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(21) International Application Number: PCT/IT99/00363 (22) International Filing Date: 11 November 1999 (11.11.99) (30) Priority Data: RM98U000283 27 November 1998 (27.11.98) IT (71)(72) Applicant and Inventor: DOZZINI, Andrea [IT/IT]; Via Centrale, 54, Loc. Gioiello, I-06010 Monte Santa Maria Tiberina (IT).		(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU (Petty patent), AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>Without international search report and to be republished upon receipt of that report.</i>
(54) Title: CLOSING CLIP FOR TETRAPAK ® AND SIMILAR PACKAGES USED FOR FOOD DISTRIBUTION (57) Abstract The object of the present invention is a closing clip for Tetrapak® and similar packages used for the distribution of food items, with a pouring spout (Fig. 4) (18) obtained by tearing a pre-established section near the two welded end tabs (Fig. 4) (13, 14) of a package (Fig. 4) (15). It is composed of a plastic body (Fig. 1 - 2 - 3) (1) with a slit (Fig. 2) (2) sized to encompass the terminal tabs (Fig. 4) (13, 14). The slit is delimited by rough parallel surfaces (Fig. 2) (3, 4) that diverge near at least one corner (Fig. 2) (20) of the body in order to insert the spout (Fig. 4) (18) and, more preferably, along all the open sides of the slit (Fig. 3).		

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DESCRIPTION

“CLOSING CLIP FOR TETRAPAK® AND SIMILAR 5 PACKAGES USED FOR FOOD DISTRIBUTION”

TECHNICAL FIELD

This invention involves a closing clip for Tetrapak® and similar packages used for food distribution, particularly liquids.

BACKGROUND ART

10 These packages are composed of a tube made from a web of waterproofed paper that is folded and sealed at the ends to obtain the corresponding shape. In some types of these packages, such as the tetrahedral-shaped one known as “Tetra Classic”, the rectangular parallelepiped-shaped one known as
15 “Tetra Brik” and the square parallelepiped-shaped one known as “Tetra Rex”, a pouring spout is created by tearing a pre-established portion of the two welded end tabs.

This spout is convenient for pouring the contents of the package, but it cannot be closed again. As a result, the liquid
20 food items that are not consumed when the package is opened can turn sour or deteriorate during subsequent refrigeration

due to external agents, such as bacteria, that may be present in the air circulating inside the refrigerator. In addition, since the package stays open, its contents can spill if the package is not kept and handled in an essentially vertical position. In
5 general, the contents can spill because these packages are usually kept on the shelves in the door of the refrigerator and they are subject to jolts when the door is opened. However, when the packages are placed on the grids or shelves inside the refrigerator, part of their contents can also be spilled when
10 the packages are moved to get something else from the refrigerator.

The present invention thus focuses on eliminating the above-mentioned problems.

DISCLOSURE OF INVENTION

15 In particular, one of the purposes of this invention is to resolve the problem of leakage of the liquids contained in the types of packages listed above when they are being used.

Another objective of this invention is to extend the conservation time of the package contents by preventing
20 contamination by external agents that could alter the quality of the contents.

Yet another objective is to guarantee proper hygiene of the spout so that it does not come into contact with external agents such as insects, bacteria and other agents.

The invention, as it is characterized by the claims listed below,
5 solves the problem of supplying a closing clip for Tetrapak® and similar packages used for food distribution, via a pouring spout obtained by tearing a pre-established portion near the two welded end tabs on a package. From a general viewpoint, this pouring spout is characterized by the fact that it is
10 composed of a plastic body with a slit, which is sized in order to encompass said end tabs and is delimited by rough parallel surfaces that diverge near at least one corner of the body in order to insert the spout.

BRIEF DESCRIPTION OF DRAWINGS

15 The additional characteristics and advantages of this invention can be seen better from the detailed description that follows. The preferred examples illustrated in the attached drawings are given strictly as an indication, but without any limitations thereof:

20 - Figure 1 gives a top plan view illustrating the closing clip according to the present invention.

- Figure 2 gives a side view of the closing clip shown in Figure 1.
- Figure 3 gives a perspective view of the closing clip shown in Figure 1.
- 5 - Figure 4 gives an open "Tetra Brik" type of package.
- Figures 5 to 7 give lateral views and a top plan view, respectively, of a second example of the clip closing according to the present invention.
- Figures 8 and 9 offer a plan and side view illustrating a third
10 example of the closing clip according to the present invention.

BEST MODE FOR CARRYING OUT THE INVENTION

In accordance with the present invention, the closing clip for Tetrapak® and similar packages is composed, in an initial
15 example, of a body Fig. 1 (1) made of a suitable plastic material, such as PTFE, shaped like a triangular prism and, more specifically, like an isosceles triangle.

The body Fig. 2 (1) has a slit Fig. 2 (2) delimited by the inner surfaces Fig. 2 (3,4) of the body Fig. 2 (1), which should
20 preferably be parallel to each other. In this example, the inner surfaces Fig. 2 (3,4) are parallel at the external opposite bases Fig. 2 (5,6) of the body Fig. 2 (1). The slit Fig. 2 (2)

communicates with the outside on two open lateral faces Fig. 1 (7,8) of the body Fig. 1 (1), meaning the faces corresponding to one of the equal sides and to the base of the triangle Fig. 1. Instead, on the face Fig. 1 (9) corresponding to the other equal side of the isosceles triangle, it is closed by a wall Figures 1-2 (10). The wall Fig. 1 (10) is shown parallel to the face Fig. 1 (9) of the body Fig. 1 (1) but as an alternative, it can lie on a plane that intersects the plane of the face Fig. (9) shown in Figure 7. In particular, the angle of the triangle between the sides of the faces Fig. 1 (7,9) should preferably be a ninety-degree angle.

The inner surfaces Fig. 2 (3,4) of the body Fig. 2 (1) that delimit the slit Fig. 2 (2) have a respective bevel Fig. 2 (11,12) so that they will diverge near the corner Figures 1-2 (20) of the body Fig. 1 (1) that the faces Fig. 1 (7,8) have in common. In other words, the outline of the corner is the vertex opposite the face Fig. 1 (9). Preferably, the surfaces Fig. 2 (3,4) diverge not only in the corner Fig. 2 (20) but also on the faces Fig. 1 (7,8), meaning that these faces are beveled towards the inside of the slit Fig. 3 (2) to facilitate insertion of the clip in the tabs of a package.

As shown in Figure 3, the slit Fig. 3 (2) is sized in both width and thickness to allow the body Fig. 3 (1) to encompass in an essentially complete manner the end tabs Fig. 4 (13,14) of an

open package, such as the Tetra Brik type, shown in dotted lines and marked generally as Fig. 4 (15). When opening the package, the end tabs Fig. 4 (13,14), which are welded along their respective coinciding edges Fig. 4 (16,17), are usually
5 torn when opening the package at the prepared edge in order to form a spout Fig. 4 (18). Ideally, the surfaces Fig. 2 (3,4) delimiting the slit Fig. 2 (2) will be suitably rough.

Figures 5 to 7 show the clip according to the present invention in a second example, marked as number 21. As opposed to
10 the first example, this clip has two portions Figures 5 - 6 (24, 25) of the body Figures 5 - 6 - 7 (1') that differ in thickness so that portion Figures 5 - 6 (24) has an indentation Figures 6 - 7 (22) to create a depression in the slit that is useful for taking in and holding the portion of the welded tabs Fig. 4 (23) of
15 package (15) in Figure 4.

During use, the closing clip in the second example described above is set close to the package Fig. 4 (15) in a horizontal direction, meaning laterally with respect to its tab Fig. 4 (13) with the bevels Fig. 3 (11,12), and it is made to advance on it
20 so that the surfaces Fig. 2 (3,4) of the body Fig. 2 (1) will consecutively flatten the tab Fig. 4 (13), the edges Fig. 4 (16, 17) and, lastly, the tab Fig. 4 (14). The spout Fig. 4 (18) is thus hermetically closed, since it is gripped between the two halves

of the body Figures 5 - 6 - 7 (1') and as a result, the liquid food item contained in the package cannot leak from it. For this closing operation, the shape exemplified in Figures 5 to 7 is especially convenient: here, the corresponding edges Fig. 4 (16, 17) of the end tabs Fig. 4 (13, 14) are housed in the indentation Figures 6 - 7 (22).

When this indentation is not present, as in the examples shown in Figures 1 to 3, the closing clip according to this invention is conveniently inserted vertically to achieve hermetic closing of the spout Fig. 4 (18).

The rigidity of the material used for the body Figures 1 - 2 - 3 (1) is suitable for flexibly applying gripping pressure on the edges Fig. 4 (13,14) of the package Fig. 4 (15). The roughness of the inner surfaces Fig. 2 (3,4) of the body Fig. 2 (1) helps hold the clip to the spout Fig. 4 (18) through friction.

In order to enhance the aforesaid gripping effect, the closing clip according to the present invention can have the shape illustrated in Figures 8 and 9. In this third example, marked as number 26, one face Fig. 8 - 9 (90) of the triangular prism of the body Fig. 8 - 9 (1'') extends along two forked branches Fig.8 (91, 92), representing the power of a pincer lever whose fulcrum is in (93) Fig. 8. In this example as well, the indentation

described above Figures 6 and 7 (22) could be made in order to enable horizontal insertion of the clip.

It is important to understand that the body Fig. 1 - 2 - 3 (1) can have a shape other than the triangular prismatic one that is
5 illustrated and described herein. For example, the body Fig. 1 - 2 - 3 (1) can have an ergonomic shape, which is not shown here, so it can be gripped comfortably in order to be applied and removed from the package. Otherwise, the body Fig. 1 - 2 - 3 (1) can be made in a different shape such as a half-moon, a
10 square, etc. or any fancy shape.

Obviously, in practice it is possible to make modifications and/or improvements that, in any event, are covered by the following claims.

CLAIMS

1. The closing clip for Tetrapak® and similar packages used for the distribution of food items, with a pouring spout Fig. 4 (18) obtained by tearing a pre-established section near the two
5 welded end tabs Fig. 4 (13,14) of a package Fig. 4 (15) is characterized by the fact that it is composed of a plastic body Fig. 1 - 2 - 3 (1), Fig. 5 - 6 - 7 (1'), Fig. 8 - 9 (1'') with a slit Fig. 2 (2) sized to encompass said end tabs Fig. 4 (13,14). The slit is delimited by rough parallel surfaces Fig. 2 (3,4) that diverge
10 near at least one corner Fig. 2 (20) of the body in order to insert the spout Fig. 4 (18).
2. The clip as claimed in claim 1, characterized by the fact that said body Fig. 1 - 2 - 3 (1) is shaped like a triangular prism, in which said inner surfaces Fig. 2 (3,4) delimiting the slit Fig. 2
15 (2) also diverge on the open faces Fig. 1 (7,8) of the body Fig. 1 (1).
3. The clip as claimed in claim 1, characterized by the fact that said body Fig. 1 - 2 - 3 (1) is shaped like a triangular prism in which said inner surfaces Fig. 2 (3,4) delimiting the slit Fig. 2
20 (2) are parallel to the external bases Fig. 2 (5,6) of the body (1).
4. The clip as claimed in claim 2, characterized by the fact that said triangular prism has the shape of an isosceles triangle, in

which the outline of said corner Fig. 1 (20) is the vertex opposite the one of the equal sides of said isosceles triangle.

5 The clip as claimed in claim 1, characterized by the fact that said body Fig. 5 - 6 - 7 (1') has a slit Fig. 6 (2) with a rectangular depression Fig. 5 - 6 - 7 (22).

6. The clip as claimed in claim 1, characterized by the fact that said body Fig. 8 - 9 (1'') is extended along the two forked branches Fig. 9 (91,92) of a pincer lever.

10 7. The clip closing for Tetrapak® and similar packages used for the distribution of food items, according to the above claims and according to what has been described and illustrated, with reference to the figures in the attached drawings and for the aforesaid purposes.

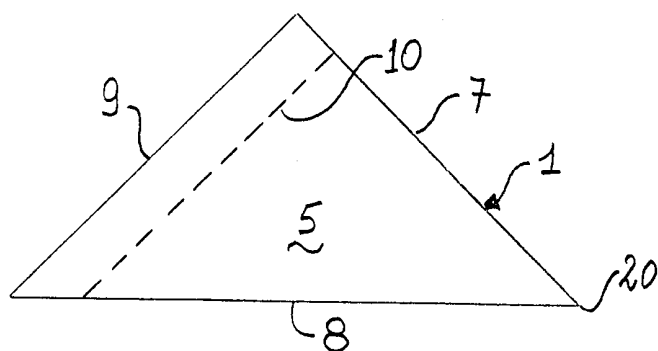


FIG. 1

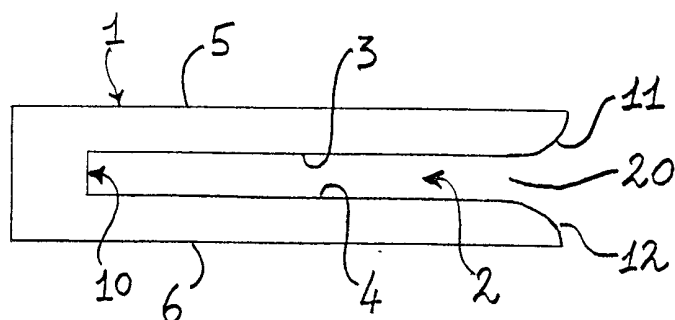


FIG. 2

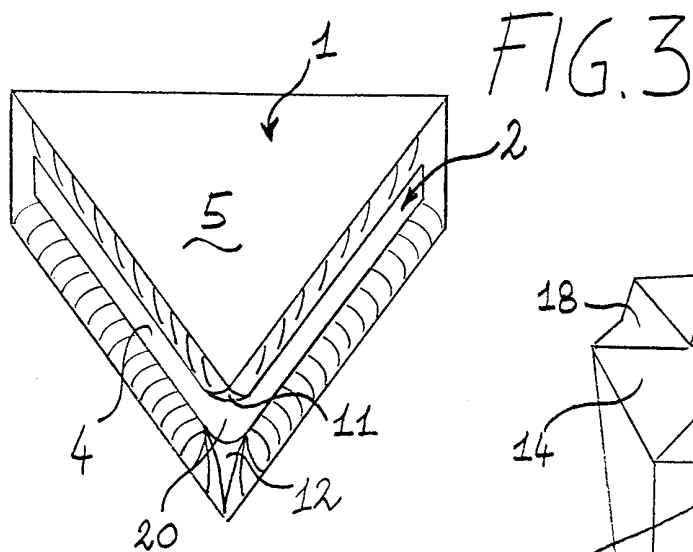


FIG. 3

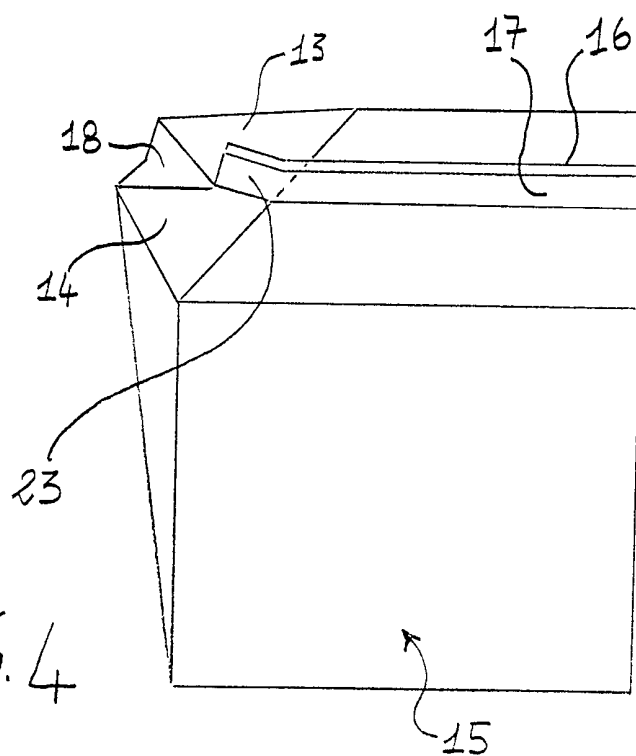


FIG. 4

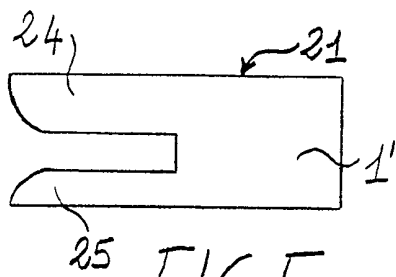


FIG. 5

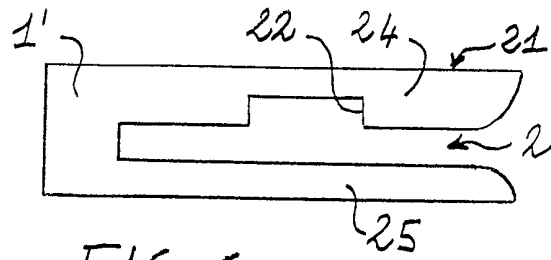


FIG. 6

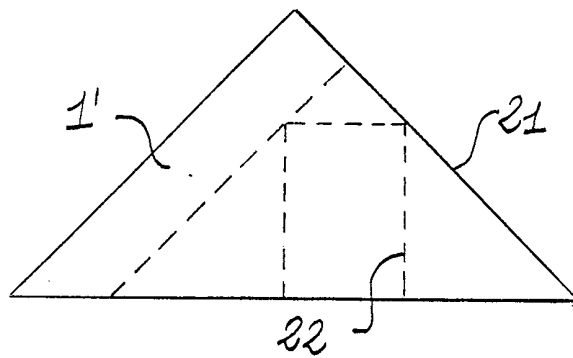


FIG. 7

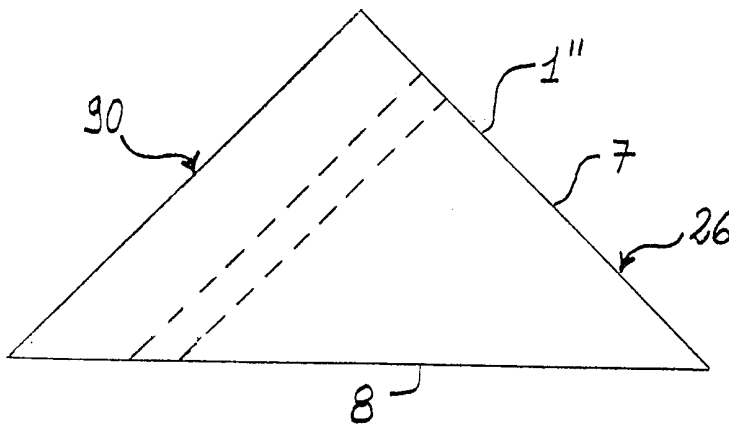


FIG. 8

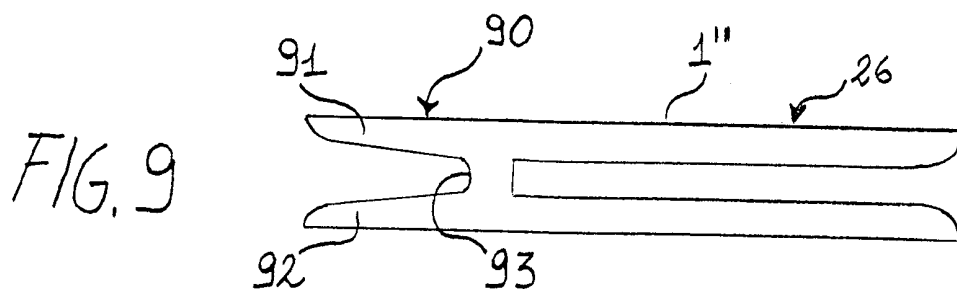


FIG. 9