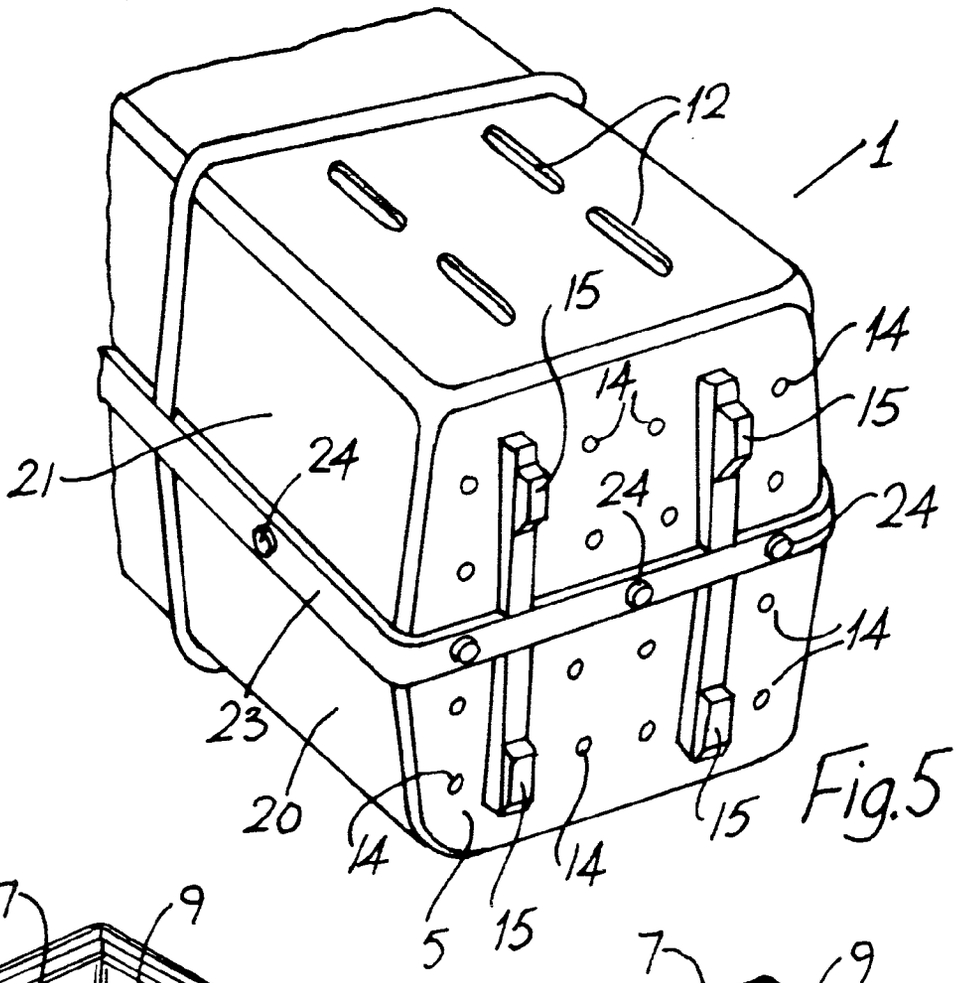

Fig.5

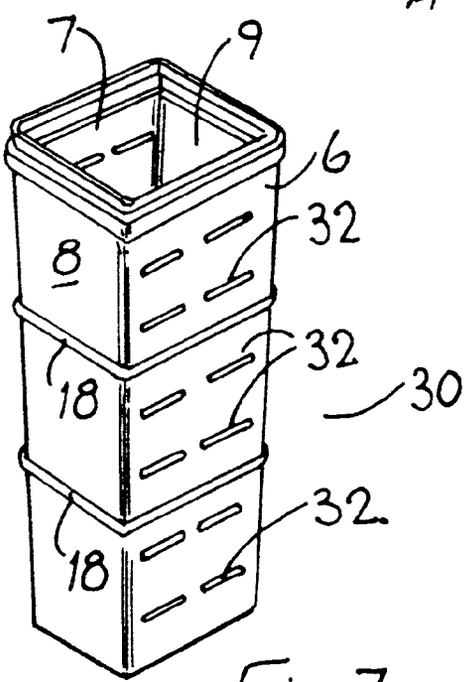

Fig.7

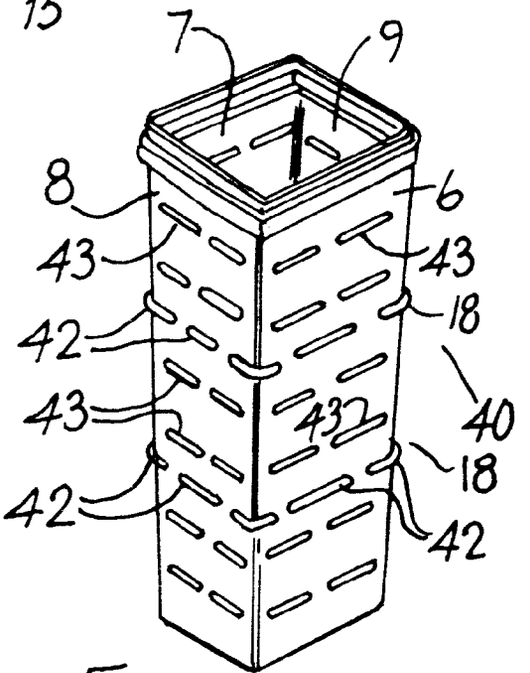

Fig.8

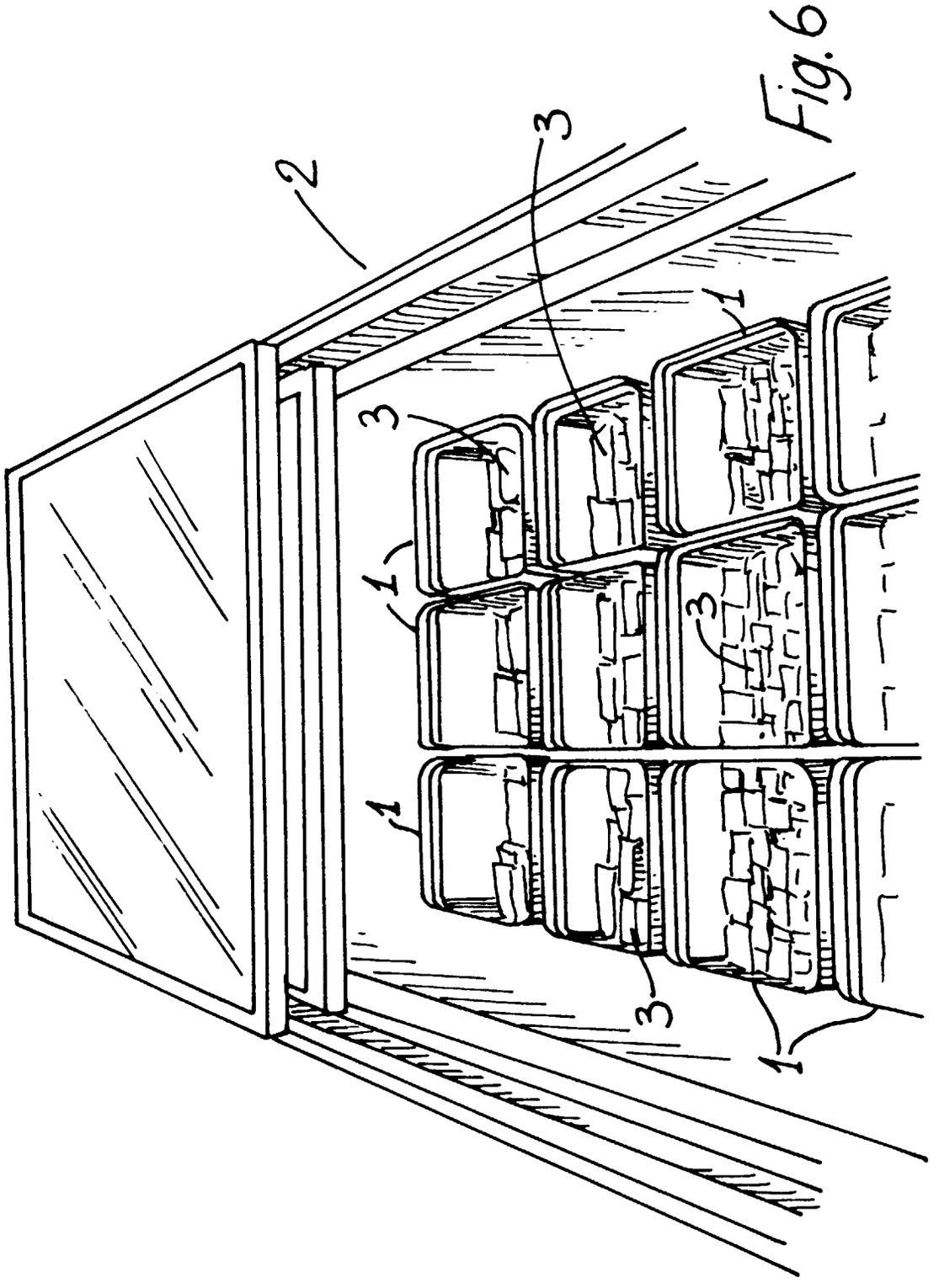

Fig. 6