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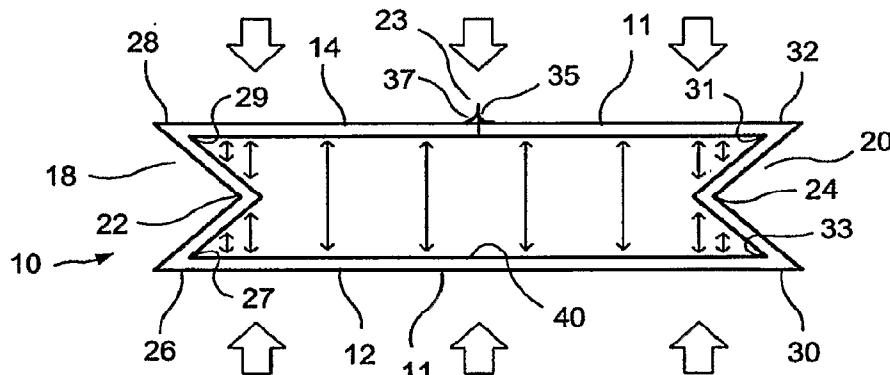
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(54) Title: WIDE MOUTH GUSSETED POUCHES



(57) Abstract: A reclosable gusseted bag (10) is disclosed wherein a single web multiple alignment zipper (40) is placed around the interior of the mouth of the bag (10), downwardly adjacent from the upper edge of the front panel (12), rear panel (14) and side gussets (18,20) thereby resulting in an increased size of opening as the mouth of the gusseted bag. The use of a single web multiple alignment zipper (40) allows opposing portions of the web to engage each other within a range of alignments thereby allowing for simplified use by the consumer.

WIDE MOUTH GUSSETED POUCHES

BACKGROUND OF THE INVENTION

5 Field of the Invention

The present invention relates to a reclosable zippered gusseted pouch with a multi-track, variable-alignment zipper placed within the perimeter of its film walls. As the gussets and bag walls behind the multi-track zipper are pressed together, the zipper tracks interlock in the area of both the gussets and bag walls.

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Description of the Prior Art

In the prior art, it is well-known to use gusseted packages in order to create a free-standing package with increased volumetric capacity. While these packages have been satisfactory for their intended purposes in many respects, they typically 15 have had their gussets sealed together so that only the front panel opened for access to the contents of the package. Smaller sized gusseted bags are particularly problematic in this respect.

OBJECTS AND SUMMARY OF THE INVENTION

20 It is therefore an object of the present invention to provide a gusseted container which achieves a large opening for dispensing of products therefrom.

It is therefore an object of the present invention to provide a gusseted container which achieves the above object with a manufacturing process which is relatively simple and economical.

These and other objects are attained by providing a gusseted pouch or reclosable container with a single web multiple-alignment zipper within the internal perimeter of the mouth thereof. This causes the gussets to close on both the front and back panels. By pulling apart the front and rear panels, the zipper will release 5 the gussets thereby giving the pouch an opening equal to the internal diameter of the film forming the pouch walls.

The use of a single web multiple alignment zipper reduces the production costs of this container.

Such a container will increase the consumer's access to the contents of the 10 package. Such a container can be applied to many markets, such as, but not limited to, cookies, snack foods and pet foods.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects and advantages of the invention will become apparent from 15 the following description and from the accompanying drawings, wherein:

Figure 1 is a front plan view of the reclosable gusseted bag of the present invention.

Figure 2 is a cross-sectional view along plane 2-2 of Figure 1, showing the single web multiple alignment zipper.

20 Figure 3 is a cross-sectional view along plane 3-3 of Figure 1, showing the single web multiple alignment zipper extending around the periphery of the interior of the partially open mouth of the reclosable gusseted bag of the present invention.

Figure 4 is a cross-sectional view along plane 3-3 of Figure 1, showing the reclosable gusseted bag of the present invention in the fully open position.

Figure 5 is a cross-sectional view along plane 3-3 of Figure 1, showing the reclosable gusseted bag of the present invention in the closed position with the gussets in the internal position.

Figure 6 is a cross-sectional view along plane 3-3 of Figure 1, showing the forces as the reclosable gusseted bag of the present invention is opened with the gussets in the internal position.

Figure 7 is a cross-sectional view along plane 3-3 of Figure 1, showing the reclosable gusseted bag of the present invention in the closed position with the gussets in the external position.

Figure 8 is a cross-sectional view along plane 3-3 of Figure 1, showing the forces as the reclosable gusseted bag of the present invention is opened with the gussets in the external position.

Figure 9 is a perspective view of the reclosable gusseted bag of the present invention.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in detail wherein like numerals indicate like elements throughout the several views, one sees that Figure 1 is a front plan view of the reclosable gusseted bag 10 of the present invention, Figure 3 is a cross-sectional view of the top of reclosable gusseted bag 10 of the present invention and Figure 9 is a perspective view of the reclosable gusseted bag 10 of the present invention.

The periphery of gusseted bag 10 is typically formed from a single web sheet 11. Single web sheet 11 is formed to include front panel 12, rear panel 14 and left and right gussets 18, 20 formed between panels 12, 14. Panels 12, 14 are sealed together along bottom seal 16 (bottom seal 16 could be a direct seal between the

panels 12, 14 or a further gusset could be placed therebetween, particularly if a free-standing bag is desired). Left and right gussets 18, 20 are V-shaped with apices 22, 24.

Apices 22, 24 are formed as folds or creases in single web sheet 11.

5 Similarly, folds or creases 26, 28, 30, 32 are formed in single web sheet 11 as shown in Figure 3. Lateral edges 33, 35 of web sheet 11 are sealed together by fin seal 37, which protrudes from a central area of rear panel 14.

An alternative embodiment forms the panels 12, 14 and gussets 18, 20 from four separate sheets with seals therebetween in place of creases 26, 28, 30, 32. A 10 further alternative embodiment uses a film tube with the gussets 18, 20 formed therein.

Gussets 18, 20, of course, increase the volume which may be formed between front panel 12 and rear panel 14 when gusseted bag 10 is filled. Gussets 18, 20 further increase the size of the mouth 34 formed between the top edges of 15 front panel 12 and rear panel 14.

A single web multiple alignment zipper 40 is sealed to the interior of the periphery of web sheet 11 (thereby including front and rear panels 12, 14 and gussets 18, 20) downwardly adjacent from the top edge thereof which forms mouth 34. The single web multiple alignment zipper 40 extends around the entire interior 20 perimeter of the mouth 34 with the ends of the zipper 40 abutting inwardly from fin seal 37 as shown in Figures 3 and 4. Alternatively, in order to reduce manufacturing tolerances for bags which do not require as reliable of a seal formed by zipper 40 (such as, for example, large dry products such as dog food), zipper 40 may extend into fin seal 37 and be crushed therein.

Additionally, as shown in Figure 3, notches 27, 29, 31, 33 may be cut into single web multiple alignment zipper 40 at the locations of creases 26, 28, 30, 32 in order to facilitate the folding of zipper 40.

Figure 2 is a cross-sectional view of single web multiple alignment zipper 40 which has been folded upon itself and is shown twice in cross section (that is, a first portion on front panel 12, a second portion on rear panel 14). Such a single web multiple alignment zipper 40 has a plurality (at least two, typically three to five, but perhaps more, such as the six engaging elements illustrated on each portion of the web in Figure 2) of engaging elements 42 on the whereby a first portion of the single web multiple alignment zipper 40 can align and engage with a second portion thereof in one of a plurality of different configurations throughout a range of alignments. That is, varying the alignment will cause different engaging elements from a first portion of zipper 40 to engage between given engaging elements of an opposing second portion of zipper 40 while resulting in a reliable engagement. In the present configuration, a first portion of the single web multiple alignment zipper 40 on the front panel 12 engages with the portion of the single web multiple alignment zipper 40 on the rear panel 14 as well as respective facing portions of gussets 18, 20 when the gussets are folded in the internal configuration as shown in Figures 3, 5 and 6. When the gussets 18, 20 are folded in the external configuration as shown in Figures 7 and 8, portions of the zipper 40 on the front portion of gussets 18, 20 engage with portions of zipper 40 on the respective rear portions of gussets 18, 20.

The multiple alignment capability of zipper 40 allows the user to more easily re-engage the zipper 40 after the initial opening of the gusseted bag 10. Single web multiple alignment zipper 40 can be a string zipper (i.e., flangeless) or include one or two flanges.

Figure 3 shows the contact area encompassing the entire interior perimeter of gusseted bag 10 and the simple force needed to close the gusseted bag 10. Figure 5 discloses the contact area created when gusseted bag 10 is closed. Figure 6 shows that when the consumer or user pulls on the front and rear panels 12, 14 thereby 5 exerting force X, the zipper 40 releases around the entire interior perimeter of gusseted bag 10, thereby exerting force Y and releasing the gussets and giving the maximum opening achievable as shown in Figure 4.

The manufacture of gusseted bag 10 typically includes applying zipper 40 in a transverse direction along single web sheet 11. Web sheet 11 is then dragged over 10 a forming collar (not shown) where various folds 20, 22, 26, 28, 30, 32 are formed thereby forming gussets 18, 20. Lateral edges of web sheet 11 are brought together and fin seal 37 is formed. Bottom seal 16 is formed and the resulting bag 10 is separated from the subsequent bags. Alternately, if the zipper 40 is applied after the 15 gussets 18, 20 have been formed, gussets 18, 20 should typically be in the open or outwardly folded position during application of zipper 40.

Thus the several aforementioned objects and advantages are most effectively attained. Although preferred embodiments of the invention have been disclosed and described in detail herein, it should be understood that this invention is in no sense limited thereby and its scope is to be determined by that of the appended claims.

CLAIMSWhat is Claimed is:

1. A container including:
 - a front panel and a rear panel;
 - a first gusset joining a first side of said front panel to a first side of said rear panel;
 - a second gusset joining a second side of said front panel to a second side of said rear panel;
 - an opening being formed by an edge of said front and rear panels and said first and second gussets;
 - a zipper sealed to an interior of said front and rear panels and said first and second gussets, downwardly adjacent from said opening; and
 - wherein said zipper includes a web with plurality of engaging elements whereby a first portion of said web can engage a second portion of said web in a plurality of different configurations and thereby through a plurality of alignments.
2. The container of Claim 1 wherein said front panel, said rear panel, and said first and second gussets are formed from a single sheet of web.
3. The container of Claim 1 wherein said front panel, said rear panel and said first and second gussets are each formed from a separate sheet of web.
4. The container of Claim 1 wherein notches are formed in said zipper at locations where said first and second gussets join said front and rear panels.

5. The container of Claim 1 wherein said front panel, said first gusset, said rear panel and said second gusset are separated by successive folds formed in said single sheet of web, and further wherein said first gusset and said second gusset include central folds therein.

6. The container of Claim 1 wherein lateral edges of said single sheet of web are sealed together.

7. The container of Claim 1 wherein lateral edges of said single sheet of web are sealed together as a fin seal along said rear panel.

8. The container of Claim 1 wherein said zipper is a single web extending around an entire inner periphery of said opening.

9. The container of Claim 8 wherein said plurality of engaging elements includes at least three engaging elements.

10. The container of Claim 8 wherein said plurality of engaging elements includes at least six engaging elements.

11. The container of Claim 8 wherein ends of said zipper abut each other.

12. A container including:
a front panel and a rear panel;
a first gusset joining a first side of said front panel to a first side of said rear panel;

a second gusset joining a second side of said front panel to a second side of said rear panel;

an opening being formed by an edge of said front and rear panels and said first and second gussets; and

a variable alignment zipper web sealed to an interior of said front and rear panels and said first and second gussets, downwardly adjacent from said opening, wherein ends of said zipper web abut each other.

13. The container of Claim 12 wherein said front panel, said rear panel, and said first and second gussets are formed from a single sheet of web.

14. The container of Claim 12 wherein said front panel, said rear panel, and said first and second gussets are each formed from separate sheets of web.

15. The container of Claim 12 wherein said front panel, said first gusset, said rear panel and said second gusset are separated by successive folds formed in said single sheet of web, and further wherein said first gusset and said second gusset include central folds therein.

16. The container of Claim 12 wherein notches are formed in said zipper at locations where said first and second gussets join said front and rear panels.

17. The container of Claim 12 wherein said zipper web is a single strip extending around an entire inner periphery of said opening.

18. The container of Claim 12 wherein said plurality of engaging elements includes at least three engaging elements.

19. The container of Claim 12 wherein said plurality of engaging elements includes at least six engaging elements.

20. A container including:

- a front panel and a rear panel;
- a first gusset joining a first side of said front panel to a first side of said rear panel;
- a second gusset joining a second side of said front panel to a second side of said rear panel;
- wherein said first and second gussets are sealed to said front and rear panels by fin seals;
- an opening being formed by an edge of said front and rear panels and said first and second gussets; and
- a single strip of zipper web sealed to an interior of said front and rear panels and said first and second gussets, downwardly adjacent from said opening.

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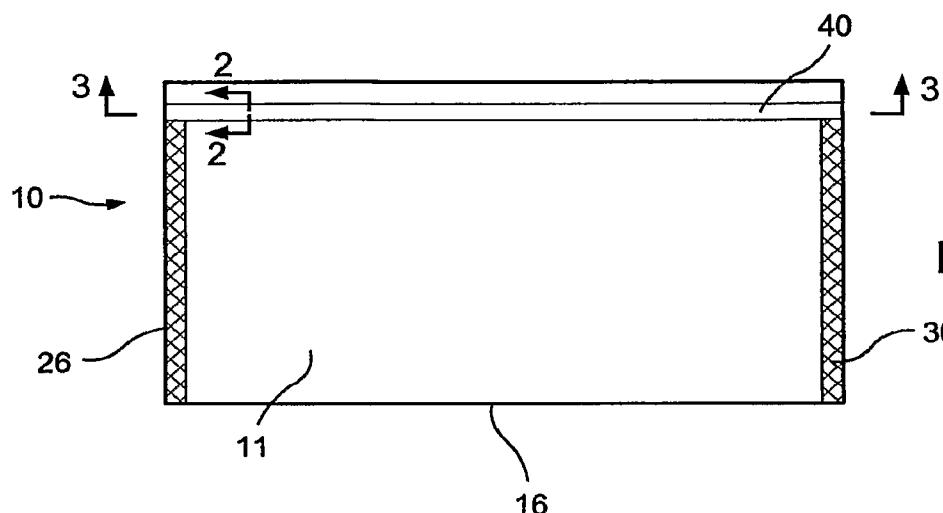


FIG. 1

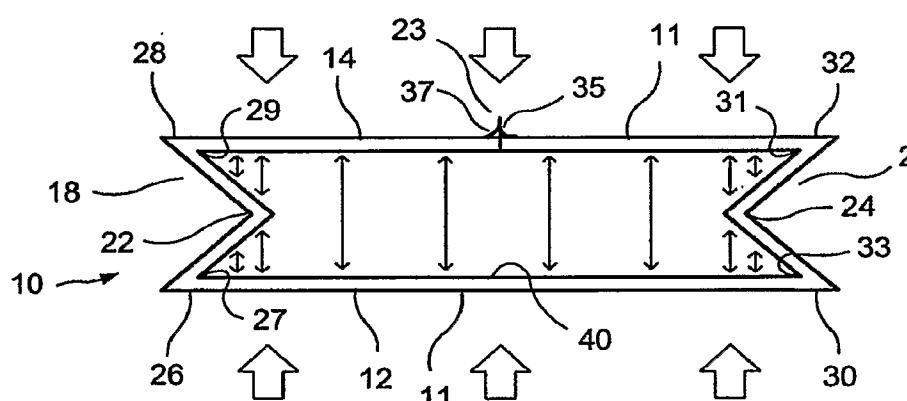


FIG. 3

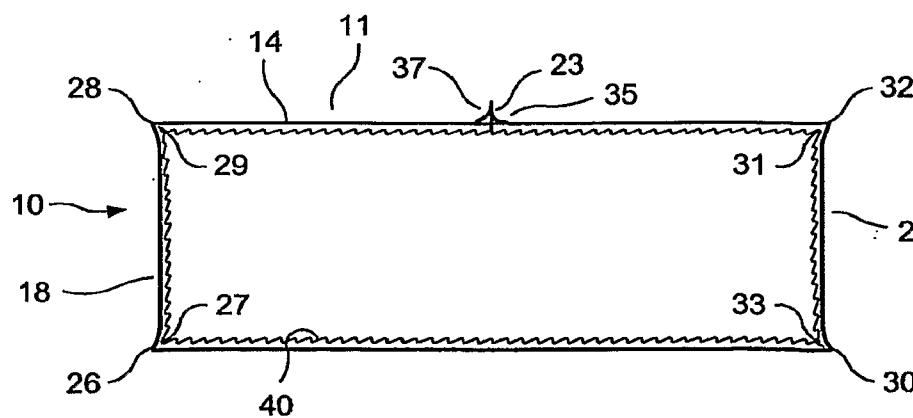


FIG. 4

2/3

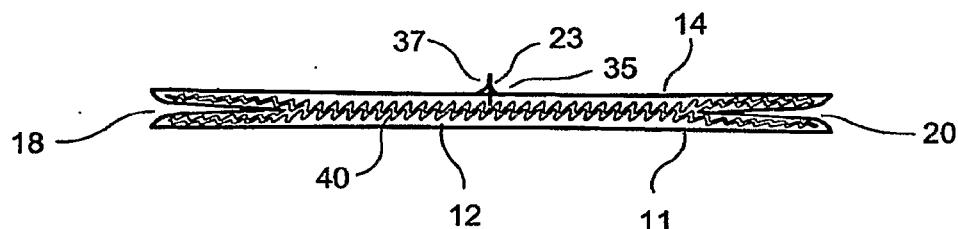


FIG. 5

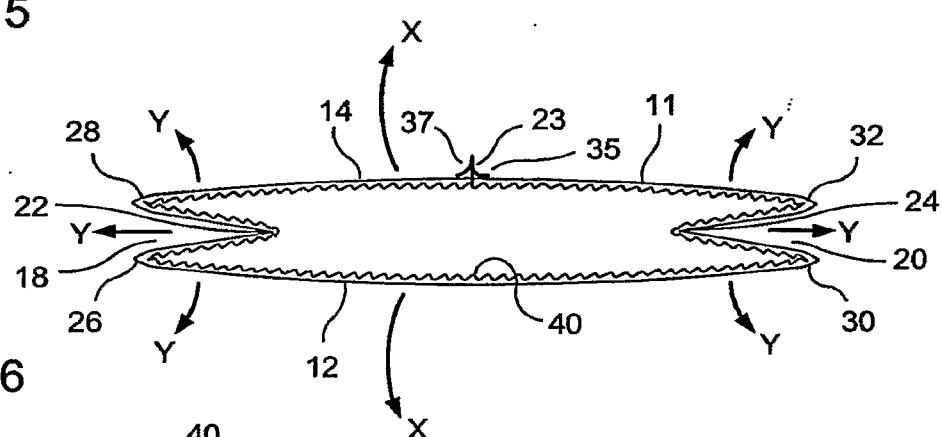


FIG. 6

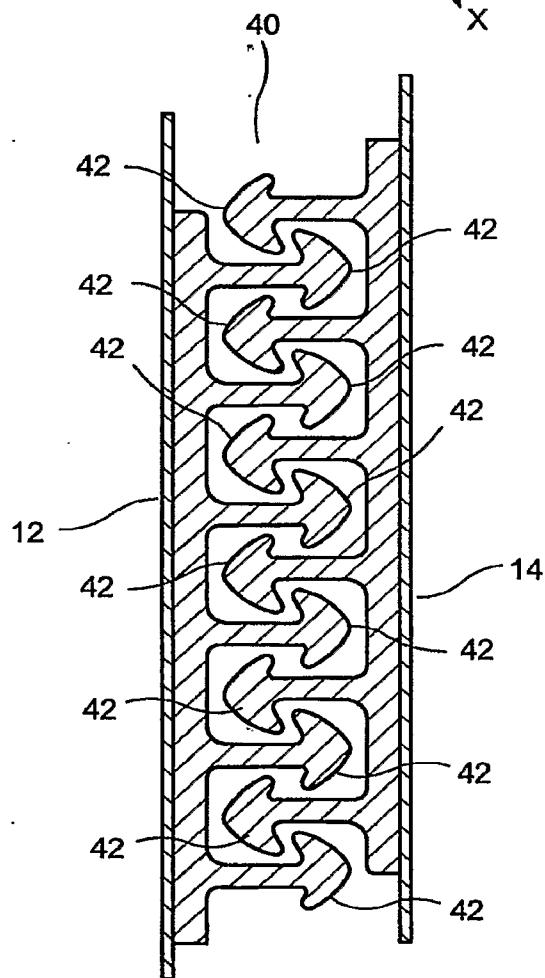


FIG. 2

3/3

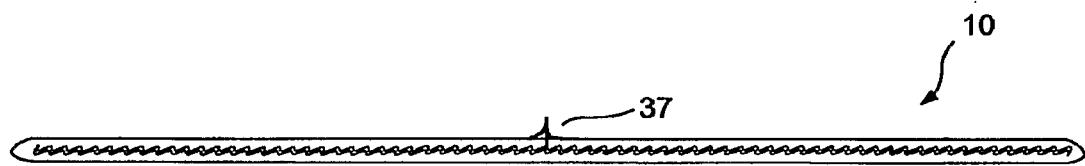


FIG. 7

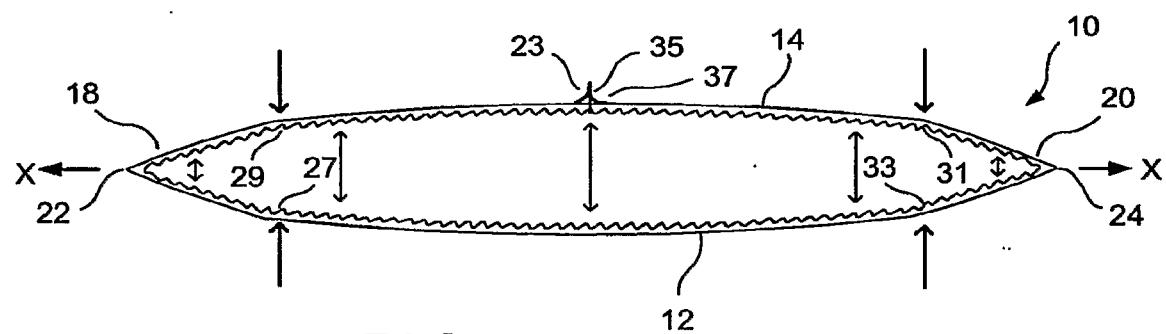


FIG. 8

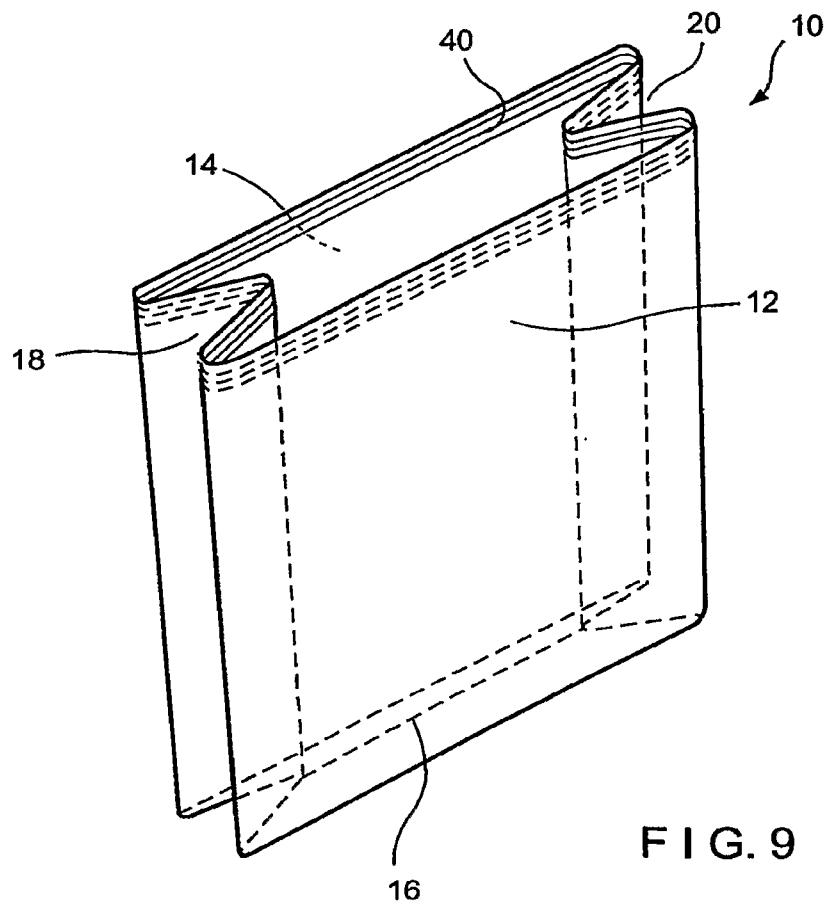


FIG. 9

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/008047

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D33/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/063820 A1 (BUCHMAN JAMES E [US]) 3 April 2003 (2003-04-03)	20
Y	paragraph [0017] - paragraph [0028]; figures 1,2,5 -----	1-19
Y	US 2003/101552 A1 (PLOURDE ERIC P [US] ET AL) 5 June 2003 (2003-06-05)	1-19
A	abstract; figures 1-5 -----	20
A	US 2004/208402 A1 (YEAGER JAMES W [US]) 21 October 2004 (2004-10-21) abstract; figures 1-8 paragraph [0026] - paragraph [0034] -----	1,8,12, 17,20
A	US 6 325 543 B1 (AUSNIT STEVEN [US]) 4 December 2001 (2001-12-04) abstract; figures 1,2,5 column 2, line 12 - line 65 -----	1-20

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

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Date of the actual completion of the international search

10 August 2007

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)			Publication date
US 2003063820	A1	03-04-2003	DE	60208070 T2	20-07-2006
			EP	1441958 A1	04-08-2004
			WO	03029093 A1	10-04-2003
US 2003101552	A1	05-06-2003	EP	1338524 A1	27-08-2003
			JP	2003191969 A	09-07-2003
			US	2006090308 A1	04-05-2006
US 2004208402	A1	21-10-2004	AU	2004231077 A1	28-10-2004
			BR	PI0409443 A	25-04-2006
			CA	2522517 A1	28-10-2004
			EP	1620321 A2	01-02-2006
			JP	2006523587 T	19-10-2006
			US	2006021296 A1	02-02-2006
			WO	2004092025 A2	28-10-2004
US 6325543	B1	04-12-2001	AT	267746 T	15-06-2004
			AU	5428501 A	28-02-2002
			BR	0103081 A	28-05-2002
			DE	60103465 D1	01-07-2004
			DE	60103465 T2	16-09-2004
			EP	1184294 A2	06-03-2002
			JP	2002104433 A	10-04-2002
			NZ	513681 A	28-09-2001