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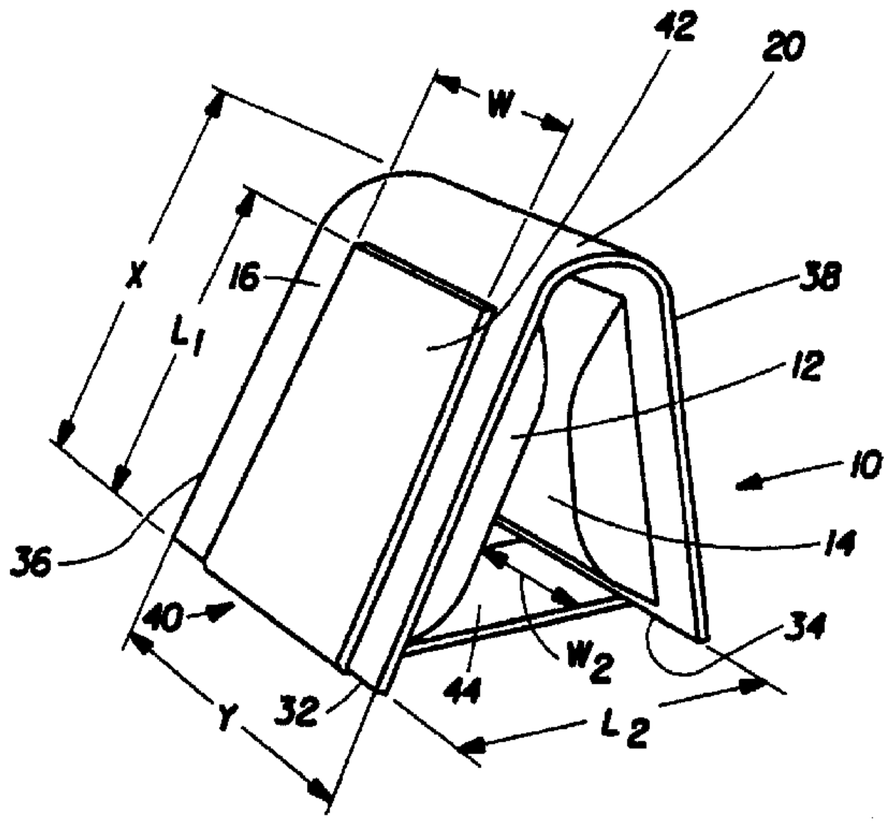
(54) **EMBALLAGE COMPARTIMENTE FLEXIBLE POUVANT RESTER EN POSITION VERTICALE, POURVU D'UN ELEMENT DE FERMETURE DECHIRABLE ET D'UN ETRIER DE LIAISON**

(54) **FLEXIBLE COMPARTMENTED PACKAGE THAT STANDS UPRIGHT HAVING RUPTURABLE SEAL AND CONNECTING STRAP**



(57) L'invention concerne un emballage compartimenté (10) flexible. Cet emballage compartimenté comporte un premier compartiment (12) relié de façon flexible à un second compartiment (14), par un élément de fermeture déchirable (20). Le premier compartiment est replié sur le second. L'emballage comprend un étrier de liaison (40) fixé auxdits compartiments et permettant à cet emballage de rester en position verticale. L'élément de fermeture peut être déchiré pour permettre au produit contenu dans les compartiments d'être mélangés avant leur sortie de l'emballage. Un tel emballage peut être observé par un consommateur lorsqu'il se trouve sur un rayon, sans que le consommateur ait à le prendre pour lire les informations imprimées sur son étiquette.

(57) Disclosed herein is a flexible compartmented package (10). The compartmented package has a first compartment (12) flexibly connected to a second compartment (14) by a rupture seal (20). The first compartment is folded over the second compartment. The package includes a connecting strap (40) attached to the compartments and enabling the package to stand in an upright position. The rupturable seal is rupturable in order for the products contained within the compartments to be mixed prior to dispensing from the compartmented package. Such a package can be viewed by a consumer on a store shelf, without the need to pick the package up in order to read the information printed on the packages' label.

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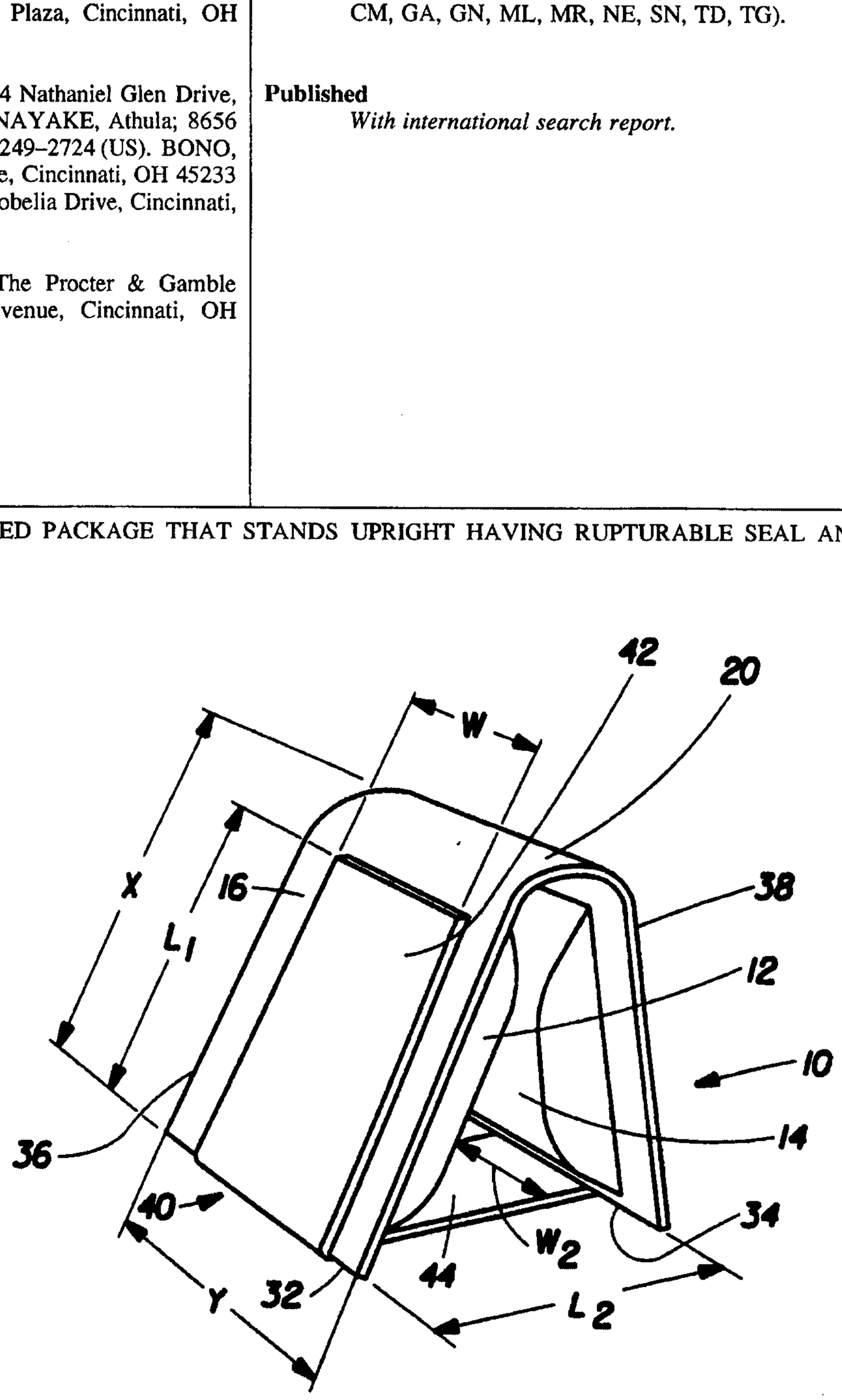
(54) Title: FLEXIBLE COMPARTMENTED PACKAGE THAT STANDS UPRIGHT HAVING RUPTURABLE SEAL AND CONNECTING STRAP

(57) Abstract

Disclosed herein is a flexible compartmented package (10). The compartmented package has a first compartment (12) flexibly connected to a second compartment (14) by a rupture seal (20). The first compartment is folded over the second compartment. The package includes a connecting strap (40) attached to the compartments and enabling the package to stand in an upright position. The rupturable seal is rupturable in order for the products contained within the compartments to be mixed prior to dispensing from the compartmented package. Such a package can be viewed by a consumer on a store shelf, without the need to pick the package up in order to read the information printed on the packages' label.



FLEXIBLE COMPARTMENTED PACKAGE THAT STANDS UPRIGHT HAVING RUPTURABLE SEAL AND CONNECTING STRAP

Field of the Invention

The present invention relates to a multi-compartment package. More particularly, the present invention relates to such packages having an easy to rupture seal.

Background of the Invention

Multi-compartment flexible packages having rupturable seals are typically used to separate compounds that should not be mixed together until they are ready for use. For example, U.S. Patent No. 3,074,544 issued to Bollmeier et al. discloses a combination package and U.S. Patent No. 5,287,961 issued to Herran discloses a multi-compartment package having an improved partition strip. When the rupturable seals of such packages are ruptured, the compounds in the separated compartments are allowed to mix together. Thus, compartmented packages are very convenient for storing a variety of ready-to-mix and use products.

Such multi-compartment packages can come in a variety of shapes and sizes. Some such packages are relatively bulky and are often difficult to handle since they are relatively flexible and can be irregular in shape. However, most of these packages are substantially flat and pillow shaped. Such packages are typically stored simply by laying the package flat on a shelf or surface. Multiple compartmented packages are typically stacked one on top of the other in a manner that conceals the packages label. Thus, packages of this type generally do not attract the eye of shoppers or consumers as they are walking through grocery stores, retail outlets, and the like. This causes many products to be overlooked by shoppers especially since the store shelves are stocked with many "eye-catching" package labels and display arrangements. Furthermore, in order to visually identify what is contained within these relatively flat packages or to read the labeling on such a package, the consumer must pick up the package. Thus, the consumer is inconvenienced and may even have to pick up several such packages prior to locating the particular brand, flavor, color, type, etc. that they are looking for. Also, since competition for shelf space is often vigorous, it is desirable to have a package that provides a visible or "eye-catching" display.

Consequently, there has been a desire to provide a flexible compartmented package that easily allows a consumer to identify the package, read its labeling, or identify the

product contained within the package. There also remains the need to have such a package be convenient and easy to use with ready-to-mix products.

Summary of the Invention

Disclosed herein is a compartmented package for storing a ready-to-mix product. The package includes a first compartment having a first volume and second compartment having a second volume. The first and second compartments are substantially flexible and are hermetically sealed. At least one rupturable seal is included on the first or second compartment. The rupturable seal allows fluid communication from the first or second compartment. Preferably the rupturable seal connects the first compartment to the second compartment. More preferably, rupture of the rupturable seal allows fluid communication between the first volume and the second volume in order to form a flowable product. A connecting strap is attached to the first and second compartments. This connecting strap maintains the compartments in a folded over configuration and enables the compartmented package to stand in an upright position.

The rupturable seal is preferably flexible and allows the first compartment to be folded over the second compartment. When the compartmented package is in this folded over configuration, the hydraulic forces within the first and second volumes of the first and second compartments are balanced between each other and across the rupturable seal, thus preventing premature rupture of the rupturable seal. The compartmented package is unfolded in order to permit rupture of the rupturable seal. Preferably the connecting strap comprises a paper resin laminate or plastic material. More preferably, the first and second compartments are thermoformed of a plastic material and the first and second volumes are partially visible through the first and second compartments. When the first compartment is folded over the second compartment the package resembles an A-frame shaped structure, preferably having the rupturable seal located between the first and second compartments. In a preferred embodiment the connecting strap has an outer surface which provides an area suitable for printing of label copy and other visual indicia.

Brief Description of the Drawings

While the specification concludes with claims particularly pointing out and distinctly claiming the present invention, it is believed that the same will be better understood from the following detailed description along with the accompanying drawings in which like reference numerals indicate the same element throughout the views, and in which:

FIG. 1 is a perspective view of a compartmented package of the present invention prior to folding;

FIG. 2 is a cross-sectional view of the compartmented package of the present invention taken along section line 2-2 of FIG. 1;

FIG. 3 is a top plan view of a connecting strap according to the present invention;

FIG. 4 is a top plan view of an alternative connecting strap according to the present invention; and,

FIG. 5 is a perspective view of the preferred embodiment of the compartmented package of the present invention.

Detailed Description of the Invention

Referring now to FIG. 1, the compartmented package, generally indicated as 10, is shown prior to being folded over. Compartmented package 10 has a first compartment 12 with a first volume 22 and a second compartment 14 with a second volume 24. Preferably, first compartment 12 and second compartment 14 are substantially flexible. As such compartmented package 10 can be made in various forms, shapes and sizes. For example, compartmented package 10 can be constructed as disclosed in U.S. Patent No. 3,074,544 issued to Bollmeier et al. on January 22, 1963 and assigned Minnesota Mining and Manufacturing Company; U.S. Patent No. 4,227,614 issued to Hollander, Jr. on October 14, 1980, and assigned to John P. Glass: and U.S. Patent No. 5,287,961 issued to Herran on February, 22, 1994, and assigned to W. R. Grace and Co.; all of which are hereby incorporated herein by reference.

Compartmented package 10 can be constructed or fabricated of a plastic film or can be thermoformed, injection molded, blow molded, extruded, or the like, of any plastic material. Preferably, the plastic material is heat sealable in order to seal the contents within compartmented package 10. More preferably, the plastic material can be hermetically sealed which means that compartmented package 10 when sealed is substantially air and liquid tight, or has high oxygen barrier properties. In particular, the O_2 transmission property has a value preferably between about 1 to 0.001 cc/100 Sq. In./24 hrs at 23°C(dry), more preferably between about 0.1 to 0.01 cc/100 Sq. In./24 hrs at 23°C(dry), and most preferably a high value of about 0.08 and a low value of about 0.05 cc/100 Sq. In./24 hrs at 23°C(dry). The H_2O transmission

property of the film has a value preferably between about 0.9 to 0.2 gr./100 Sq. In./24 hrs. at 100°F and 90% RH, more preferably a high value of about 0.8 and a low value of about 0.3, and most preferably a value of about 0.36 gr./100 Sq. In./24 hrs. at 100°F and 90% RH.

Such materials can be multi-layered structures or single layers of plastic materials or can be plastic films having various layers, blends, and extrusions made from, for example, one or more of the following: polyamide, nylon, polyethylene, ethylene/vinylacetate, ionomer, polyester, polyethylene terephthalate, vinyl, polypropylene, polyvinylidene chloride, polybutylene, ethylene vinyl alcohol, or oxide coated polymers. A preferred film for construction of compartmented package 10 of the present invention has a high strength nylon base, and an ethylene vinyl alcohol barrier layer, with a Surlyn sealant and is known in the trade as OMNIFLEX C44® which is a commercially available film from Printpack Inc.

In a preferred embodiment of compartmented package 10, a first layer 16 and a second layer 18 of plastic material are attached to each other. Second layer 18 is preferably thermoformed and provides recessed portions and first layer 16 is preferably substantially flat. First compartment 12 having first volume 22 and second compartment 14 having second volume 24 are formed when first layer 16 is attached over second layer 18. The periphery is formed by a first edge 32, a second edge 34, and deformable edges 36, 38. The periphery of compartmented package 10 can be sealed by heat sealing, adhesives, and the like. The periphery is substantially permanently sealed in that manipulation of compartmented package 10 by hand will not rupture or cause a separation at the periphery. Alternatively compartmented package 10 can be made of a single sheet of plastic film attached to itself.

Referring now to FIG. 2, rupturable seal 20 separates first compartment 12 from second compartment 14. Rupturable seal 20 can be made by various methods so long as it is capable of separation upon manipulation of compartmented package 10 by hand when the package is unfolded. For example, rupturable seal 20 can be fabricated as a thin walled section, weakened zone, frangible heat seal, weld zone having interruptions or discontinuities, or the like, and combinations thereof. Alternatively, first edge 32 and second edge 34 can also be made as rupturable seals allowing dispensing of first volume 22 from first compartment 12 independently of second volume 24 from second compartment 14. The preferred film thickness is between about 0.003 to 0.011 inches. A preferred rupturable seal 20, maybe produced, for example of an OMNIFLEX C44® laminate, by use of a VERTROD® impulse heat sealer at a temperature of between about 230°F to about 250°F with a dwell time of about 2 to 3 seconds, more preferably about 2.2 to 2.5 seconds, and at a pressure of about 20 to 40 psi. It is to be understood that the conditions for producing the rupturable seal will vary depending on the materials of construction, however the conditions chosen must produce the intended result. Additionally, the rupturable seals can be made to rupture at different pressures by changing the characteristics of

the seal. For example, the time, temperature, pressure, amount of impurities, surface area, and the like, used when constructing each rupturable seal can be increased and/or decreased. Such an arrangement allows compartmented package 10 to be tailored to the particular intended use.

As shown in FIG. 3, connecting strap 40 is substantially rectangular and has a length L and a constant width W. Preferably, connecting strap 40 also includes first score line 41 and second score line 43 being spaced apart and extending completely across width W. These score lines 41 and 43, divide connecting strap 40 into three segments. First segment 42 having a length L_1 extending from a front edge 45 to first score line 41. Second segment 44 having a length L_2 extending from first score line 41 to second score line 43. Third segment 46 having a length L_3 extending from second score line 43 to a back edge 47. Preferably, length L of connecting strap 40 is equivalent to length L_1 + length L_2 + length L_3 which includes the distance from front edge 45 to back edge 47.

Connecting strap 40 can be made from many flexible materials, for example, cloth, paper, coated paper, plastic, thermoformed plastic, paper-resin laminate, foil, and the like. It is preferable that these materials allow multicolor printing in order to enable connecting strap 40 to include visual indicia, labeling and other print or pictorial information. In a preferred embodiment, connecting strap 40 is formed of a coated paper commercially available from TEKTRONIX® Computer Graphics under the tradename Phaser II_{SD} Printer Paper. Preferably, connecting strap 40 is attached to at least one of first compartment 12 and second compartment 14 in a substantially continuous manner by any mechanical method commonly known by those skilled in the art including, for example, gluing, bonding, heat sealing, laminating, adhesive bonding, welding, or even by a mechanical fastener such as a snap lock, hook, or the like. Connecting strap 40 can also be made integral with at least one of first compartment 12 and second compartment 14.

Referring now to FIG. 4, an alternative embodiment of connecting strap 140 is shown. Connecting strap 140 can be formed in many shapes and sizes but preferably has an irregular shape with an overall length L. Connecting strap 140 also includes first score line 141 and second score line 143 being spaced apart along length L. Preferably, these first and second score lines 141 and 143, divide connecting strap 140 into at least three segments of varying shape and size. First segment 142 has a length L_1 extending from a front edge 145 to first score line 141. Second segment 144 has a length L_2 extending from first score line 141 to second score line 143. Third segment 146 has a length L_3 extending from second score line 143 to a back edge 147. Preferably, length L of connecting strap 140 is equivalent to length L_1 + length L_2 + length L_3 which includes the distance from front edge 145 to back edge 147. The lengths L_1 and L_2 and L_3 can be equivalent or otherwise. First segment 142 has a width W_1 and second segment 144 has a width W_2 and third segment 146 has a width W_3 wherein these widths can

each be different dimensions. More preferably, widths W_1 and W_3 are equivalent and W_2 is of a smaller dimension. Alternatively, second segment 144 can be made of multiple portions.

As shown in FIG. 5, rupturable seal 20 is flexible such that first compartment 12 is folded over second compartment 14 about the axis of rupturable seal 20. When compartmented package 10 is folded over about rupturable seal 20, the hydraulic forces are balanced within each compartment and across rupturable seal 20 in order to avoid premature failure or rupture of rupturable seal 20.

In this folded over configuration, compartmented package 10 forms an A-frame shaped structure. Preferably, rupturable seal 20 is located at the apex of the A-frame shaped structure. Deformable edges 36 and 38 form a triangular shaped portion of the A-frame shaped structure. Preferably, connecting strap 40 is attached to compartmented package 10 by being folded over first edge 32 at first score line 41 and second edge 34 at second score line 43. Alternatively, connecting strap 40 can span across deformable edges 34 and 38. Length L_2 is substantially equivalent to the distance between first edge 32 and second edge 34. Preferably, first segment 42 and third segment 46 of connecting strap 40 are attached to first layer 16 at first compartment 12 and second compartment 14 in a substantially continuous manner. For example, connecting strap 40 can be attached by adhesive bonding, gluing, heat sealing, or the like. More preferably, connecting strap 40 covers a substantial portion of at least one of first compartment 12 and second compartment 14. Preferably, length L_1 is slightly less than length X of first compartment 12, and more preferably, first compartment 12 and second compartment 14 have equivalent lengths. Additionally, width W is slightly less than width Y of first layer 16 on first compartment 12, and width W_2 is substantially less than width Y.

The attachment of connecting strap 40 maintains first compartment 12 and second compartment 14 in a folded over configuration and enables compartmented package 10 to stand upright. Upright as used herein indicates that first layer 16 of compartmented package 10 is in a substantially vertical or oblique orientation relative to a horizontal surface. Connecting strap 40 prevents first compartment 12 from sliding away from second compartment 14. Preferably, first segment 42 and third segment 46 of connecting strap 40 present a visible display when compartmented package 10 is viewed from an elevational vantage point. In particular, the preferred embodiment of connecting strap 40 includes visual indicia, labeling and other print or pictorial information on the surfaces of first segment 42, second segment 44, or third segment 46. Thus, connecting strap 40 provides an "eye catching," visual display that attracts consumers to compartmented package 10 and the contents contained therein.

Preferably, compartmented package 10 contains a complete, ready-to-mix product made of one or more components which need to be maintained separate until ready for use. Typically such components are flowable and can be fluids, but can also be solids, powders, liquids or

combinations thereof. For example, a ready-to-mix product can have a lipid or oil component that is to be kept separate from an aqueous component. One particularly preferred product for use in compartmented package 10 is a ready-to-mix complete food product, such as, for example, the shelf-stable dough mix disclosed in U.S. Patent No. 5,409,720 issued to Kent et al., on April 25, 1995, and assigned to Day Day, Inc. Other ready-to-mix, complete food and beverage products can be, for example: mixes, dough, batters, breads, brownies, cakes, cookies, cornbread, cupcakes, drinks, frostings, muffins, pancakes, pastries, salad dressings, soups, sauces, shakes, waffles, yogurts, as well as other sweet or savory food and beverage products.

In order to mix the separated compounds, connecting strap 40 is severed or detached allowing compartmented package 10 to be unfolded. Rupturable seal 20 can then be ruptured by manipulating compartmented package 10 by hand. Preferably such manipulation is in the form of squeezing, twisting, pulling or pressing on first compartment 12 and/or second compartment 14 of compartmented package 10 in order to create sufficient pressure to burst, sever, separate, rupture, or open rupturable seal 20. Opening of rupturable seal 20 allows the components contained in the separate compartments 12 and 14 to be placed in communication with each other for intermixing. Mixing of these components can be accelerated by additional manipulation of compartmented package 10 in order to form the particular product to be dispensed. Preferably, a portion of first and second compartments 12 and 14 is transparent or translucent and, more preferably, the first or second volumes 22 and 24 are at least partially visible through the corresponding first or second compartments 12 and 14. This allows the user to watch the product as it is being mixed. In order to dispense the product from compartmented package 10, the periphery can be severed, torn, cut and opened using scissors or the like. Alternatively, a perforated or easy-opening mechanism can be provided. Alternatively, a fitment such as a screw-cap closure may also be attached to compartment 12, 14 or side wall 16, which would facilitate opening and dispensing of said product. After the periphery of compartmented package 10 is opened, the product can be dispensed therefrom by squeezing compartmented package 10.

While particular embodiments of the present invention have been illustrated and described herein, various modifications can be made to this compartmented package without departing from the teachings of the present invention. The terms used in describing the invention are used in their descriptive sense and not as terms of limitation, it being intended that all equivalents thereof be included within the scope of the appended claims.

What is claimed is:

1. A compartmented package comprising a first compartment having a first volume and a second compartment having a second volume, the first and second compartments being flexibly connected and being folded over each other, the first and second compartments also being substantially flexible and hermetically sealed, at least one rupturable seal included on the first and second compartments, the compartmented package characterized in that:

a connecting strap is attached to the compartmented package, the connecting strap maintaining the compartments in the folded over configuration and enabling the compartmented package to stand upright.

2. The compartmented package according to claim 1 wherein, rupture of the rupturable seal allows dispensing of the first volume from the first compartment independently of the second volume from the second compartment.

3. The compartmented package according to claim 1 wherein, rupture of the rupturable seal allows communication between the first compartment and the second compartment such that the first and second volumes mix within the compartmented package.

4. The compartmented package according to any one of the preceding claims wherein premature rupture of the rupturable seal is prevented in the folded over configuration, and the compartmented package is unfolded to permit rupture of the rupturable seal.

5. The compartmented package according to any one of the preceding claims wherein the first compartment includes a first edge and the second compartment includes a second edge, the first and second edges being in proximity to each other in the folded over configuration, preferably the connecting strap is attached to the first and second compartments about the first and second edges.

6. The compartmented package according to any one of the preceding claims wherein the first and second compartments are thermoformed using a plastic material.

7. The compartmented package according to any one of the preceding claims wherein the first and second compartments have an outer surface, the connecting strap being attached to the outer surface.

8. The compartmented package according to any one of the preceding claims wherein the connecting strap is comprised of a plastic material.

9. The compartmented package according to any one of the preceding claims wherein the first and second volumes are at least partially visible through the first and second compartments.

10. The compartmented package according to any one of the preceding claims wherein the compartments contain a ready-to-mix, complete food product.

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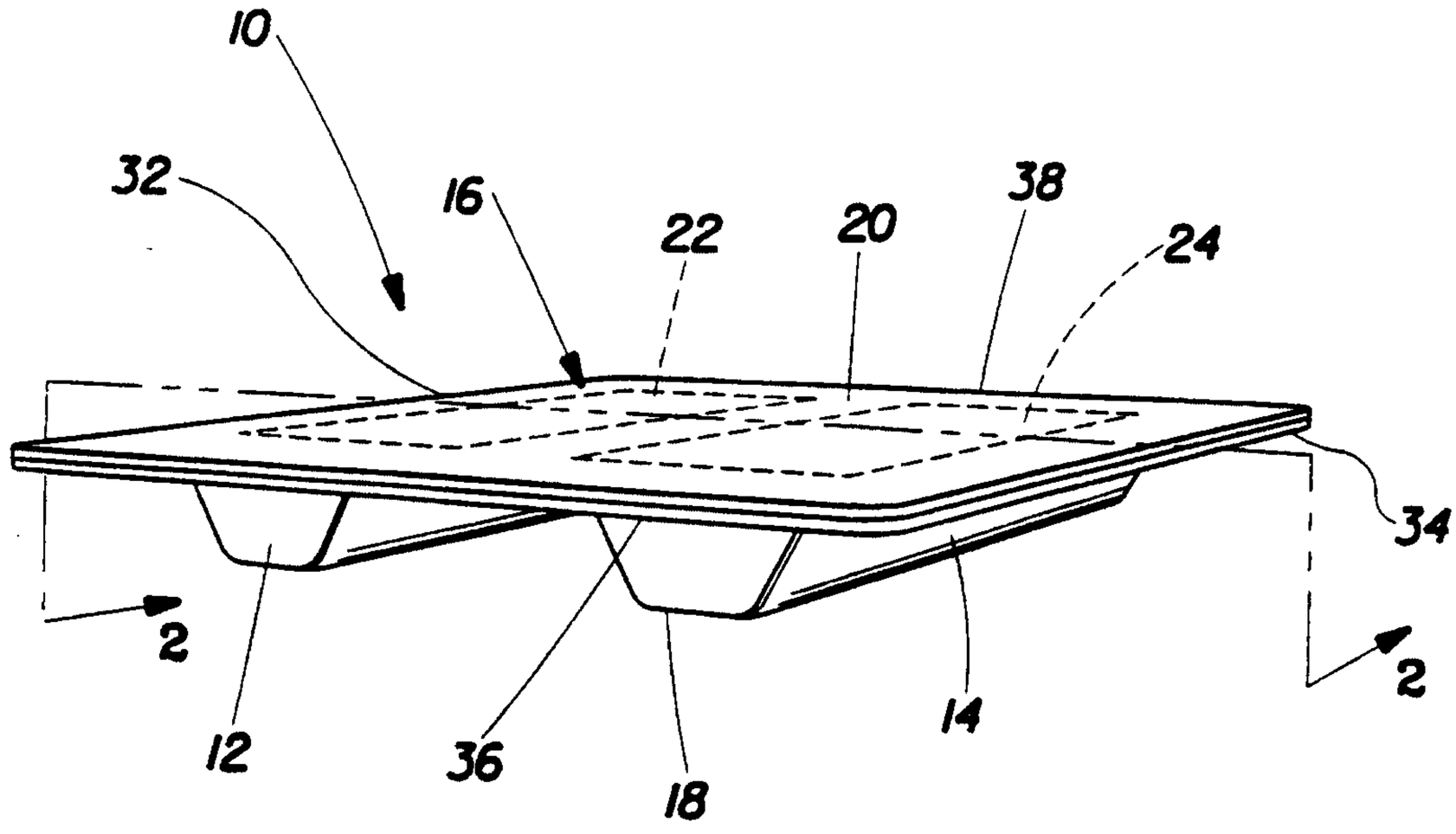

Fig. 1

Fig. 2

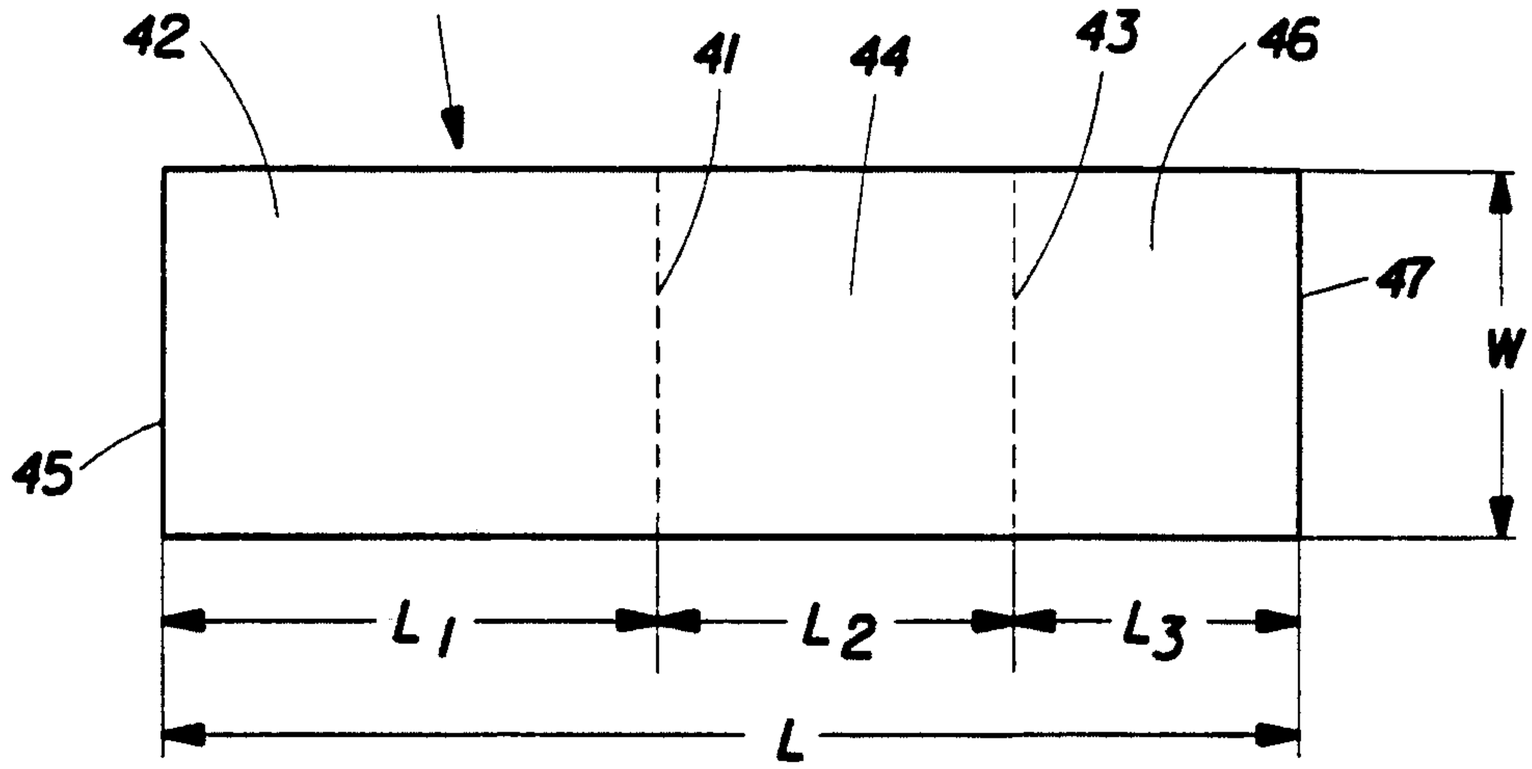
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Fig. 3

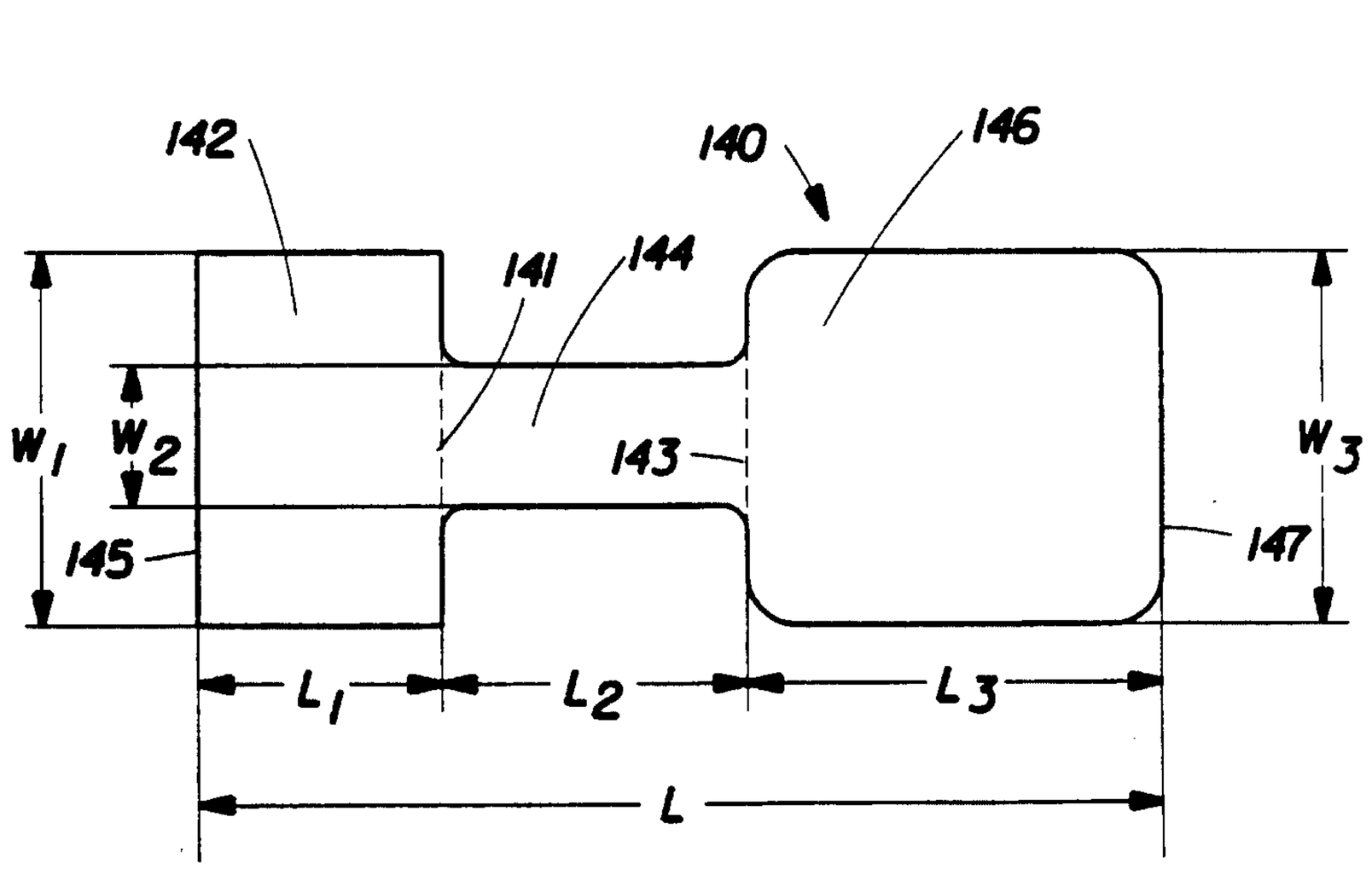
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Fig. 4

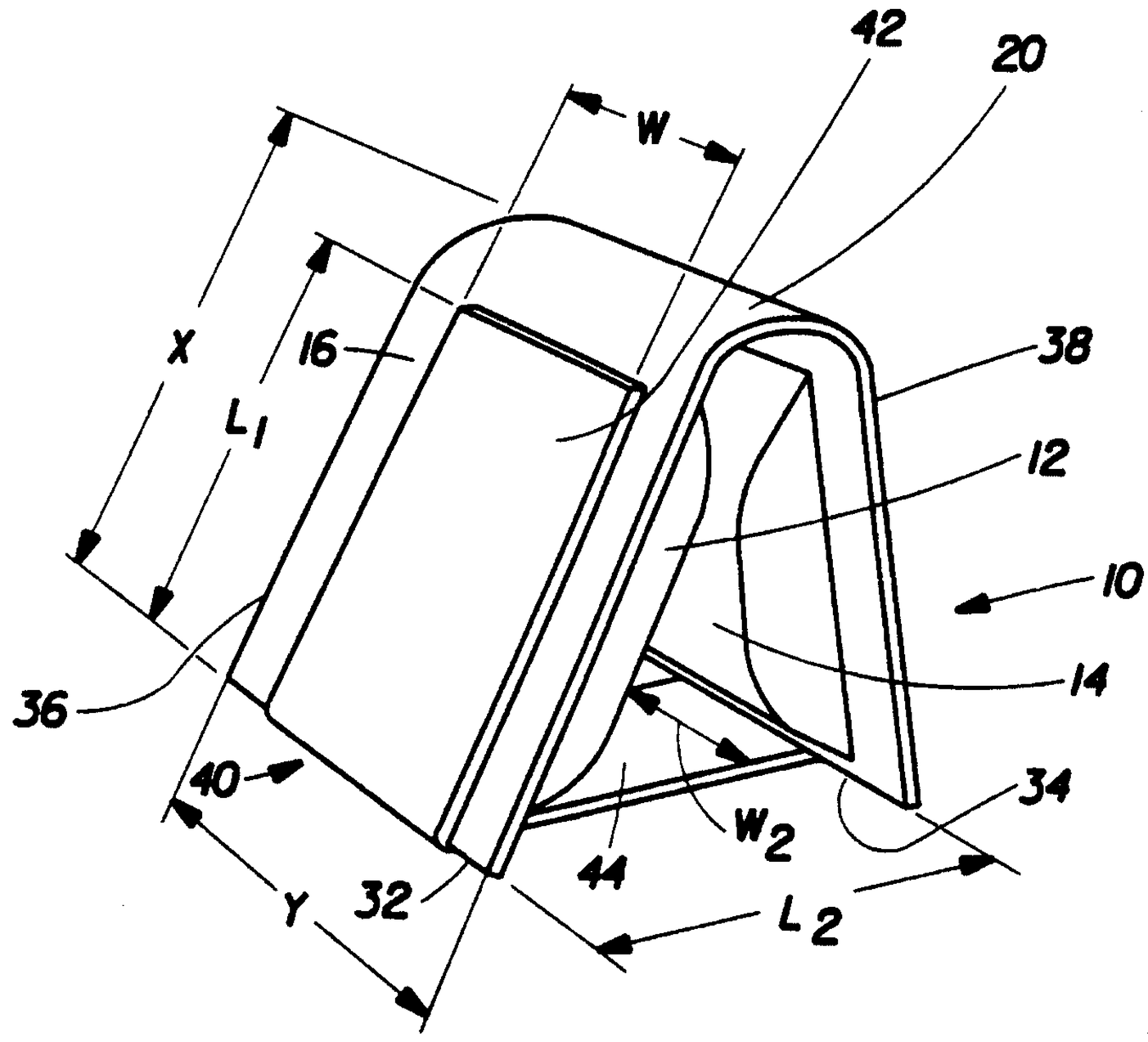

Fig. 5