United States Patent

[11] 3,563,374

[72] Inventors **Inge Lennart Carlsson**
Lund;
Lars-Goran Andersson, Malmo, Sweden

[21] Appl. No. **787,152**
[22] Filed **Dec. 26, 1968**
[45] Patented **Feb. 16, 1971**

[73] Assignee **AB Tetra Pak,**
Lund, Sweden
a corporation of Sweden

---

[54] **COMBINED PACKAGE FOR, AND CONTAINING TETRAHEDRAL CONTAINERS**
5 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **206/65,** 46/24, 229/22
[51] **Int. Cl.** **B65d 71/00,** B65d 5/00
[50] **Field of Search** ..... 206/65, 65T, (Special Shape); 229/22; 46/11, 24

[56] **References Cited**

UNITED STATES PATENTS

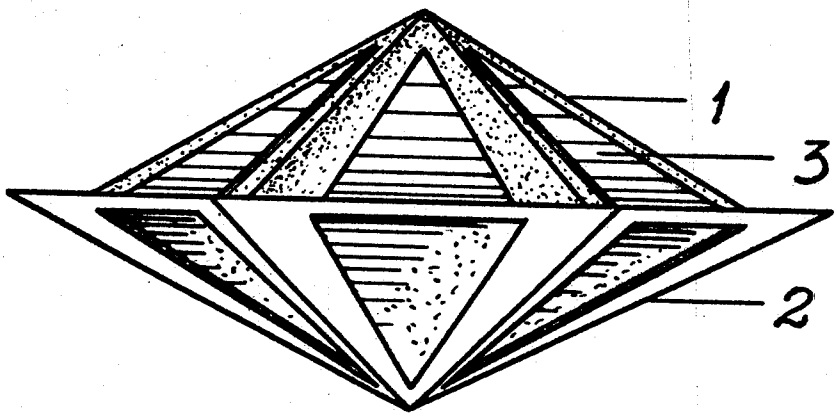
1,597,757	8/1926	Berger	229/22X
2,054,302	9/1936	Scoles	(229/22UX)
2,133,336	10/1938	Ziemmerman	229/22X
2,882,990	4/1959	Mustoe	229/22X
3,294,232	12/1966	Wettlen	206/65(T)
2,211,110	8/1940	Freiler	206/44(M)X

FOREIGN PATENTS

1,445,636	6/1966	France	229/22
1,012,863	7/1957	Germany	229/22

Primary Examiner—Joseph R. Leclair
Assistant Examiner—Steven E. Lipman
Attorneys—Norman C. Armitage and H. William Petry

ABSTRACT: Combined package for tetrahedral containers and the blank therefor which is the shape of a pyramid and has flaps integral therewith which secure the tetrahedron containers therein after packaging.



Patented Feb. 16, 1971 3,563,374

2 Sheets-Sheet 1

Fig. 1

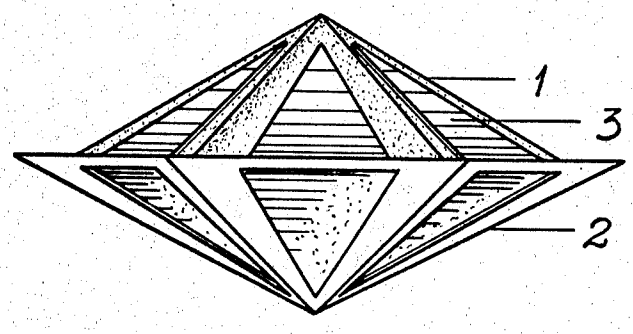
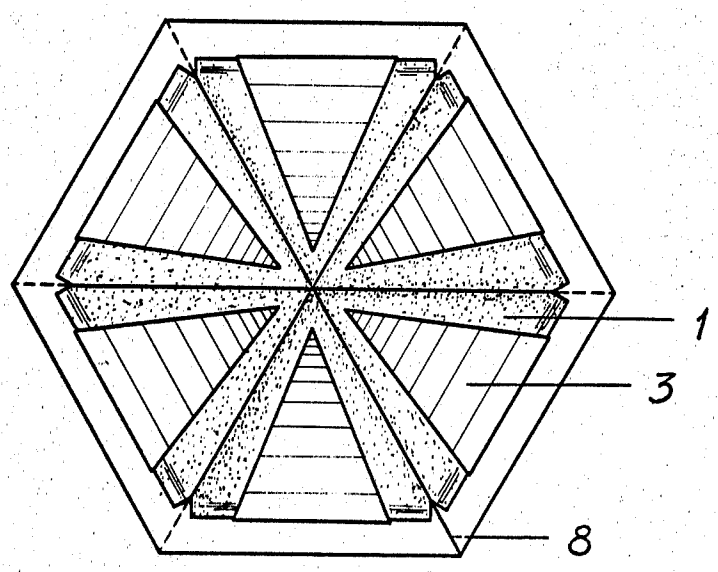


Fig. 2



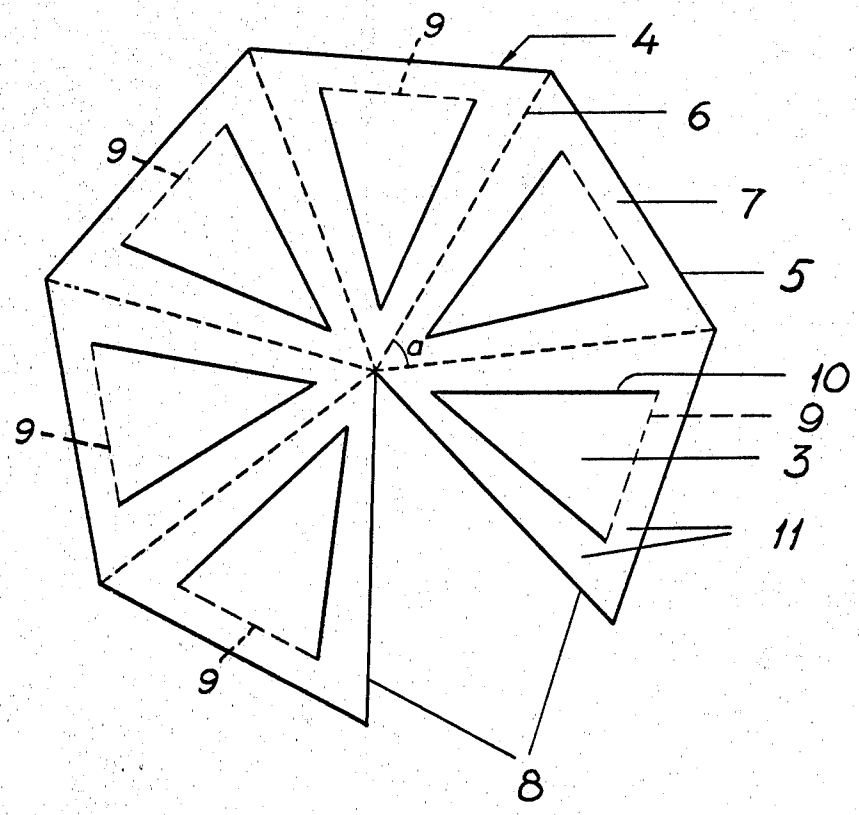
INVENTORS
INGE LENNART CARLSSON
LARS-GORAN ANDERSSON

Earle R. Marden
ATTORNEY

Patented Feb. 16, 1971 3,563,374

2 Sheets-Sheet 2

Fig. 3



INVENTORS
INGE LENNART CARLSSON
LARS-GORAN ANDERSSON

Earle R. Marden
ATTORNEY

COMBINED PACKAGE FOR, AND CONTAINING TETRAHEDRAL CONTAINERS

This invention is concerned with a combined package for tetrahedral containers, as well as with the package containing such containers. The primary purpose of the invention is to produce a composite set, of for instance 6 tetrahedral containers, which is suited to being retailed to each customer undivided. The composite set is produced by collecting together the containers into a combined package which at the same time serves as retail packing.

There has always been a great need for combined packages. There is among other things a direct demand from the retail trade for combined packages for the smaller container sizes, these being sizes of ½litre downwards, as a prerequisite for active sales. We may quote as an example that fruit drinks in self-service shops are sold by the containers being placed in the hexagonal cartons in which they have been delivered from the makers. It has been found in this connection that appreciable quantities of containers vanish from the shops as a result of theft. It would appear that the small size of the containers is of considerable significance in this connection as regards their attractiveness. When combined package units containing a suitable number of containers, which are securely held together, are displayed instead, pilfering is made very much more difficult, and this is a considerable advantage of the invention. Other aims of the invention are to facilitate distribution and handling of the containers by the customers.

A characteristic of the combined package in accordance with the invention is that the combined package consists of a bottom portion in the shape of a many-sided pyramid in which the containers are placed, and of retaining flaps which are designed to keep the containers in the bottom portion, the retaining flaps extending from near the base edges of the triangular sides of the pyramid at an angle equal to that between adjacent sides of the containers.

The invention will be described below by reference to the attached diagrammatic drawings, of which:

FIG. 1 shows a side projection of the combined package with the containers inside;

FIG. 2 shows the combined package as in FIG. 1 seen from above; and

FIG. 3 shows from above a plan of the packaging material for the combined package, spread out to a flat sheet.

The set made up of the tetrahedral containers 1 as per FIGS. 1 and 2 is held together by a combined package made from a packaging blank of a flexible material, for instance paper in two or more layers glued together, with perhaps intermediate laminations. The combined package consists of a bottom portion 2 in the shape of a hexagonal pyramid, in which there are placed 6 containers 1 held secure by retaining flaps 3. The packaging blank, which is to be folded to make up the combined package, has the shape of a polygon 4 inscribed into a circular sector, see FIG. 3. The polygon 4 is by means of fold lines 6 divided up into triangular areas 7 in the shape of isosceles triangles having equal central angles. The number of areas is six, owing to the fact that the packaging blank in the example is meant to contain 6 tetrahedral containers, each container 1 resting on its own area 7. Angle *a* of the areas, opposite the base 5 of the triangles, shall be as large as the angle between the adjacent sides of containers 1. Each area 7 of the packaging blank is thus similar to the triangular sides of the

containers. In each area 7 of the packaging blank there is a perforation 10, by means of which a retaining flap 3, capable of being folded away from the packaging blank, is obtained. In the example, the retaining flap has the shape of a triangle inscribed into the respective area 7, with its base parallel to the base 5 of the area 7. The retaining flaps 3 may however be given any shape provided that their extent is less than that of the respective area. The perforation 10 is carried out only along the sides of the triangle, the free ends of perforation 10 terminating some distance from the base 5 of the area 7, as a result of which the retaining flap 3 is capable of being folded away from the packaging blank about a line which in FIG. 3 is denoted 9. After retaining flaps 3 have been folded out, there will remain of the packaging blank a number of ribs 11 which make up the bottom portion 2 of the combined package. At the same time, part of the outer boundary line of the packaging blank makes up the side of an angle in two areas, see reference 8 in FIG. 3.

The combined package containing containers 1 is obtained by the packaging blank being folded along fold lines 6 in such a way that the angles between the respective areas 7 will be more or less equal. Folding goes on until that part of the outer boundary line of the packaging blank that is made up of the two sides of an angle 8 come together, after which these are firmly attached to one another. Retaining flaps 3 are then folded in a direction away from the package and are kept in the folded-out position so that containers 1 may be placed inside. Containers 1 are laid so that together they form a double-conical polygonal body with a cross section that narrows from the axis of the cones out towards the sides of the polygon. The retaining flaps 3 are finally released and these by their own force press against those sides of the containers which are turned towards the retaining flaps, by which means the tetrahedral containers make up a composite set which are securely held in the combined package.

The invention is not restricted to the constructional form illustrated but may be varied within the scope of the invention. The combined package may thus contain another number of tetrahedral containers, for instance such that have a comparatively small angle between adjacent sides. In such a case the packaging blank is to be divided into a greater number of areas than has been shown in FIG. 3 and has been described earlier, since more than six containers will be required to obtain a double-conical polygonal body made up in a manner similar to that described earlier.

We claim:

1. A combined package of tetrahedral containers comprising: a pyramid shaped bottom portion divided into a plurality of substantially equal triangles, a tetrahedron supported on each of said triangles and flap means connected to said triangles and operably associated therewith, said flap means retaining said tetrahedrons on said triangles.

2. The structure of claim 1 wherein said flap means are flaps cut out of said triangles and integrally connected thereto.

3. The structure of claim 2 wherein the area of each of said flaps is less than the area of each of said triangles.

4. The structure of claim 3 wherein said bottom portion contains only six triangles and six tetrahedrons.

5. The structure of claim 1 wherein each of said triangles are isosceles having substantially equal central angles.