US 20080095476A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2008/0095476 A1**

Holzwarth et al. (43) **Pub. Date: Apr. 24, 2008**

(54) **PACKAGING POUCH**

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(21) Appl. No.: **11/822,511**

(22) Filed: **Jul. 6, 2007**

(30) **Foreign Application Priority Data**

Jul. 11, 2006 (EP) 06405298.8

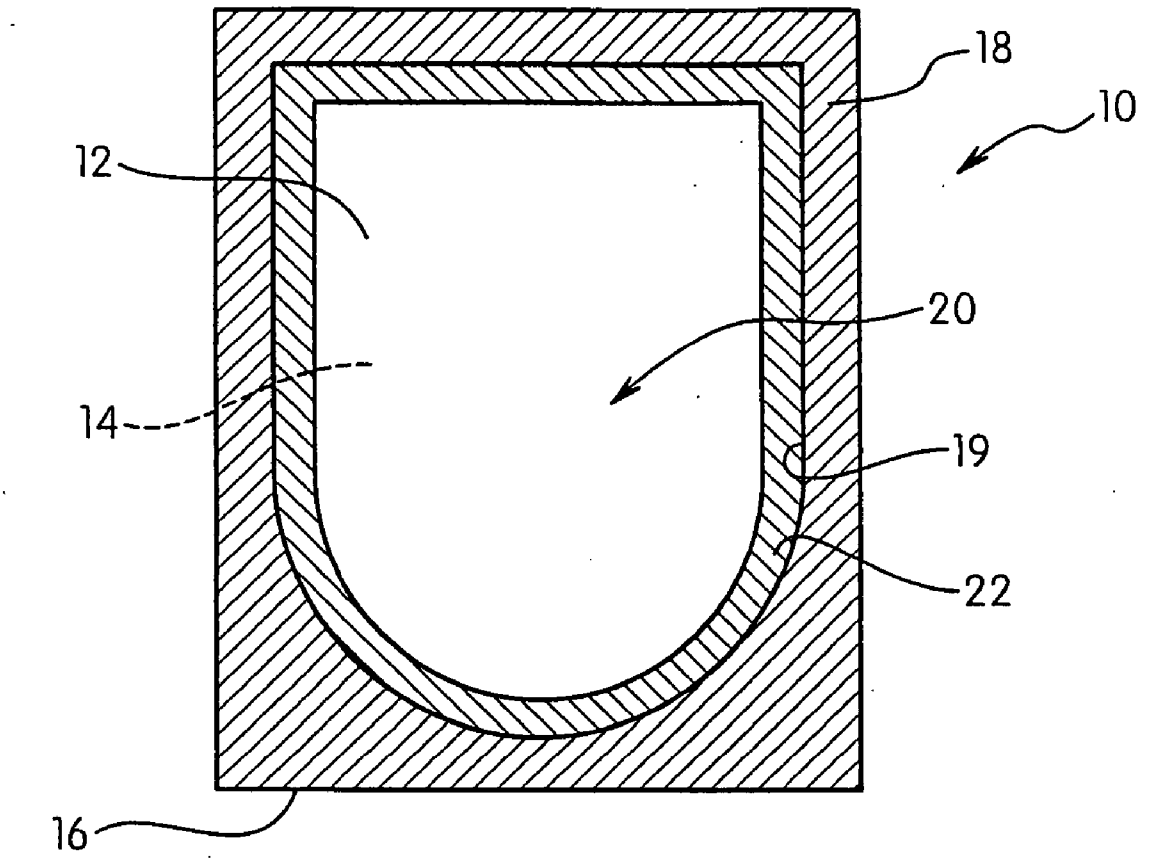
Publication Classification

(51) **Int. Cl.**
B65D 30/00 (2006.01)

(52) **U.S. Cl.** **383/107**

(57) **ABSTRACT**

A packaging pouch (**10**) made from a flexible film material and having at least one sealing zone arranged along a pouch edge and an outer sealing seam (**18**) as permanent closure element is such that, in order to increase the shock-absorbing capacity of the sealing zone, a region (**22**) of the sealing zone bordering the interior (**20**) of the pouch exhibits lower bond strength than that of the outer sealing seam (**18**).



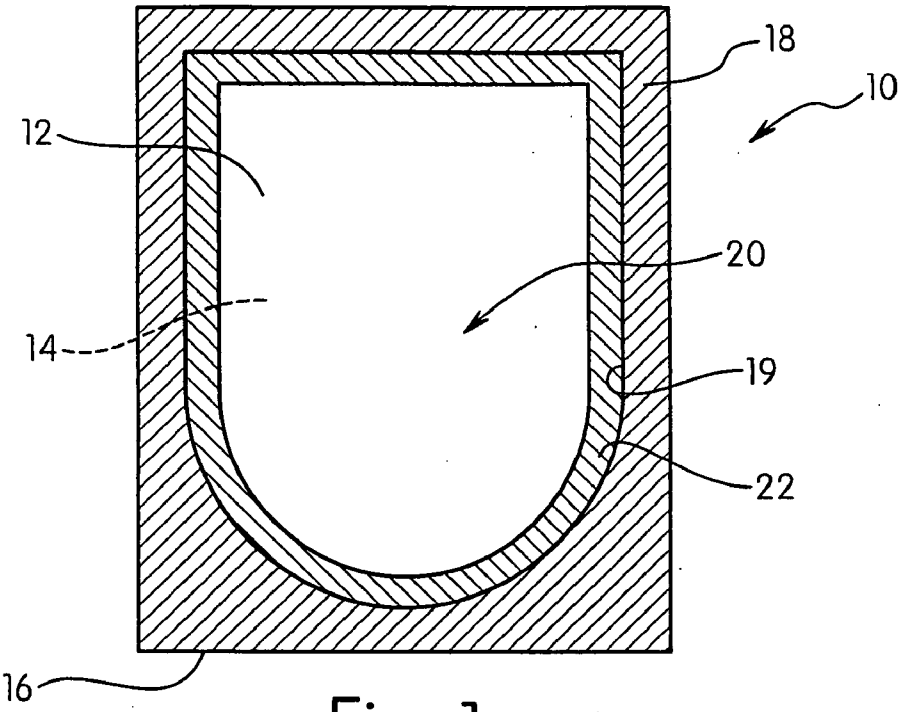


Fig. 1

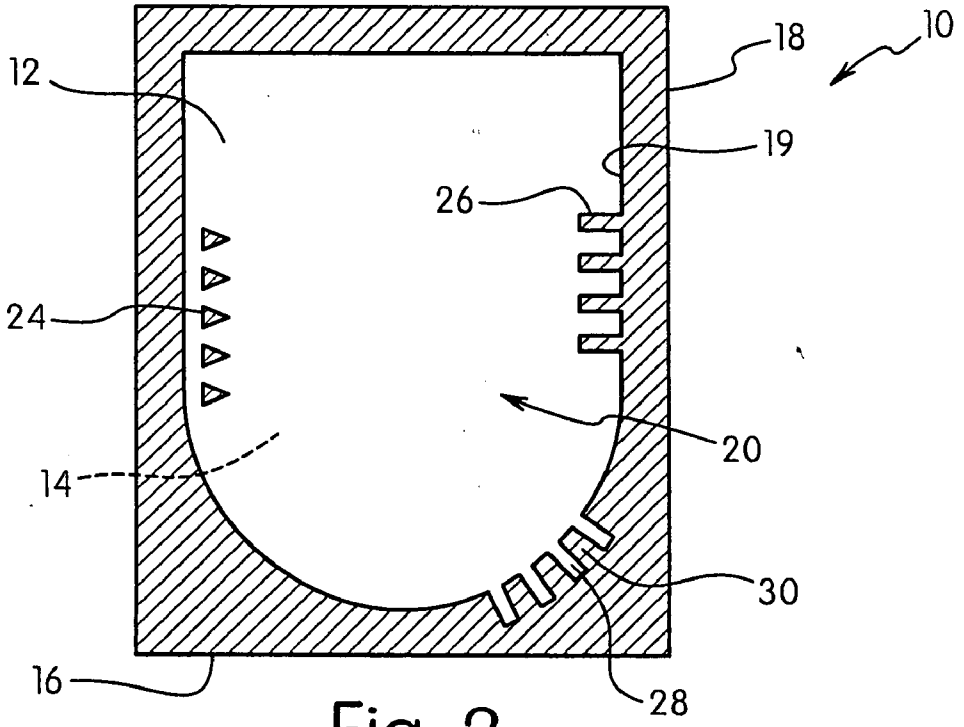


Fig. 2

PACKAGING POUCH

[0001] The invention relates to a pouch for packaging purposes made from a flexible film-type material and having at least one sealing zone arranged along an edge of the pouch and an outer sealing seam as a permanent means of closure.

[0002] Goods required for daily use are often packaged in pouches. A classic pouch-system is the free-standing pouch or the "Doy-Pack" type of pouch. Depending on the contents and the requirements, the layers of material may be two to four main layers.

[0003] Typical layer arrangements in packaging laminates for the manufacture of pouches for liquid, liquid/particulate-solid and pasty type contents having a long shelf-life of more than thirty days are e.g.

[0004] PET/aluminium/oPA/PE (or PP)

[0005] PET/vacuum coated barriers/oPA/PE (or PP)

[0006] PET/vacuum coated barriers/PET/PE (or PP)

[0007] PET/PE:EVOH:PE (or PP:EVOH:PP)

[0008] The combination of different layers produces the desired properties. PET (polyethylene-terephthalate) is thermal resistant, produces a shiny surface and can be readily printed on, oPA (oriented polyamide) produces a high resistance to penetration and resistance to failure due to bending, an aluminium foil, vacuum coating with SiOX or a layer of EVOH (ethyl-vinyl-alcohol) as barrier layer increases the resistance to the passage of water vapour, oxygen and other gases as well as undesirably aromas. The thickness of the various individual layers varies, depending on the specific application. Typical film thicknesses are: PET 12 μm, aluminium 8-12 μm, oPA 12-15 μm, PE and PP 50-150 μm. The films or foils are typically bonded together by means of polyurethane adhesives.

[0009] Apart from the different properties, the combination of layers also produces the required toughness at the sealing joint, which gives the finished pouch its shape. This prevents the pouch from bursting open if dropped, which would make the contents unusable.

[0010] The production of the above mentioned arrangement of layers is relatively complex. There is therefore the desire to have layers that are easier to manufacture, that are cost-favourable and to have fewer layers e.g. laminates having only two main layers. The materials employed must combine different properties, in particular however prevent the finished pouch from tearing open along the sealing seam if dropped several times.

[0011] The object of the present invention is to improve the shock-absorbing capacity of the sealing seam in a packaging pouch of the kind mentioned at the start.

[0012] That objective is achieved by way of the invention in that, in order to increase the shock-absorbing capacity, a region of the sealing zone bordering the interior of the pouch exhibits lower bond strength than the bond strength of the outer part of the sealing seam.

[0013] The essence of the invention lies in the placement of an additional sealing area which, when a pouch is dropped, absorbs the energy acting on the sealing zone of the pouch or reduces this to such an extent that the outer sealing seam is not impaired. A tear which, when a pouch is dropped, starts in the region of the seam that precedes the outer sealing seam and has the lowest bond strength, is arrested by plastic deformation taking up the kinetic energy running into the sealing zone i.e. before the tear reaches the outer sealing seam.

[0014] The region of the sealing seam bordering the interior of the pouch may e.g. exhibit an inner sealing seam having lower bond strength than that of the outer sealing seam.

[0015] The region of sealing zone bordering the interior of the pouch may also exhibit a plurality of sealing areas that are spaced apart and exhibit the same or lower bond strength than that of the outer sealing seam. Thereby, the sealing areas that are spaced apart may exhibit geometric figures that are surrounded on all sides by seal-free regions or form a geometric pattern.

[0016] The sealing areas that are spaced apart from each other may also be strips that project from an inner edge of the outer seam, or strips that project from an inner edge of the outer sealing seam and are delimited by inward projecting seal-free regions.

[0017] The region of sealing zone bordering the inner part of the pouch and exhibiting lower bond strength than that of the outer sealing seam may extend the whole length or may run only over one or more parts of the length of the outer sealing seam.

[0018] Further advantages, features and details of the invention are revealed in the following description of preferred exemplified embodiments of the invention and with the aid of the drawing which shows schematically in

[0019] FIG. **1** a side view of a free-standing pouch with outer and inner sealing seam;

[0020] FIG. **2** the side view of the free-standing pouch shown in FIG. **1**, having outer sealing seam and sealing areas that are spaced apart;

[0021] A packaging pouch **10** in the form of a free-standing pouch shown in FIG. **1** features a front wall **12**, a rear wall **14** and a sealed on base **16**. A circumferential sealing seam **18** of elevated bond strength hermetically seals an inner volume **20** delimited by a front wall **12**, rear wall **14** and base **16**.

[0022] An inner sealing seam **22** having lower bond strength than that of the outer sealing seam **18** borders on one side to the region **20** for holding the contents and on the other side to the inner edge **19** of the outer seam **18** and extends over the whole length of the outer seam **18**.

[0023] A tear arising when the pouch is dropped begins at the inner seam and is arrested there due to the absorption of energy. The bond strength of the inner seam **22** may e.g. be selected such that separation of the inner seam **22** takes place by peeling.

[0024] As shown in FIG. **2**, reduced bond strength at the inner side of the outer seam **18** may be achieved by the sealing in this region being achieved by a plurality of sealing areas that are separated from each other i.e. instead of by a seam covering the whole area.

[0025] The sealing areas shown by way of example in a first version comprise geometric elements e.g. triangles **24** which are surrounded by seal-free regions.

[0026] In a second version shown here, the sealing areas are arranged spaced apart in the form of strips **26** projecting out from the inner edge **19** of the outer seam **18** towards the interior **20** of the pouch.

[0027] In a third version shown here the sealing areas are in the form of strips **30** projecting from the inner edge of the outer seam **18** that are arranged spaced apart and are delimited by seal-free regions **28**.

1. A packaging pouch made from a flexible film material that has at least on sealing zone arranged along a pouch edge and an outer sealing seam (**18**) as a permanent sealing element, in order to increase the capacity of the at least one sealing zone to absorb shock, a region of the at least one sealing zone bordering inner part (**20**) of the packaging pouch has lower bond strength than that of the sealing seam (**18**).

2. The packaging pouch according to claim 1, wherein the region of the at least one sealing zone bordering interior of the packaging pouch is a sealing seam (**22**) having lower bond strength than that of the outer seam (**18**).

3. The packaging pouch according to claim 1, wherein the region of the at least one sealing zone bordering the inner part of the packaging pouch exhibits a plurality of sealing areas (**24**, **26**, **30**) spaced apart from each other and has same or lower bond strength than that of the outer seam (**18**).

4. The packaging pouch according to claim 3, wherein the sealing areas that are spaced apart from each other, and exhibit geometric elements (**24**) surrounded on all sides by seal-free regions.

5. The packaging pouch according to claim 3, wherein the sealing areas that are spaced apart from each other form a geometric pattern.

6. The packaging pouch according to claim 3, wherein the sealing areas that are spaced apart from each other are strips (**26**) that project out from an inner edge (**19**) of the outer seam (**18**) towards the interior of the packaging pouch.

7. The packaging pouch according to claim 3, wherein the sealing areas that are spaced apart from each other are strips (**30**) that project out from an inner edge (**19**) of the outer seam (**18**) and are delimited by inward projecting seal-free regions (**28**).

8. The packaging pouch according to one of the claim 7, wherein the region of the at least one sealing zone, bordering the interior of the packaging pouch and having lower bond strength than that of the outer stream (**18**), runs the whole length of the outer sealing seam (**18**).

9. The packaging pouch according to claim 7, wherein the region of the at least one sealing zone, bordering the interior of the packaging pouch having lower bond strength than that of the outer stream (**18**), runs over at least part of the length of the outer sealing seam (**18**).

10. The packaging pouch according to claim 1, wherein the region of the at least one sealing zone, bordering the interior of the packaging pouch having lower bond strength than that of the outer stream (**18**), runs the whole length of the outer sealing seam (**18**).

11. The packaging pouch according to claim 1, wherein the region of the at least one sealing zone, bordering the interior of the packaging pouch having lower bond strength than that of the outer stream (**18**), runs over at least part of the length of the outer sealing seam (**18**).

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