



PATENT SPECIFICATION

DRAWINGS ATTACHED

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Inventors: NORMAN FRANCIS DIXON, TERENCE STEUART KENNEDY MEUX and CARLISLE JAMES NORRIS

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COMPLETE SPECIFICATION

Improvements in and relating to the Bulk Packing of Tetrahedral Containers

We, TETRA PAK LIMITED formerly known as Tetra Pak (London) Limited, a British corporate body, of Orchard Road, Richmond, Surrey, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the bulk packing of tetrahedral containers such as commonly used to hold milk, other liquids or other materials in quantities suitable for retail trading.

Such tetrahedral containers are normally made of comparatively weak paper or similar material, and for protection during handling and movement over comparatively short distances, a plurality of such containers may be packed in a holder or carrier (e.g. made of stiff cardboard or the like) comprising a box-like enclosure of hexagonal cross-section. A preferred form of such holder or carrier is described in the specification of co-pending Patent Application No. 31725/66 filed herewith (Serial No. 1148924).

When a substantial number of such holders or carriers are to be transported over a long distance the problem arises of facilitating handling for vehicle loading and unloading purposes, and of protecting the holders as well as their contents from serious damage.

The object of the present invention is to provide a method of, and means for, solving the aforesaid problem, and with this end in view the invention consists in a method of packing for transport a plurality of holders or carriers of hexagonal cross-section, each containing a plurality of tetrahedral packages, wherein an outer crate or casing is provided of hexagonal cross-section, and of such internal dimensions that the holders or carriers have a firm slidable fit therein, and the holders or carriers are stacked one above another in the crate or casing with the lower edges of the

[Price 4s. 6d.]

walls of an upper holder or carrier bearing against the upper edges of the walls of a holder or carrier beneath it or against an intumed lug pressed between them. In this way the holders or carriers are held firmly, against distortion or damage, by the outer crate or casing (in which they fit so closely as to render relative movement impossible), while the forces transmitted between adjacent holders or carriers are taken up by the walls thereof in edge-to-edge contact, and the contents are thereby protected from impact or abrasion.

The outer crate or casing may be formed of stiff fibrous material, e.g. cardboard. The mouth of the crate or casing may be slightly opened or splayed to facilitate initiation of entry of a holder or carrier thereinto. If desired the walls of the crate or casing may be formed at selected spacings with inward projections, e.g. intumed lugs cut in the walls, to relieve a lower holder or carrier in the casing from some of the load of the holder or carrier above it.

The invention will be clearly understood from the following description of one form (given, however, merely by way of example) which it may assume, and this description will be more readily followed by reference to the drawings accompanying the provisional specification of this invention wherein

Figure 1 represents in perspective a crate or casing for packing a plurality of holders or carriers for tetrahedral packages in accordance with the invention:

Figure 2 represents a longitudinal axial section of the crate or casing shown in Figure 1: and

Figure 3 represents a blank from which the crate or casing shown in Figures 1 and 2 may be formed, when made of sheet cardboard or like material.

In carrying the invention into effect in one convenient manner as shown in the aforesaid

drawings a crate or casing adapted to receive a plurality of hexagonal-sectioned holders or carriers enclosing tetrahedral packages of milk or other contents comprises a tubular enclosure 1 of hexagonal cross-section open at each end. The "corners" between the six flat side walls at the upper or lower end of the enclosure 1 may be divided as at 2 to allow the mouth or base of the casing to be opened slightly in order to facilitate insertion of the hexagonal holders or carriers 3. These holders or carriers may, for example, be of the form described in the specification of co-pending Patent Application No. 31725/66 (Serial No. 1148924) filed herewith, and the internal shape and dimensions of the enclosure 1 are selected to ensure that the holders 3 can slide into the casing 1, but will fit firmly or tightly therein.

As shown the casing 1 is adapted to receive three holders or carriers 3, one on top of another, but may be of suitable length to receive any desired number. The lowermost holder, first inserted in the mouth of the casing and lowered or pushed down to the bottom, may be held in position by suitable means, e.g. by adhesive tape 4 embracing the bottom edges of the casing 1 and holder.

The wall edges of the upper holders will bear upon those of the holders beneath, but if it is desired to relieve some of the pressure thus applied there may be cut in the walls of the casing 1 U-shaped lugs 5 adapted to be folded inwards, and on which the edges of a holder will then bear. These lugs are located at heights from the bottom of the casing 1 corresponding to the height of a holder 3, or a multiple thereof. At each selected height two lugs may be provided in opposite walls of the casing 1, and the pairs of lugs at different heights may be staggered as illustrated.

The casing 1 may be made of stiff cardboard or the like, from a blank such as shown in Figure 3 comprising a rectangular sheet 6 with equispaced parallel score-lines or fold-lines 7 between its upper and lower edges to define the walls of the casing. To form the casing the free side edges of the sheet are brought together, and secured together by adhesive or adhesive tape or other suitable means, to hold the sheet in the form of a hexagonal cylinder. The slots 2 and lugs 5 may be formed in the sheet, as above described, before or after such folding of the blank. The holders 3 are inserted in the casing one at a time from the top, and the relevant lugs 5, if provided, folded inwards over each holder 3 after insertion.

From the above description it will be seen that the invention provides a simple and effective method of and means for the packing for transport of a substantial number of tetrahedral packages firmly enclosed in holders or carriers, but it should be understood that the invention is not limited to the form described

above which may be modified in order to meet various operating conditions and requirements encountered, without departing from the scope of the invention.

WHAT WE CLAIM IS:—

1. A method of packing for transport a plurality of holders or carriers of hexagonal cross-section, each containing a plurality of tetrahedral packages, wherein an outer crate or casing is provided of hexagonal cross-section, and of such internal dimensions that the holders or carriers have a firm slidable fit therein, and the holders or carriers are stacked one above another in the crate or casing with the lower edges of the walls of an upper holder or carrier bearing against the upper edges of the walls of a holder or carrier beneath it, or against an intumed lug pressed between them.

2. A method of packing as claimed in Claim 1 wherein the outer crate or casing is open at both ends, and at one end the adjacent holder or carrier is held in the crate or casing by separate connecting means attached to and between the walls of the crate or casing and the holder or carrier.

3. A method of packing as claimed in Claim 2 wherein the said end holder or carrier is held in the crate or casing by adhesive tape or the like.

4. A method of packing as claimed in Claim 1, 2 or 3 wherein after a holder or carrier has been inserted in the crate or casing a lug cut in the wall of the crate or casing adjacent to the upper wall edge of the inserted holder or carrier is turned inwards to extend beneath and receive the edges of the next holder or carrier inserted in the crate or casing.

5. A crate or casing when packed in accordance with the method as claimed in any of Claims 1—4 comprising a tubular cover of hexagonal cross-section open at both ends, with internal dimensions to fit the hexagonal holders or carriers packed into it, and of height substantially a multiple of the height of a single holder or carrier.

6. A crate or casing as claimed in Claim 5 wherein at one end the walls of the crate or casing are flared or slightly opened out to facilitate insertion of the holders or carriers.

7. A crate or casing as claimed in Claim 5 or 6 wherein at each of selected levels corresponding to the height of one holder or carrier, or heights of a multiple thereof, a lug is cut in a wall of the crate or casing and adapted to be folded inwards, to project into the crate or casing, beneath the base of a holder or carrier.

8. A crate or casing as claimed in Claim 7 wherein the lugs at different heights are staggered.

9. A crate or casing as claimed in any of Claims 5—8 comprising adhesive means between an end holder or carrier, and the crate or casing, holding the former in the latter.

10. A method of packing for transport or



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The casing 1 may be made of stiff cardboard or the like, from a blank such as shown in Figure 3 comprising a rectangular sheet 6 with equispaced parallel score-lines or fold-lines 7 between its upper and lower edges to define the walls of the casing. To form the casing the free side edges of the sheet are brought together, and secured together by adhesive or adhesive tape or other suitable means, to hold the sheet in the form of a hexagonal cylinder. The slots 2 and lugs 5 may be formed in the sheet, as above described, before or after such folding of the blank. The holders 3 are inserted in the casing one at a time from the top, and the relevant lugs 5, if provided, folded inwards over each holder 3 after insertion.

From the above description it will be seen that the invention provides a simple and effective method of and means for the packing for transport of a substantial number of tetrahedral packages firmly enclosed in holders or carriers, but it should be understood that the invention is not limited to the form described

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WHAT WE CLAIM IS:—

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2. A method of packing as claimed in Claim 1 wherein the outer crate or casing is open at both ends, and at one end the adjacent holder or carrier is held in the crate or casing by separate connecting means attached to and between the walls of the crate or casing and the holder or carrier.

3. A method of packing as claimed in Claim 2 wherein the said end holder or carrier is held in the crate or casing by adhesive tape or the like.

4. A method of packing as claimed in Claim 1, 2 or 3 wherein after a holder or carrier has been inserted in the crate or casing a lug cut in the wall of the crate or casing adjacent to the upper wall edge of the inserted holder or carrier is turned inwards to extend beneath and receive the edges of the next holder or carrier inserted in the crate or casing.

5. A crate or casing when packed in accordance with the method as claimed in any of Claims 1—4 comprising a tubular cover of hexagonal cross-section open at both ends, with internal dimensions to fit the hexagonal holders or carriers packed into it, and of height substantially a multiple of the height of a single holder or carrier.

6. A crate or casing as claimed in Claim 5 wherein at one end the walls of the crate or casing are flared or slightly opened out to facilitate insertion of the holders or carriers.

7. A crate or casing as claimed in Claim 5 or 6 wherein at each of selected levels corresponding to the height of one holder or carrier, or heights of a multiple thereof, a lug is cut in a wall of the crate or casing and adapted to be folded inwards, to project into the crate or casing, beneath the base of a holder or carrier.

8. A crate or casing as claimed in Claim 7 wherein the lugs at different heights are staggered.

9. A crate or casing as claimed in any of Claims 5—8 comprising adhesive means between an end holder or carrier, and the crate or casing, holding the former in the latter.

10. A method of packing for transport or

- storage a plurality of holders or carriers of hexagonal cross-section each containing a plurality of tetrahedral packages substantially as described herein with reference to the drawings accompanying the provisional specification of this invention. 10
- 5 11. A crate or casing packed with a plurality of holders or carriers each containing a plurality of tetrahedral packages, substantially as described herein with reference to the drawings accompanying the provisional specification of this invention.

W. H. BECK, GREENER & CO.,
Chartered Patent Agents,
7, Stone Buildings,
Lincoln's Inn, London, W.C.2.
Agents for the Applicants.

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