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(56) Documents cited
GB 2006163 A GB 0632443 A EP 0276878 A1
EP 0247696 A1 US 3831836 A

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INT CL⁵ B65D 5/44 19/20

(54) Stackable container

(57) A container formed of cardboard or similar creasable and foldable material includes an outer four-sided sleeve 1, a base, 3, 6, and an inner eight-sided sleeve 2 which is a close fit within the outer sleeve. Four triangular vertically extending spaces 28 are defined between the inner sleeve 2 and the four corners of the outer sleeve 1 which receive four post members 5 of timber or rolled cardboard. The base may include a timber pallet 6 which is covered by a sheet of cardboard 3, and the outer sleeve 1 may have intumed flaps which overlie the sheet 3. The outer sleeve may have pressed-in corner bands which embrace the post members 5. A separate lid 4 is also provided.

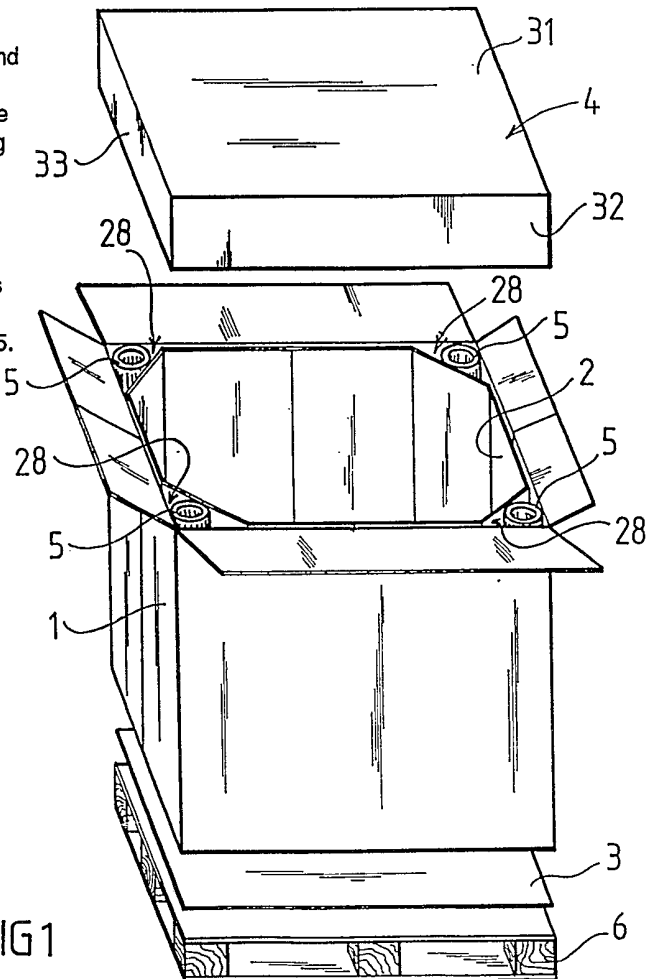


FIG 1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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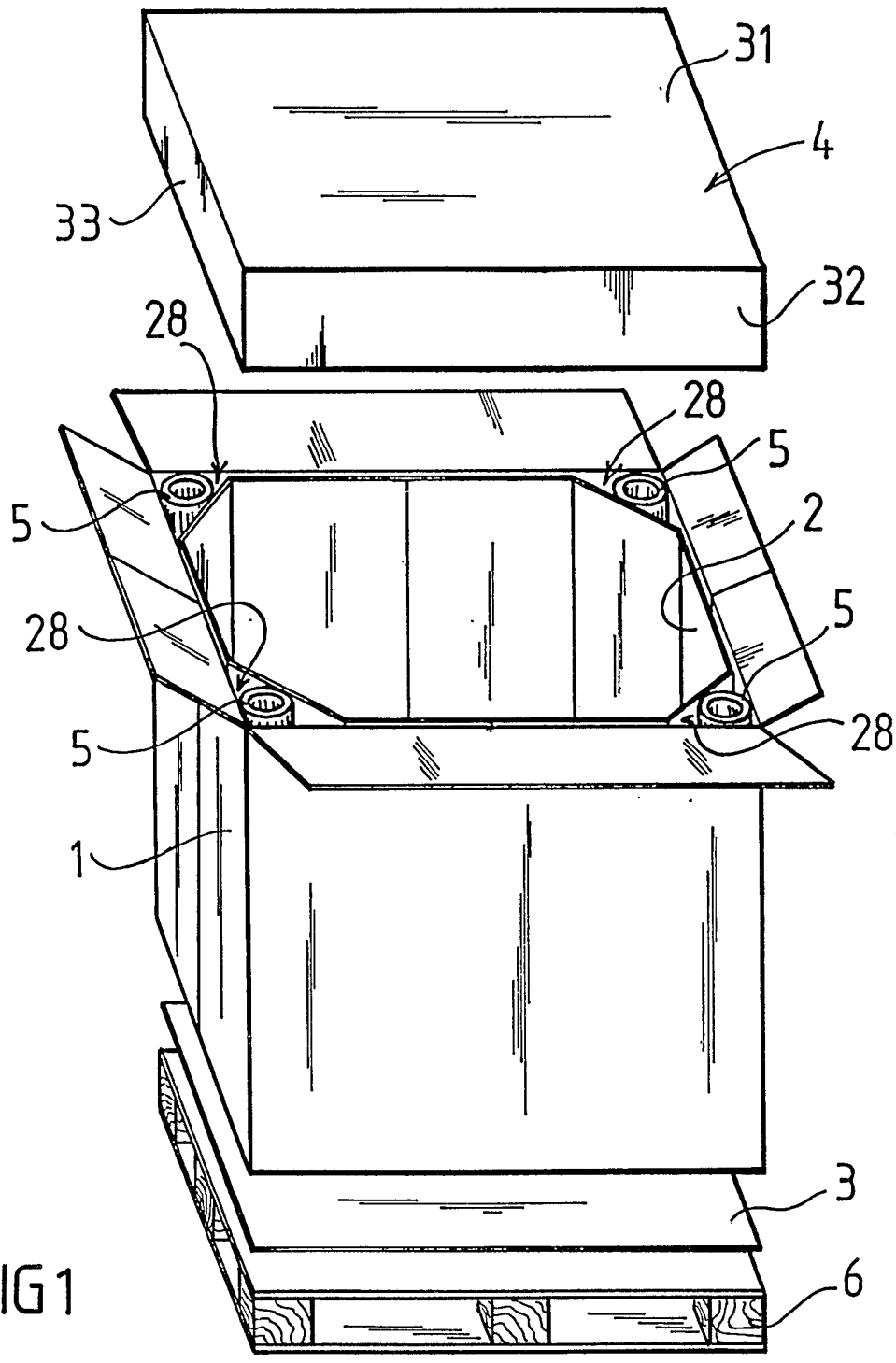


FIG 1

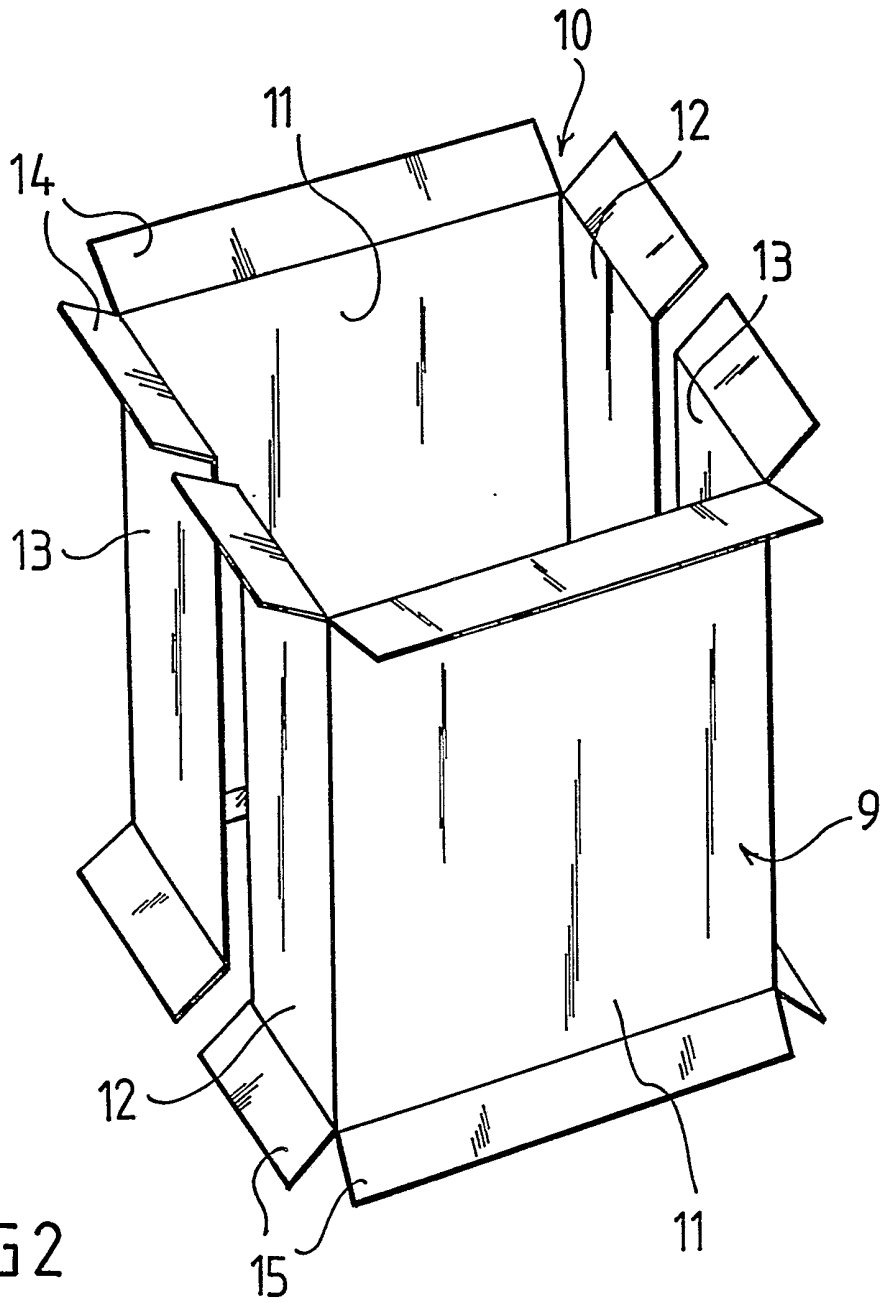


FIG 2

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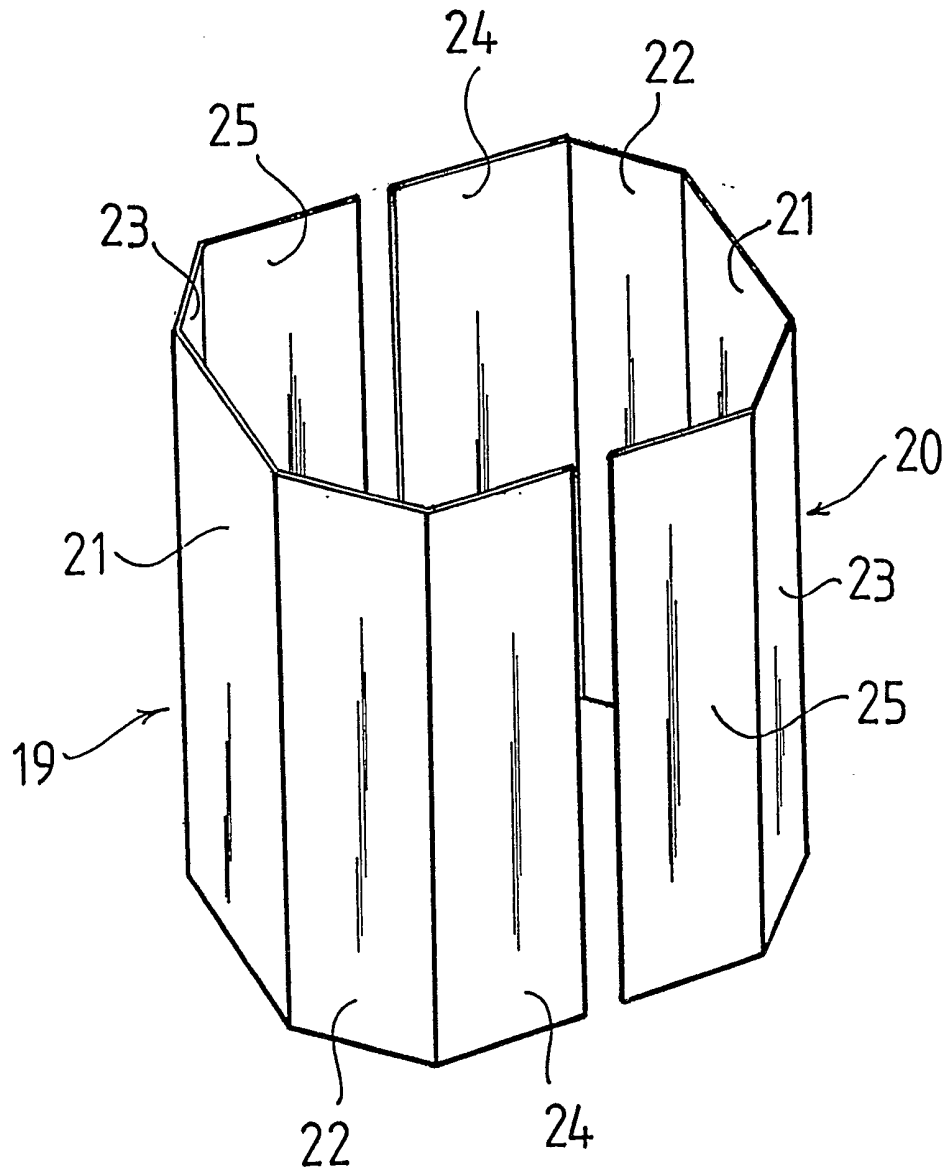


FIG 3

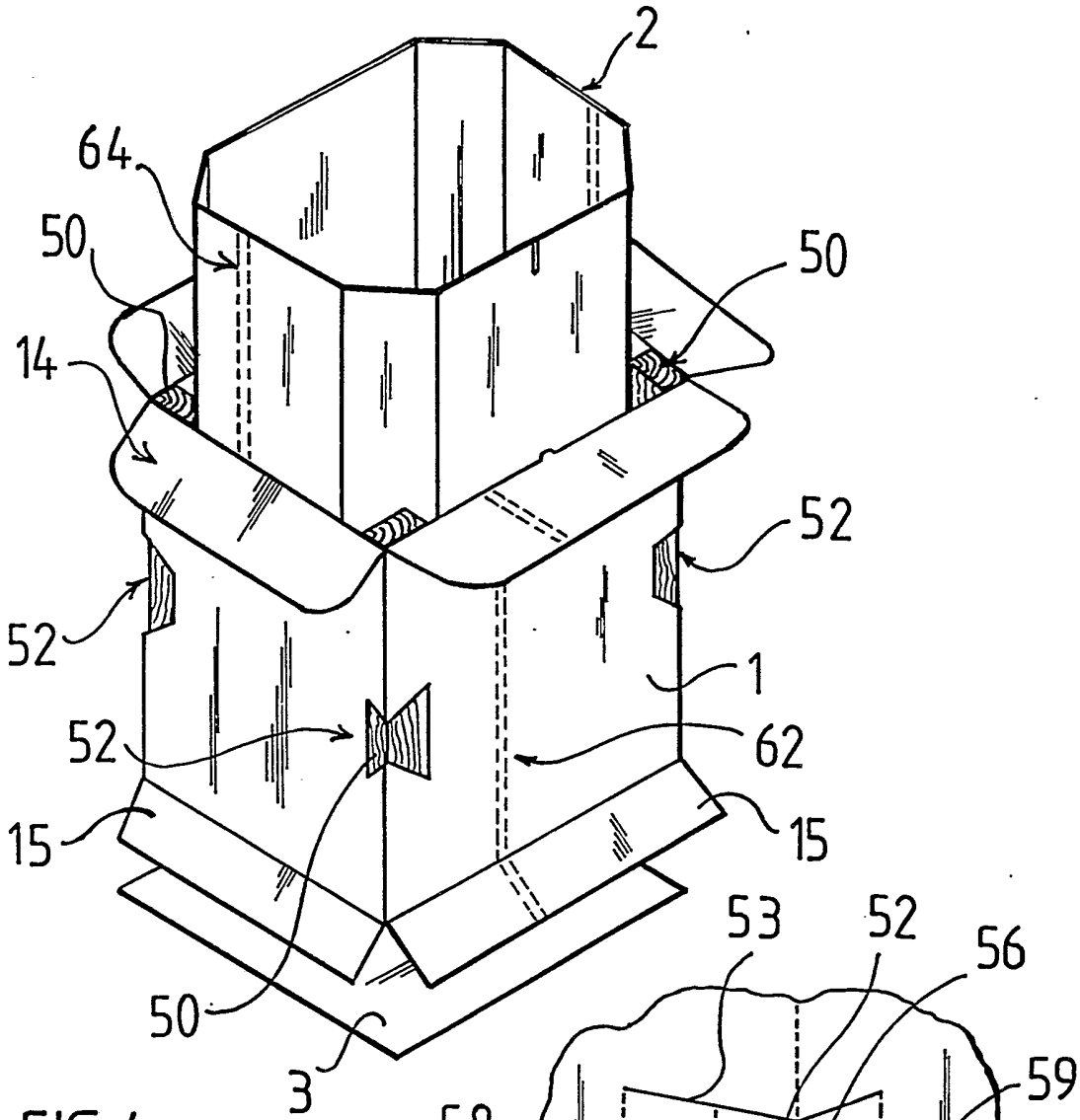


FIG 4

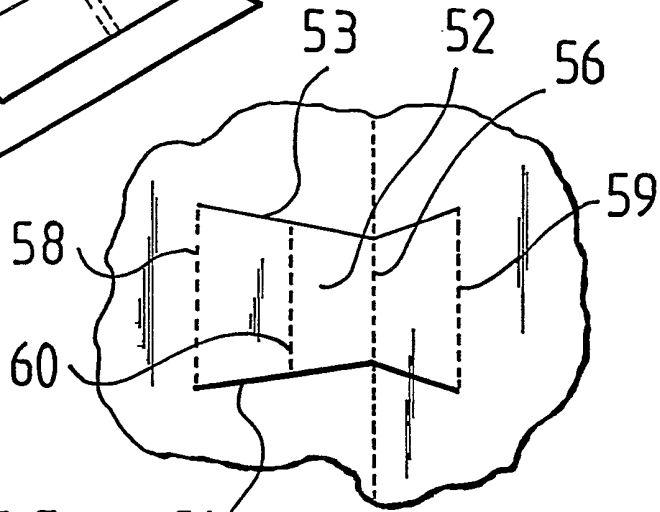


FIG 5

STACKABLE CONTAINER

TECHNICAL FIELD OF THE INVENTION

This invention relates to stackable containers formed of creasable and foldable material, e.g. cardboard.

BACKGROUND

Cardboard is an inexpensive material which is easily cut to shape, creased and joined by gluing and/or wire stitches (staples). However, ordinary cardboard boxes are not strong enough to hold a large quantity of vegetables or other heavy products without a high risk of crushing of the container when they are stacked one upon another.

An existing pack includes a cardboard container with an outer timber frame and internal corner stacking posts, also of timber. However, the wood presents a serious contamination problem when the container is filled with food products.

An aim of the present invention may be viewed as being to provide a container of cardboard or other inexpensive, creasable and foldable material (e.g. plastics sheet) which is strong enough to withstand stacking when filled with heavy products, and with a significant reduction in timber content.

SUMMARY OF THE INVENTION

The present invention proposes a stackable container formed of creasable and foldable material and comprising:

- an outer four-sided sleeve;
- a base;
- an inner eight-sided sleeve which is a close fit within the outer sleeve, the arrangement being such that four triangular vertically extending spaces are defined between the inner sleeve and the four corners of the outer sleeve;
- four post members (not necessarily of creasable and foldable material) respectively received in the four spaces, each post member being substantially the same height as the side walls of the outer sleeve; and
- a separate lid.

Since the post members are enclosed within the corner spaces they may, for example, comprise lengths of timber since they are not in direct contact with the container contents. The function of the post members is to provide stacking strength by transmitting a proportion of the load of a similar container which is stacked on top to a surface on which the container stands, e.g. a further similar container or a floor. In a preferred low-cost form the post members are spirally wound of foldable and creasable material.

The post members are preferably positively held in an upright position by retaining bands formed by pressed-in portions at the corners of the outer sleeve.

The outer sleeve is preferably provided with flaps which overlap the base. The base may be glued to the outer sleeve, but surprisingly, when the container is filled with heavy products the outer sleeve can simply sit on the base where it will be held by the weight of products. The base preferably comprises a timber pallet which is engageable by a fork-lift truck. In order to prevent timber contamination of the products the base preferably comprises a sheet of foldable and creasable material which, when the base comprises a timber pallet, is positioned on top of the pallet.

The lid preferably comprises a top wall surrounded by a depending side wall.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is exemplified in the accompanying drawings, in which:

Figure 1 is a perspective view of a container of the invention,

Figure 2 is an exploded perspective view of the outer sleeve of the container,

Figure 3 is an exploded perspective view of the inner sleeve of the container,

Figure 4 is a perspective view of a modified form of the container, and

Figure 5 is a detail of the modified container.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring in particular to Fig. 1, the container is formed of an outer sleeve 1, an inner sleeve 2, a base pad 3, a lid 4 and four tubular corner posts 5, all formed of foldable and creasable cardboard sheet. In addition, a timber pallet 6 of known form having apertures for engagement by the forks of a fork-lift truck is located beneath the base pad 3.

The outer sleeve 1, shown in more detail in Fig. 2, is formed of two identical pieces of cardboard, 9, 10, each of which includes a rectangular side panel 11 with a pair of shorter end panel sections 12 and 13 connected to opposite side edges of the side panel. The end panel sections are folded perpendicular to the side panels 11 and small overlaps at the free vertical edges of the end panel sections are glued together. The side and end panel sections 11, 12 and 13 are all provided with top and bottom flaps, 14 and 15 respectively. By way of non-limiting example, the outer sleeve may be about 1540mm high with the side panels being 1190mm long and the end panels 990mm long. It will be appreciated however that, particularly in smaller containers, the outer sleeve could be formed of a single piece of cardboard, and in larger containers the outer sleeve could be of more than two

pieces if desired.

The base pad 3 is formed of a single rectangular sheet of cardboard which is simply placed on the pallet 6. The bottom flaps 15 are inturned and the outer sleeve is, in turn, simply placed on the base pad 3.

The inner sleeve, shown in Fig. 3, is again formed of two identical pieces 19 and 20 which are slightly shorter in height than the side panels 11 of the outer sleeve. Each piece 19, 20 includes an end panel 21 which is substantially narrower than the completed end panels 12/13 of the outer sleeve, a pair of similarly-sized cross-panels 22 and 23 joined to opposite vertical side edges of the end panel 21, and a pair of side panel sections 24 and 25 which are less than half the width of the side panels 11 of the outer sleeve. The side panel sections 24 and 25 again overlap slightly along their vertical edges, which are glued together. The inner sleeve 2 is a close sliding fit within the outer sleeve 1 as shown in Fig. 1 so that the cross-panels 22 and 23 define vertically extending triangular corner spaces 28 in the four corners of the outer sleeve 1.

Each of the corner spaces 28 receives a tubular corner post 5 of the same height as the inner sleeve 2. The corner posts 5 are formed by spirally winding and gluing a sheet of cardboard.

The lid 4 is a close fit over the outer sleeve 1, with the upper flaps 14 inturned. A central rectangular top panel 31 is surrounded by depending strip-like side and end panels 32 and 33 respectively, all of equal depth

and mutually joined at the corners of the lid.

The space within the inner sleeve 2 may be filled with vegetables and the lid 4 placed in position on the container. Although the base pad 3 and pallet 4 are free the filled containers can be lifted by engagement of a fork-lift with the pallet 6 and stacked on top of one another without crushing since the majority of the weight is transferred through the corner posts 5. The containers can initially be supplied flat and assembled at point of use, and when subsequently emptied they can be re-used a number of times.

The modified container shown in Figs 4 and 5 has timber corner posts 50 of rectangular cross section in place of the tubular corner posts 5. In order to hold the corner posts firmly in an upright position, fastening bands 52 are formed at the four corners of the outer sleeve 1. As can be seen in Fig. 5, the bands 52 are each formed by a pair of slits 53 and 54 which transversely intersect the corner creases 56 of the outer sleeve, extending further to one side of the corner crease than the other. It will also be noted that the slits 53 and 54 converge slightly towards the corner crease 56. Parallel creases 58 and 59 join the ends of the slits 53 and 54, and a further intermediate crease 60 joins slits 53 and 54 parallel to creases 58 and 59. Thus, when the band formed between the slits 53 and 54 is pressed inwardly upon folding the outer sleeve, an oblong rectangular space is formed to snugly receive the rectangular corner post 50. Although parallel slits could be used, the slightly convergent arrangement of the slits 53 and 54 provides less resistance when the corner band is pushed inwardly and

hence makes the box quicker and easier to erect. The inclined upper faces of the bands thus formed also helps to guide the corner posts 50 into the bands, which in turn allows quicker erection of the box.

It will be appreciated that suitable retaining bands could also be provided in the container of Fig.s 1 to 3 for locating the tubular corner posts.

The container of Fig.s 4 and 5 also illustrates how the vertical seams 64 and 64 of the outer and inner sleeves 1 and 2 can be formed in the side and end walls respectively.

In both forms of the container described above, the base sheet 3 could be placed on top of the bottom flaps 15 or beneath them.

* * * * *

CLAIMS

1. A stackable container formed of creasable and foldable material and comprising:

- an outer four-sided sleeve;
- a base;
- an inner eight-sided sleeve which is a close fit within the outer sleeve, the arrangement being such that four triangular vertically extending spaces are defined between the inner sleeve and the four corners of the outer sleeve;
- four post members (not necessarily of creasable and foldable material) respectively received in the four spaces, each post member being substantially the same height as the side walls of the outer sleeve; and
- a separate lid.

2. A container according to Claim 1, in which the post members comprise lengths of timber.

3. A container according to Claim 1, in which the post members are spirally wound of foldable and creasable material.

4. A container according to any preceding claim, in which the post members are positively held in an

upright position by retaining bands formed by pressed-in portions at the corners of the outer sleeve.

5. A container according to Claim 4, in which the edges of the retaining bands converge inwardly from both ends of the band.

6. A container according to any preceding claim, in which the outer sleeve is provided with flaps which overlie the base.

7. A container according to any preceding claim, in which the base comprises a timber pallet which is engageable by a fork-lift truck.

8. A container according to any preceding claim, in which the base comprises a sheet of foldable and creasable material.

9. A container according to any preceding claim, in which the lid comprises a top wall surrounded by a depending side wall.

10. A stackable container substantially as described with reference to Figures 1 to 3 or Figures 4 and 5 of the drawings.

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Patents Act 1977
Examiner's report to the Comptroller under
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Relevant Technical fields

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(ii) Int Cl (Edition 5) B65D 5/44; 19/20

Search Examiner

MIKE HENDERSON

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

30 MARCH 1993

Documents considered relevant following a search in respect of claims 1-10

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
Y	GB 2006163 A (GAULT) Whole specification relevant	1, 2, 6, 7, 9
Y	GB 632443 (BELSINGER INC) Whole specification relevant	1, 2, 8, 9
Y	EP 0276878 A1 (BOOTS) Whole specification relevant	1, 2, 4, 6-9
Y	EP 0247696 A1 (BOOTS) Whole specification relevant	1, 2, 4, 6-9
Y	US 3831836 (ELLISON ET AL) Whole specification relevant	1, 2, 4, 6



Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

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

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E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

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