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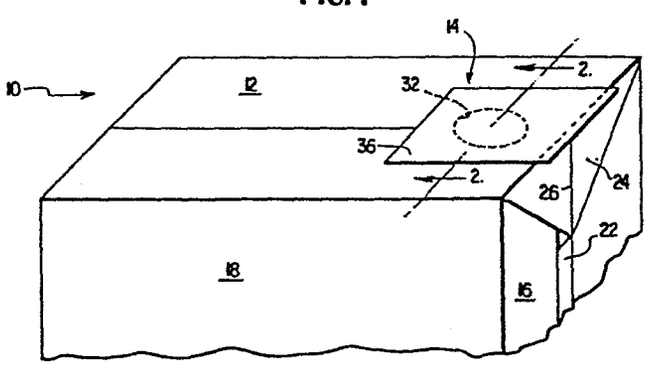
(54) **Recloseable aseptic package.**

(57) A carton (10) formed of paperboard coated with one or more liquid impervious layers and particularly adapted to aseptically package a liquid foodstuff such as milk or fruit juice. The carton may be formed directly from a continuous web or from individual blanks. The carton is in the form of a rectangular parallelepiped and has a dog ear (triangular flap) (24) extending from the top down along at least one of the carton sides (16). A portion of the top closure, near the dog ear protrusion, is provided with an easily openable seal (36) for a pour opening (32). After initially peeling off or puncturing the seal and partially dispensing the liquid foodstuff, the dog ear tip is inserted into the pour opening to inhibit contamination of the food stuff. The pour opening may be located on the carton top (12) with the dog ear extending downwardly along one carton side wall (16), or located on a carton side panel (16) with the dog ear extending along the carton top (12), or located beneath the dog ear.

FIG. 1



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Recloseable Aseptic Package

This invention relates to a liquid container provided with a pour opening. The container may be fashioned from a web of paperboard or from individual blanks, the paperboard being provided with liquid impervious laminations.

The container is in the general form of a rectangular parallelepiped, commonly termed a brick-type container, which can be formed from a paperboard web of indefinite length or from individual blanks. At least one surface of the web, which is to be the inside of the container, is laminated with liquid impervious materials such as polyethylene, surlyn, and foil. Usually, however, both web surfaces are laminated.

The container of this invention is particularly adapted to hold and to dispense liquid foodstuffs, such as milk fruit juices, and drinks. Containers of the type to which this invention relates are often referred to as aseptic containers or packages, since aseptic conditions (sterile atmosphere and the like) usually accompany the package forming and package filling process or operation. The prior art is already aware of this general type of container, as shown for example in U.S. Patent 3,347,444 to Rausing and 3,232,514 to Swede. These packages, in larger sizes (1 liter and above) as well as the package of this invention, is adapted for consumer use, i.e., use wherein the consumer does not necessarily dispense the entire contents of the container in a single pouring operation. Instead, a reclosure of the container is to be made for a subsequent dispensing of a portion of the contents.

As exemplified by the Swede patent, brick-type packages are often formed with triangular flap ears, known in this art as dog ears. The triangular flap ears are often positioned with the base of the triangle of each ear coincident with the top and bottom edges of the side walls or panels of the carton. The triangular flap ears generally extend along the sides of the carton, being maintained in that position by a spot of an adhesive. Sometimes the tabs may extend and lie on the top and bottom walls of the carton, also maintained in that position by a spot of adhesive.

A variety of opening devices and pour spout devices has evolved in this art, such devices facilitating successive openings and reclosings of the dispensing opening or spout.

According to the practice of the present invention, a pour opening is provided in the top wall of the container, the pour opening being die-cut, for example, and covered on its outside surface with a peelable seal membrane. The die-cut has the polymers extruded over the opening on the inside. The die-cut board edges around the perimeter must be covered. A patch is sealed to these extrusions layers from the outside. The pour opening is positioned adjacent to and at one side of one of the triangular flaps or dog ears. In use, the consumer initially peels off the flexible seal or otherwise ruptures it, to thereby enable dispensing of the carton contents. Thereafter, assuming that not all of the contents have poured out of the carton, the user bends back one of the triangular tabs, being that tab closely associated or closely adjacent to the pour opening such that the tip of the dog ear enters the opening and extends underneath it, with the rigidity or stiffness of the dog ear maintaining it up against the interior surface of the container. In this manner,

contamination of the contents of the carton is inhibited by blocking the pour opening with a portion of the triangular flap ear. According to the invention, the pour opening may be provided on the top of the carton, or on one of the sides, or be positioned underneath one of the triangular flap ears at the top of the carton. In each case the opening is on any panel that does not have a fin seal. The pour opening is so configured as to maximize its area of closure by the triangular flap ear.

While the invention is illustrated in a brick type carton formed from a continuous web of paperboard, it is not limited to such a carton construction; rather it is applicable to aseptic packages of generally brick type or parallelepiped geometrical form, whether formed from webs or individual blanks.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims. It should be understood, however, that references in the following description to terms such as base, front, rear, and side wall members are for convenience of description, and such terms are not necessarily intended to be used in a limiting sense.

F I G . 1 is a perspective view of the top portion of a brick style container of this invention in its filled and sealed state.

F I G . 2 is a view taken along section 2-2 of FIG. 1.

F I G . 3 is a view similar to FIG. 1 and illustrates the pour opening as it is being uncovered by a peelable sealing membrane.

F I G . 4 is a view similar to FIG. 3, and illustrates how the dog ear or triangular flap tab is bent back approximately 270° for the purpose of at least partially closing the pour opening and thereby inhibiting contamination of the container contents.

F I G . 5 is a perspective view of another style brick-shaped container, having its fin seal in a location other than as shown in the container illustrated in FIG. 1, and showing the location of the pour opening feature of the invention herein.

F I G . 6 is a top view of another pour opening shape.

F I G . 7 is a top view of a third pour opening shape.

F I G . 8 is a top view of a fourth pour opening shape.

In Figures 1 and 5, the numeral 10 denotes generally a brick type package fashioned from paperboard or other resilient, stiff and foldable material, the paperboard usually being coated with one or more layers of an impervious substance such as polyethylene. Aluminum foil and other resins are often employed. Such brick type packs may be formed from a continuous web, the continuous web being suitably scored to facilitate its folding into the brick type form with subsequent filling and closing of the container, or from individual blanks. Such containers have a seam running along three of the four side, top and bottom wall or panel portions. One such container is illustrated in FIG. 1, and a second container, having a seam running along different wall panels than the container of FIG. 1 is illustrated in FIG. 5. It will be understood, however, that the manner of fashioning the brick type container and the location of the seam, if any, is not material for the practice of this invention.

The numeral 12 denotes the top wall or panel of the container, the top wall provided with a pour opening and seal assembly denoted generally by the numeral 14. The numeral 12 denotes the top wall or panel of the container, the top wall provided with a pour opening and seal assembly denoted generally by the numeral 14. The numeral 16 denotes one of the two side walls or panels, while the numeral 18 denotes the front wall or panel. The numeral 22 of FIG. 1 denotes a seam running vertically and generally centrally of side wall 16, with triangular flap half or dog ear 24 extending downwardly along side panel 16 and affixed thereto as by a spot of a suitable adhesive. The tab 24 carries seam portion 26. Ear 24 is defined by a lateral continuation or extension of top wall 12 as well as a vertical continuation of side wall 16, the tab being folded into the illustrated triangular form in a manner which is conventional in the art.

Referring now to FIG. 2 of the drawings, the numeral 32 denotes a pour opening in the paperboard substrate 34 from which the carton is fashioned. The opening may be die-cut or may be formed in any other convenient manner. The numeral 36 denotes a peelable layer of polyester/foil/heat seal coating. The numeral 34 denotes a layer of S.B.S. paperboard. The interior of the carton, corresponding to the lower portion of FIG. 2, includes layers 40, 42, 44 formed to surlyn/foil/surlyn or low density polyethylene, respectively.

Referring now to Figures 3 and 4 of the drawings, a description will now be offered of the mode of use of the closure of this invention. The package 10, filled with, for example, fruit juice or milk or other liquid foodstuff, is grasped and peelable layer 36 removed. The remaining layers spanning aperture 32 are removed, as by rupturing or tearing, to thereby expose

and open hole 32. This is illustrated at FIG. 3. Next, the contents of the container are partially dispensed. The carton is now ready for storage until the next partial dispensing of the contents. At this time, dog ear or triangular flap ear 24 is pulled away from its adhesive fastening to side wall 16, rotated approximately 270°, with the tip of ear 24 now being inserted into hole 32. The resultant configuration of the container is illustrated at FIG. 4 and it will be observed that aperture 32 is very nearly closed, thereby inhibiting contamination of the contents of the container during storage.

As previously mentioned, the pour opening may be provided on the top of the carton, or on one of the sides, or be positioned underneath one of the triangular flap ears at the top of the carton. In each case the opening is on any panel that does not have a fin seal. Moreover, the pour opening is so configured as to maximize its area of closure by the triangular flap ear. For example, as illustrated in FIG. 6, 7, and 8, the pour opening may be triangular, circular, or oval in shape.

The prior art is aware of somewhat similar constructions. For example, U.S. Patent 1,437,511 to Gereke shows a folding carton with a die-cut tab that goes into a slot for reclosing. Pouring of the contents is accomplished by bowing the sidewall, creating a pour spout. The present invention requires the puncturing of barrier laminations under a die-cut liquid pour opening or the removal of a barrier heat-sealed patches. The pour opening acts as the reclosure lock by snapping the pre-formed heat-seal extension (dog ear) into the trailing edge of the opening. U.S. Patent 2,861,732 to Parker discloses a pre-scored pour spout similar to a milk container design. The point of the spout snaps

into a die-cut slot. In the present invention, die-cut slots, spouts or extended flaps are not employed. Instead, pouring is accomplished through a die-cut opening that is covered by a barrier extrusion or coatings barrier sealed patches which eliminate the need to form a spout. The only similarity to the prior art is that the point of the spout is held down by a slot in the top panel. U.S. Patent 2,946,496 to Stagmeier is similar to the Gereke patent in that it uses glue flaps, perforations, slots and tabs to develop an opening and reclosing feature. In this construction, glue is for sealing and perforations do not have to be torn away. U.S. Patent 3,226,003 to Hickin is similar to the Stagmeier patent in that an opening and closing feature is created using normal folding carton techniques. U.S. Patent 3,232,514 to Swede, which discloses an aseptic package for liquids, also shows an opening and closing concept that uses perforations that must be torn. This type of tear opening is difficult to accomplish as a practical matter because the polymeric extrusion layers on the board do not tear easily.

Generally speaking, the present invention is directed to a liquid impermeable carton for and of stiff resilient, and foldable material, such as paperboard, the carton being in the form of a rectangular parallelepiped having a front wall, a rear wall, two side walls, a bottom wall, a top wall, and a triangular flap ear at least at the top of one side wall edge and whose base is at the edge. The triangular flap ear is normally folded and lies against a carton wall. The improvement comprises a pour opening in a wall, the pour opening being adjacent to one side of the base of the triangular flap ear. The pour opening is normally covered by a seal, which is opened upon initial partial dispensing of the container contents. The container is

adapted to be filled with a liquid foodstuff such as milk or fruit juice, whereby after rupturing the seal and dispensing a portion of the container contents, the triangular flap ear is bent, and its tip is inserted into the pour opening to inhibit contamination of the container contents.

Although the invention has been described above by reference to a preferred embodiment, it will be appreciated that other constructions may be devised, which are, nevertheless, within the scope and spirit of the invention and are defined by the claims appended hereto.

Claims

1. A liquid impermeable carton formed of stiff, resilient and foldable material, such as paperboard, the carton being in the form of a rectangular parallelepiped having a front and rear wall (18), two side walls (16), a bottom wall and a top wall(12), a triangular flap ear (24) at least at the top of one side wall edge and whose base is at said edge, the triangular flap ear being normally folded and lying against a carton wall, the improvement comprising, a pour opening (32) in a wall, the pour opening being adjacent to one side of the base of the triangular flap ear (24), the pour opening normally being covered by a seal (36) which is opened upon initial partial dispensing of the container contents, the container being adapted to be filled with a liquid foodstuff such as milk or fruit juice, whereby after rupturing the seal and dispensing a portion of the container contents the triangular flap ear is bent and its tip inserted into the pour opening to inhibit contamination of the container contents.

2. The carton of claim 1 wherein the seal (36) includes a peelable covering extending across the pour opening (32) and normally covering it.

3. The carton of claim 1 wherein the pour opening (32) is located on the carton top wall (12) and wherein the triangular flap ear (24) is positioned along a side wall (16).

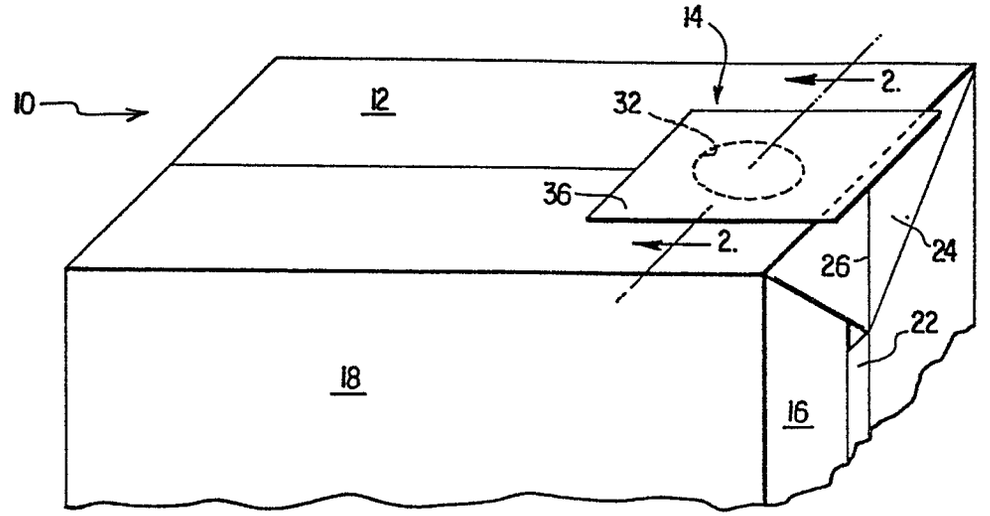
4. The carton of claim 1 wherein the pour opening (32) is located on a side wall (16) and wherein the triangular flap ear (24) is positioned along the carton top (12).

5. The carton of claim 1 wherein the pour opening (32) is positioned beneath the triangular flap ear (24).

6. The carton of claim 1 wherein the carton (10) is formed from a one piece blank.

7. The carton of claim 3 wherein a side seam (22) runs along that side of the carton against which said triangular flap ear (24) is normally positioned.

FIG. 1



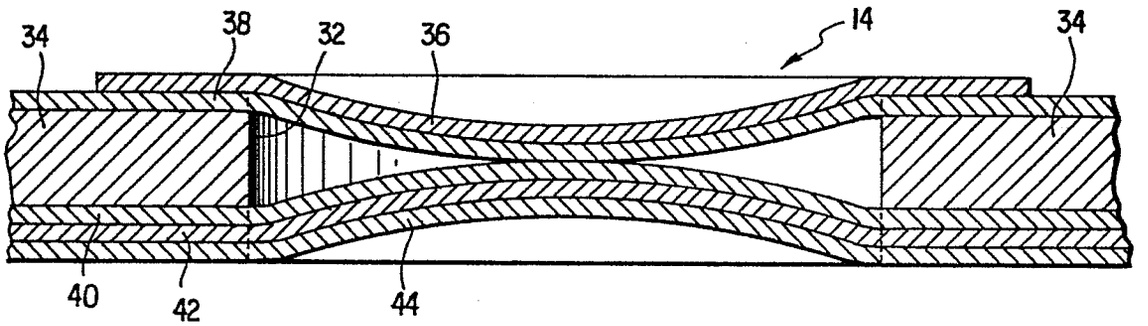


FIG. 2

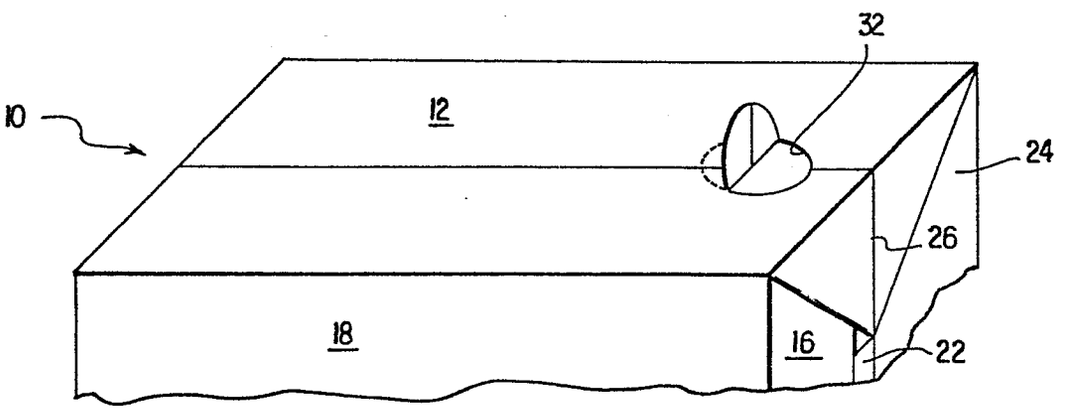


FIG. 3

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FIG. 4

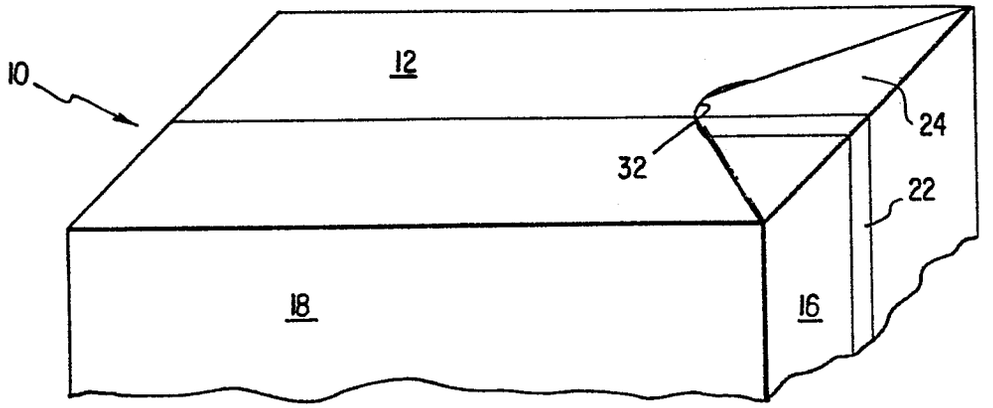


FIG. 6

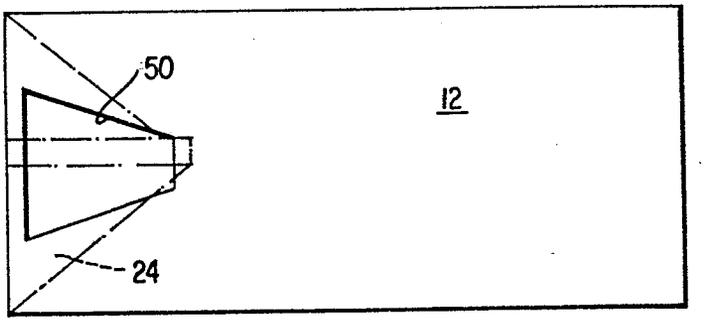


FIG. 7

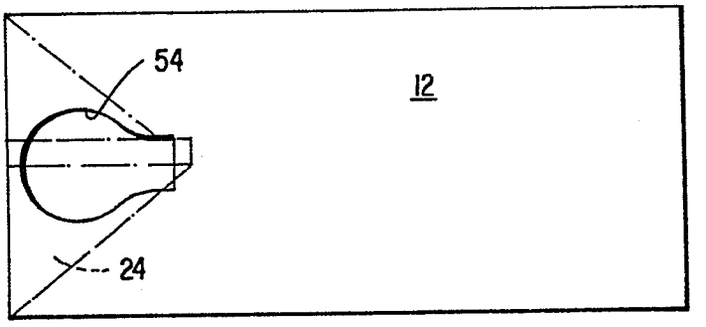
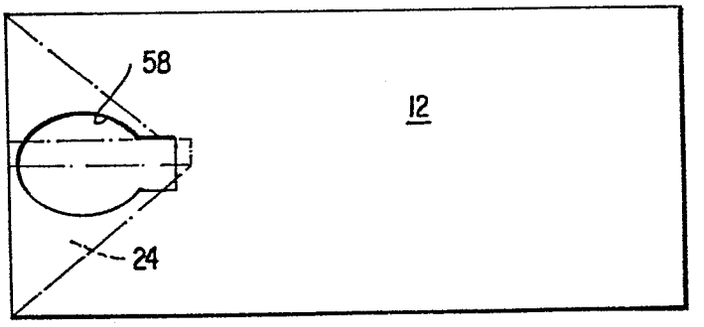


FIG. 8



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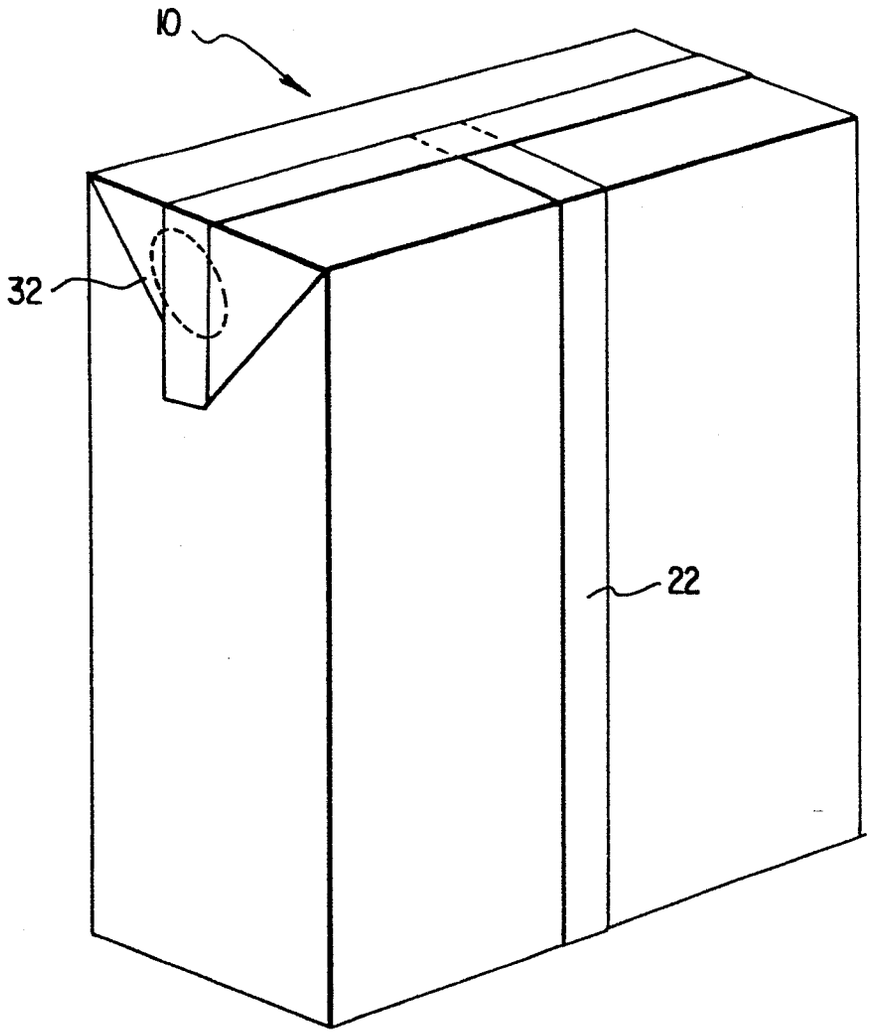

FIG. 5

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EUROPEAN SEARCH REPORT

0141229
Application number

EP 84 11 1259

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	FR-A-2 310 283 (ALTSTADTER VERPACKUNGS-VERTRIEBS GmbH) * page 23, line 14 - page 26, line 30; page 32, line 10 - page 33, line 22; figures 6-18 *	1-3,6, 7	B 65 D 5/70
X	FR-A-2 380 951 (TETRA PAK) * page 5, line 9 à la fin; figures 1,2 *	1-3,6, 7	
X	FR-A-2 276 231 (ZIRISTOR) * page 3, line 24 - page 4, line 31; figures 1,2 *	1-3,6, 7	
A	EP-A-0 024 752 (TETRA PAK) * page 4, line 22 - page 5, line 15; figures 1,2 *	4	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	DE-A-1 486 682 (TEPAR) * page 5, last paragraph; page 6, paragraph 1; figures 6-11 *	5	B 65 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	17-12-1984	VANTOMME M.A.

CATEGORY OF CITED DOCUMENTS

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