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G. A. RAUSING ETAL

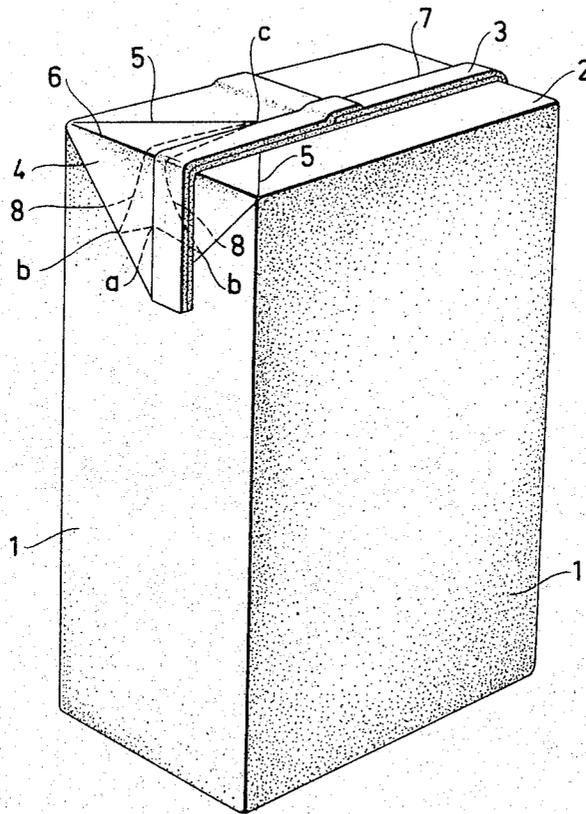
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PACKAGE HAVING AN OBLIQUE OPENING INDICATION

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Fig. 1



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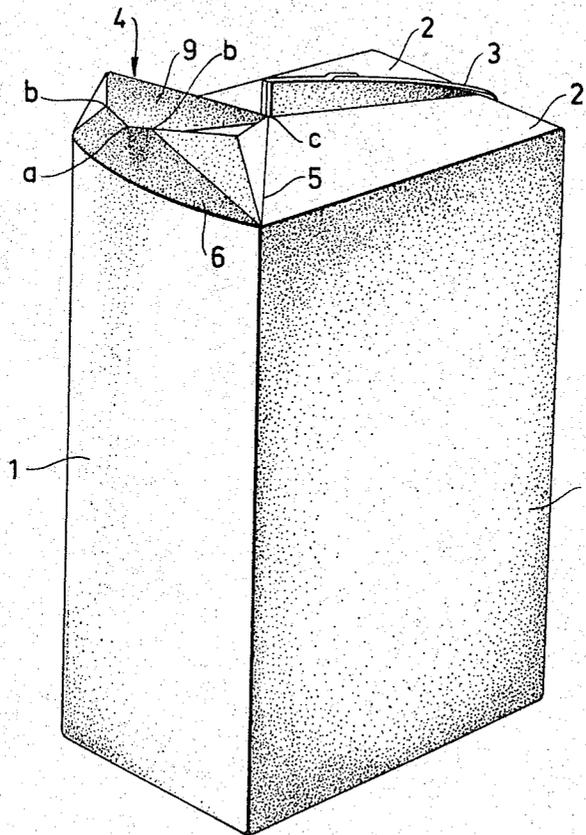
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PACKAGE HAVING AN OBLIQUE OPENING INDICATION

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Fig. 2







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**PACKAGE HAVING AN OBLIQUE OPENING INDICATION**

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4 Claims. (Cl. 229-17)

**ABSTRACT OF THE DISCLOSURE**

The present invention refers to a package of flexible, relatively stiff web material which has been formed into a tube and closed by flat pressing and transverse sealing in transverse narrow zones for forming individual packages which have thereupon been separated by cuts in said sealing zones, one end of the package having been compressed so as to form a flat, preferably rectangular end wall, from which two substantially triangular flaps project, said flaps having been folded against the adjacent package side walls and being traversed by a closing fin formed by the transverse sealing one of said flaps being provided with a tear-up indication to facilitate removal of a portion of said closing fin therefrom and thereby to provide a pouring opening.

In the working required to convert a package blank made from a tube by successive transverse seals into a package having for example a parallelepipedic shape, the above-mentioned, substantially rectangular, double-walled corner flaps are formed from the excess material which on account of geometrical conditions cannot be fitted into the parallelepipedic shape.

Packages of the kind here mentioned, which are preferably used for liquid filling material, are with advantage produced from packaging material which has been coated with a thermoplastic material, for example polyethylene, elwax, wax or lacquer, which on the one hand is liquid-tight in itself, on the other hand allows producing of liquid-tight seals which may be produced in a simple and cheap way by pressing two sandwiched material surfaces provided with a thermoplastic coating against each other with simultaneous supply of heat, the coatings turned towards each other fusing along the zones subjected to pressure and heat. If, for some reason, it should be considered more advantageous to glue together the sealing joints, this is of course also possible.

Further advantages of a package of the kind considered are that it may be produced continuously in a rational way starting from a flat web of material which is formed into a tube which is thereupon filled, divided up and closed by successive transverse seals, detached and finally converted into individual packages units of the desired form.

Packages of the kind defined above are previously known per se, and the triangular flap corners formed in manufacturing the package have generally been folded in towards and fixed to the top of the package to reduce the pile volume required for each individual package. Furthermore, it is well-known to use one of the flap corners formed as an emptying opening for the package.

The present invention aims at providing an emptying opening which is easy to open and which also affords essential advantages in respect of manufacturing procedure, the package according to the invention being characterized by a tear-up indication running near the base line of the above-mentioned sealing fin at an angle in

relation to this line across one of the said triangular flaps, said tear-up indication facilitating the tearing-up of the portion of the fin running across said flap to form an emptying opening, part of the material of the flap proper being also removed.

This tear-up indication, which preferably consists of perforations passing only partly through the material, may be given various forms, which may most simply be described with reference to the form it occupies in a flatly developed web of material. The most simple form is the V-form, the apex of the V in the finished package having to be situated on the underside of the triangular flap, while the free leg ends of the V at the same time have to be near the base line of the sealing fin, preferably some distance inwards on the package proper. Alternatively the W-form may be used. The tear-up indication may also consist of curved perforations. Experiments have shown that the curvature may be adjusted so that the flap with the tear-up indication, after tearing-off the end portion of the fin with or without the help of crease lines, has a strong tendency to raise itself and form a natural emptying spout. The curvature will then be dependent on the position of crease lines possibly provided near the tear-up indication. Also in the case of curved perforations it has, however, been found suitable generally to follow the above-mentioned V- or W-forms, respectively. For example, U-form may be suitable.

By the circumstance that in addition to part of the sealing fin part of the material of the flap proper is also removed, the advantage is gained that the shape of the emptying opening may be chosen arbitrarily. In the most common case, namely that of the tear-up indication being provided in the web of material before this is converted into a tube, the additional advantages is gained that thanks to the oblique disposition of the indication in relation to the transverse direction of the web the risk of breakage in the web at the turning thereof over turning rolls or at the forming of said web is reduced.

A further advantage is that the perforation may be carried out continuously in a running web of material, so that the cutting forces need not be applied at one time for the whole indication, which, however, would be necessary if the indication were formed by a straight perforation running in the transverse direction of the web.

The invention will be described more closely in the following with reference to the accompanying drawings, which by way of example illustrate two different embodiments of the invention:

FIG. 1 shows a closed package in which the opening indication consists of a perforation of V-form in the flat condition of the packaging material,

FIG. 2 shows the same package after being opened by tearing away the part of the sealing fin running across the opening flap,

FIG. 3 finally shows a closed package in which the opening indication consists of a perforation of W-form in the flat condition of the packaging material,

FIG. 4 is a partial plan view of the blank showing the location of the perforations in the completed package as depicted in FIG. 1, and

FIG. 5 is a partial plan view of the blank showing the location of the perforations in the completed package as depicted in FIG. 3.

The package shown in FIG. 1 consists of side walls 1, a top end wall 2 and a bottom part not shown. The package has been made from a flexible, relatively stiff web material which has been formed into a tube and closed by flat-pressing and transverse sealing at transverse narrow zones, whereby a sealing fin 3 later folded down against the top end wall 2 of the package has been formed. When the package was given its parallelepipedic form, shown, four triangular double-walled flaps 4 were being formed.

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Three of said flaps have been folded in against the bottom and the remote side wall, respectively, so that only one such flap is visible in the figure. This shown corner flap 4 is folded around the straight side wall edge 6 and fixed by means of an easily breakable bond to the side wall 1 associated with the edge 6. The sealing fin 3 extends across both the flap 4, the end wall 2 and the folded down flap, not shown, at the opposite side of this end wall. The package, shown as an example, is furthermore provided with creases 5 which extend from the ends of the side wall edge 6 across the end wall 2 to an intersection point at the base line 7 of the sealing fin 3.

For facilitating the opening of the package it is provided with a tear-up indication consisting of straight perforation lines 8 which penetrate the material only partially and which, starting from a common point *a*, situated on the inside of the flap 4 on the base line 7 of the fin 3, run through symmetrical points *b* on the free side edges of the flap and terminate at a point *c* at the base line 7 some distance from the flap 4. The tear-up indication described is produced most simply by stamping a V-shaped perforation in the web of material, before said web is converted into tube form.

In FIG. 2 the package according to FIG. 1 is shown in opened condition, an emptying opening 9 having been formed by tearing-off the part of the sealing fin 3 running across the flap 4, together with a further small part of the fin, running partly across the end 2 as well as part of the material of the flap proper, i.e. the material between the tear-up indication 8 and the fin 3.

The package shown in FIG. 3 conforms entirely with that shown in FIGS. 1 and 2, and therefore the same reference numerals as in these figures have been used. The only difference is the form of the tear-up indication which has therefore been designated by 8' and which consists of two straight perforations which start from a common point *a'* at the end of the base line 7 of the sealing fin 3, from where they run obliquely away from the base line up to symmetrical points *b'* at the folding line 6 from where they again approach the base line 7 and each other to meet the base line 7 at the point *c'*. This tear-up indication is produced most simply by stamping a W-shaped perforation in the web of material, before said web is converted into tube form.

Naturally, the invention is not limited only to the embodiments described above but may be varied within the scope of the following claims. For example, the invention may also be applied to other packages than those set forth above by way of example. Furthermore, the form of the tear-up indication may be varied. Thus, as already mentioned, this may also be formed by curved perforation lines. In certain cases the creases 5 may be omitted altogether. In certain other cases it may instead be suitable to replace these creases with others adapted to the form of the tear-up indication used. If the tear-up indications

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8, 8' are extended in such a way that they cross the sealing fin 3 obliquely, the removing of the outer part of the double wall corner flap 4 is facilitated.

We claim:

1. A package, manufactured from a flexible, relatively stiff web material which has been formed into a tube and closed by flat pressing and transverse sealing in transverse narrow zones for forming individual packages which have thereupon been separated by cuts in said sealing zones, one end of the package having been folded and compressed so as to form a flat, rectangular end wall, from which two substantially triangular flaps project, said flaps having been folded down against the adjacent package side walls and being traversed by a closing fin formed by the transverse sealing, characterized by a tear-up indication 8 running from near the base line 7 of the fin 3 on the flap 4 obliquely in relation to this line and across to the edges of said flap 4, said tear-up indication facilitating the tearing-up of the portion of the fin 3 running across said flap 4 to form an emptying opening 9, part of the material of the flap 4 proper being also removed.

2. A package according to claim 1, characterized by the fact that the tear-up indication consists of straight perforations 8 which penetrate the material only partially and which, starting from a common point (*a*) situated on the side of the flap 4 turned towards the package and spaced from the base line 7 of the fin 3, run through symmetrical points (*b*) at the free side edges of the flap 4 and terminate near the base line 7, at a point (*c*) at some distance from the flap, said perforations 8 forming a V on a flat web of material.

3. A package according to claim 1, characterized by the fact that the tear-up indication consists of straight perforations 8' which penetrate the material only partially and which, starting from a common point (*a'*) near the end of the base line 7 of the fin 3, first diverge from the base line 7 to the fold line 6 and then again approach the base line 7 and terminate at (*c'*) near the base line, these perforations 8' forming a W on a flat web of material.

4. Package in accordance with claim 1, characterized that an essential part of the tearline 8 is arranged in the side of the flap 4 which is facing the side wall of the package.

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