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[Continued on next page]

(54) Title: ZIPPER WITH FOLD OVER ELEMENTS FOR RECLOSABLE PACKAGE

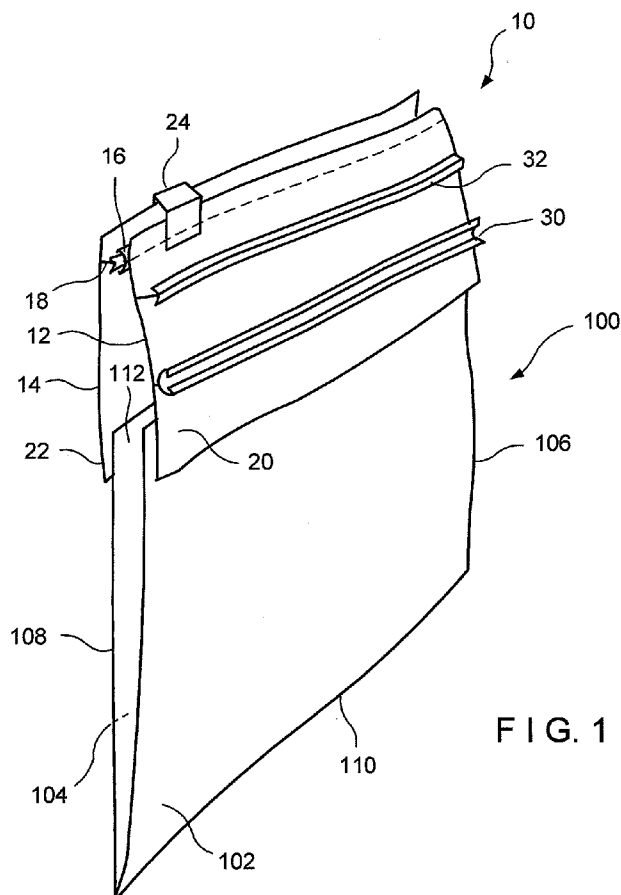


FIG. 1

(57) Abstract: A zipper assembly for a reclosable package or bag is disclosed. The zipper assembly includes two profiles with flanges and internal interlocking elements on the interior of the flanges. The exterior of one of the flanges includes two exterior parallel press-to-close profile-like interlocking elements which are brought into engagement with each other by folding the flanges of the zipper assembly. This increases the burst handling capability of the zipper assembly and the package or bag to which it is attached. Alternatives include substituting a peel seal for the exterior interlocking element as well as an exterior label or sticker to maintain the flanges in a folded configuration.

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ZIPPER WITH FOLD OVER ELEMENTS FOR RECLOSABLE PACKAGE**BACKGROUND OF THE INVENTION****FIELD OF THE INVENTION**

5 The present invention relates to a zipper for reclosable packages or bags, wherein the zipper is secured in a folded over configuration to achieve a high burst strength for the package or bag. This can be achieved with secondary zipper profiles formed on an exterior face of one of the flanges, allowing the zipper to be folded over thereby interlocking the exterior profiles. Additionally, a peel seal or an adhesive
10 label can be used to secure the zipper in a folded over configuration.

DESCRIPTION OF THE PRIOR ART

 Large packages, bags or pouches, such as those used for pet food, charcoal, cat litter and similar items are typically filled and sealed shut, with no reclosure mechanism. These packages may be formed by form fill and seal (FFS) or by other
15 methods. Prior attempts to incorporate a zipper reclosure mechanism have been unsatisfactory due to the unique requirements of a large bag with a relatively heavy load. In particular, filling from the bottom places all of the load on the reclosure during filling. This load can cause the zipper reclosure to fail and open. Similarly, dropping a filled bag onto a pallet or similar rough handling during transportation, as
20 well as exposing a bag to elevated temperatures during transportation, can cause the zipper reclosure to fail.

 The prior art has addressed these deficiencies by folding over the end of the package, particularly a multi-wall package, using an expensive label as tape thereby allowing successful filling and transport. Similarly, the prior art has addressed these
25 deficiencies by using a liner peel seal below the zipper and a solid tear line in the zipper flange to provide a fill and transport system that does not rupture and spill the contents. However, these methods have slow rates of production, as well as increased costs of production, and frequently do not result in a satisfactory product for the consumer.

Some further examples of the prior art which are not entirely satisfactory are found in U.S. Patent No. 6,979,482 entitled "Multiwall Bag with Zipper and Fin" issued on December 27, 2005 to Hartzell et al. and U.S. Patent No. 7,090,904 entitled "Enhanced Slider Zipper Multiwall Bag and Associated Methods" issued On August 15, 2006 to Hartzell et al.

Typical prior tamper-evident zipper assemblies are disclosed in U.S. Patent No. 6,354,738 entitled "Tamper Evident Reclosable Plastic Bag" issued on March 12, 2002 to Buckman et al.; U.S. Patent No. 4,647,063 entitled "Reclosable Bag with Laminated Liner and Method" issued on January 13, 1987 to Sullivan; and U.S. Patent No. 5,509,735 entitled "Closure Arrangement Having a Peelable Seal" issued on April 23, 1996 to May.

OBJECT AND SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a zipper for reclosable packages, particularly large bags to provide increased burst strengths while maintaining the capacity of the large bag and further maintaining ease of opening by the consumer.

It is therefore a further object of the present invention to provide a zipper for reclosable packages which is adaptable to standard zipper profiles, is applicable to a wide range of package materials and further provides for clip protection of the contents of the package or bag.

These and other objects are attained by providing a zipper assembly, with either a slider zipper or a press-to-close zipper, with flanges which are secured to the exterior of the reclosable package or bag. The exterior face of one of the flanges includes first and second exterior profiles. This allows the interlocked zipper to be folded over so that the first and second exterior profiles can interlock with each other. This provides for increased zipper strength by reducing the effect of internal forces or shocks on the primary interlocking profiles of the zipper. This strength can be further increased by providing clips to secure the zipper in the folded over configuration.

Alternative embodiments use a pre-applied post-activation peel seal or an adhesive label in place of the exterior profiles.

DESCRIPTION OF THE DRAWINGS

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

Figure 1 is a perspective, partially exploded and partially in phantom, view of a reclosable package or bag including the zipper assembly of the present invention in an unfolded configuration.

Figure 2 is a perspective, partially exploded, view of a reclosable package or bag including the zipper assembly of the present invention in a folded configuration.

Figure 3 is a cross-sectional view along plane 3-3 of Figure 2, showing the exterior secondary zipper profiles.

Figure 4 is a cross-sectional view along plane 3-3 of Figure 2, showing an alternative embodiment with a peel seal in place of the exterior secondary zipper profiles.

Figure 5 is a cross-sectional view along plane 3-3 of Figure 2, showing a further alternative embodiment wherein the folded over configuration of the zipper is maintained by an adhesive tape label.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings in detail wherein like numerals indicate like elements throughout the several views, one sees that Figure 1 is a perspective, partially exploded, partially in phantom, view of package or bag 100 with the zipper assembly 10 in the unfolded configuration. Likewise, Figure 2 is a perspective, partially exploded view of package or bag 100 with the zipper assembly 10 in the folded configuration. Package 100 is formed from coextensive front wall 102 and rear wall 104, typically formed of polymeric material, polypropylene woven material or multi-wall paper. Those skilled in the art will recognize a wide range of equivalents after review of this disclosure. Side seal 106 is formed between the right (from the perspective of Figures 1 and 2) edges of front wall 102 and rear wall 104. Side seal 108 is likewise formed between the left edges of front wall 102 and rear wall 104, but Figures 1 and 2 illustrate the walls 102, 104 in a slightly separated or exploded

configuration for ease of illustration and explanation. Likewise, the bottom edges of front wall 102 and rear wall 104 are sealed together at bottom seal 110. Mouth 112 is formed between the upper edges of front wall 102 and rear wall 104. While not illustrated, it is envisioned that gussets could be formed between the front and rear walls 102, 104.

Zipper assembly 10 includes first profile 12 and second profile 14. First profile 12 includes first interior interlocking element 16 (illustrated as a female interlocking element) and first flange 20. First interlocking element 16 is formed on the interior of the distal end of first profile 12. Second profile 14 includes second interior interlocking element 18 (illustrated as a male interlocking element) and second flange 22. The female and male characteristics of the first and second interior interlocking elements 16, 18 can be reversed or other interlocking configurations can be used. Second interlocking element 18 is formed on the interior of the distal end of second profile 14. The phantom line near the top of Figure 1 is to illustrate that the first and second interlocking elements 16, 20 extend along the entire width of first and second flanges 18, 22, respectively.

The proximal end of first flange 20 is sealed to the exterior of front wall 102 proximate to mouth 112 while the proximal end of second flange 22 is sealed to the exterior of rear wall 104 proximate to mouth 112. Optional slider 24 is mounted on distal ends of first and second flanges 20, 22 and operates in the conventional manner of separating first and second interior interlocking elements 16, 18 when moved in an opening direction and interlocking first and second interlocking elements 16, 18 when moved in a closing direction.

First exterior interlocking element or profile 30 (illustrated in Figures 1-3 as a female element) and second exterior interlocking element or profile 32 (illustrated in Figures 1-3 as a male element) extend in spaced parallel configuration across the entire width of the exterior of first flange 20. First and second exterior interlocking elements or profiles 30, 32 typically are press-to-close elements. The female and male characteristics of the first and second exterior interlocking elements 30, 32 can be reversed or other interlocking configurations can be used. As shown in Figure 2, first and second flanges 20, 22 can be folded so as to bring first and second exterior

interlocking elements 30, 32 into interlocking engagement thereby increasing the burst handling capability of zipper assembly 10.

By maintaining the zipper assembly 10, rather than the walls 102, 104 of package or bag 100, in a folded configuration, the burst handling capabilities are increased without decreasing the capacity of package or bag 100.

The alternative embodiment of Figure 4 substitutes peel seal 40 (typically a pre-applied post-activation peel seal) for first and second exterior interlocking elements 30, 32, thereby providing tamper evidence. Peel seal 40 typically extends across the entire width of first flange 12, with a first portion of first flange 12 being engaged by a first side of peel seal 40 and a second portion (in spaced parallel relation to the first portion) of first flange 12 being engaged by a second side of peel seal 40 thereby maintaining the folded configuration.

The second alternative embodiment of Figure 5 substitutes an exterior adhesive label or sticker 50 for first and second exterior interlocking elements 30, 32 in order to maintain the zipper assembly 10 in a folded configuration with first flange 20 folded against itself and second flange 22 folded thereover. A first or lower end of the adhesive label or sticker 50 contacts the first flange 12 of zipper assembly 10 while a second or upper end of the adhesive label or sticker 50 contacts the second flange 14.

Moreover, the elements of the various embodiments can be used in combination with each other.

Additionally, any of these embodiments in the folded configuration are highly adaptable to the use of clips (not shown) over the folded zipper assembly 10 to further increase burst strength of the packages or bags.

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.

CLAIMS

What is Claimed is:

1. A zipper assembly for a reclosable package or bag, comprising:
a first profile including a first flange and a first interior interlocking element;
a second profile including a second flange and a second interior interlocking element; and
the first flange further including a first exterior interlocking element and a second exterior interlocking element, whereby the first and second flanges can be folded to bring the first and second exterior interlocking elements into interlocking configuration with each other.
2. The zipper assembly of Claim 1 wherein the first interior interlocking element is formed on an interior face of the first profile and the second interior interlocking element is formed on an interior face of the second profile.
3. The zipper assembly of Claim 2 wherein the first exterior interlocking element and the second interlocking element are formed in spaced parallel relationship to each other.
4. The zipper assembly of Claim 3 wherein the first exterior interlocking element and the second interlocking element extend across the entire width of the first flange.
5. The zipper assembly of Claim 4 wherein one of the first and second exterior interlocking elements is a male element and another of the first and second exterior interlocking elements is a female element.
6. The zipper assembly of Claim 2 wherein the first and second exterior interlocking elements are profiles with a press-to-close configuration.
7. The zipper assembly of Claim 2 wherein the first interior interlocking element and the second interlocking element extend across the entire width of the first and second profiles.

8. The zipper assembly of Claim 1 wherein one of the first and second interior interlocking elements is a male element and another of the first and second interior interlocking elements is a female element.

9. The zipper assembly of Claim 8 further including a slider for separating the first and second interior interlocking elements when moved in an opening direction and for interlocking the first and second interior interlocking elements when moved in a closing direction.

10. The zipper assembly of Claim 1 wherein the first and second flanges are arranged and configured for attachment to walls of a reclosable package or bag.

11. A zipper assembly for a reclosable package or bag, comprising:
a first profile including a first flange and a first interior interlocking element;
a second profile including a second flange and a second interior interlocking element; and

the first flange further including an exterior peel seal, whereby the first and second flanges can be folded to bring the peel seal into sealing contact with two portions of the first flange.

12. The zipper assembly of Claim 11 wherein a first side of the peel seal is attached to a first portion of the first flange and the first and second flanges are folded to bring a second portion of the first flange into contact with a second side of the peel seal.

13. The zipper assembly of Claim 12 wherein the first and second portions of the first flange extend across the entire width of the first flange.

14. The zipper assembly of Claim 13 wherein the first and second portions of the first flange are in spaced parallel relationship to each other.

15. The zipper assembly of Claim 11 wherein the first interior interlocking element and the second interior interlocking element extend across the entire width of the first and second profiles.

16. The zipper assembly of Claim 15 wherein one of the first and second interior interlocking elements is a male element and another of the first and second interior interlocking elements is a female element.

17. The zipper assembly of Claim 11 further including a slider for separating the first and second interior interlocking elements when moved in an opening direction and for interlocking the first and second interior interlocking elements when moved in a closing direction.

18. The zipper assembly of Claim 11 wherein the first and second flanges are arranged and configured for attachment to walls of a reclosable package or bag.

19. A zipper assembly for a reclosable package or bag, comprising:
a first profile including a first flange and a first interior interlocking element;
a second profile including a second flange and a second interior interlocking element;

a slider for separating the first and second interior interlocking elements when moved in an opening direction and for interlocking the first and second interior interlocking elements when moved in a closing direction; and

an adhesive label or sticker for maintaining the first and second profiles in a folded configuration whereby the first flange is folded against itself and the second flange folded thereover and whereby a first end of the adhesive label or sticker contacts the first flange and a second end of the adhesive label or sticker contacts the second flange.

20. The zipper assembly of Claim 19 wherein the first and second flanges are arranged and configured for attachment to walls of a reclosable package or bag.

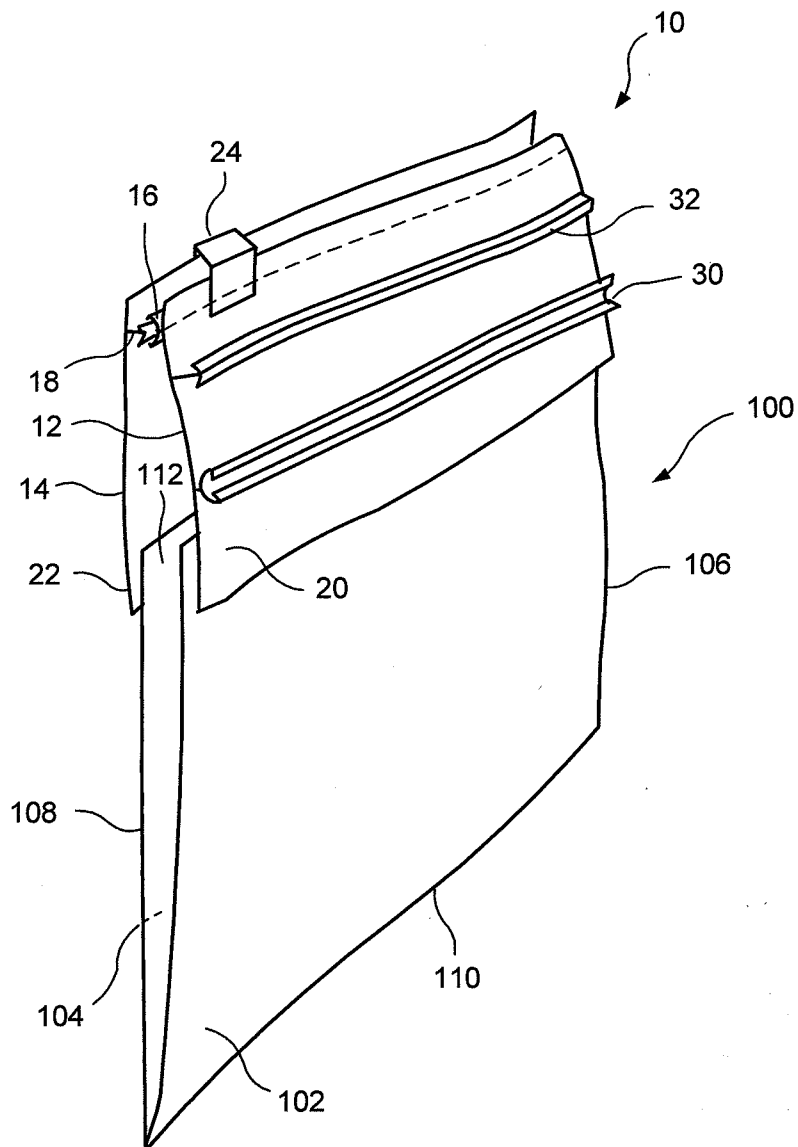


FIG. 1

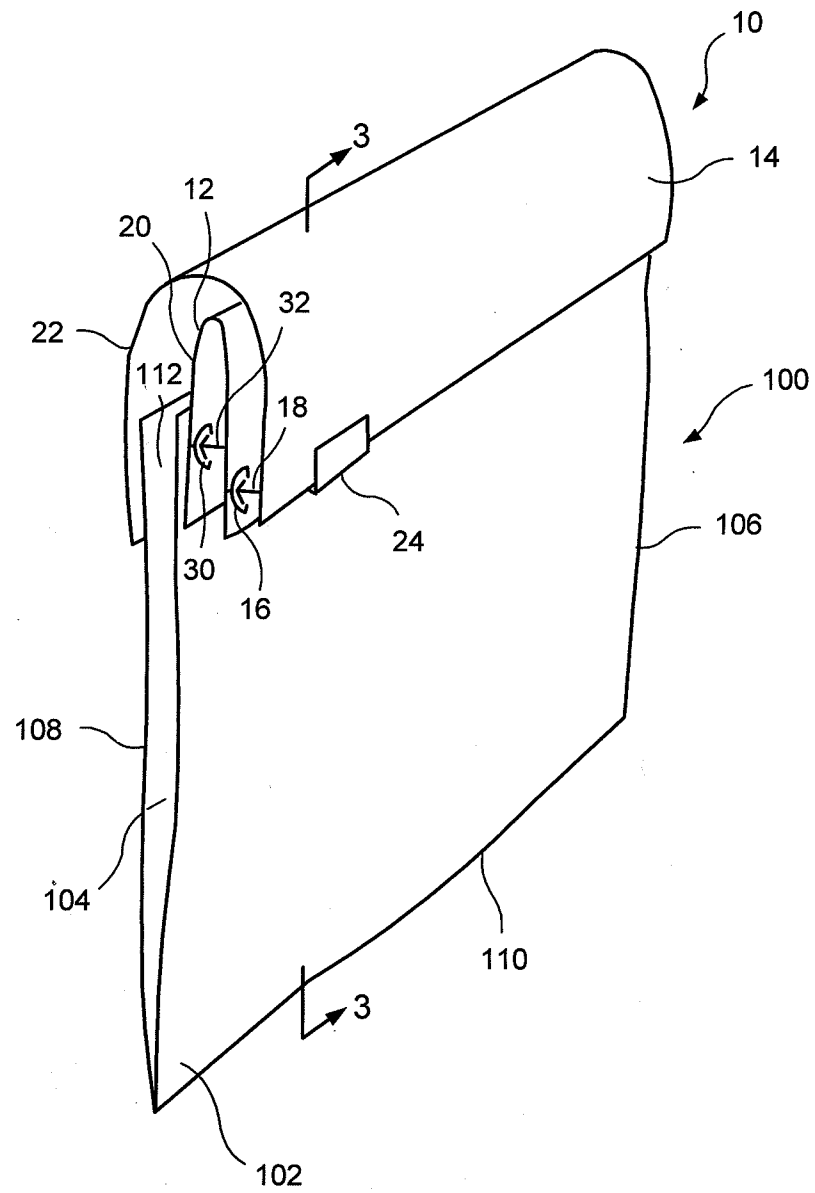


FIG. 2

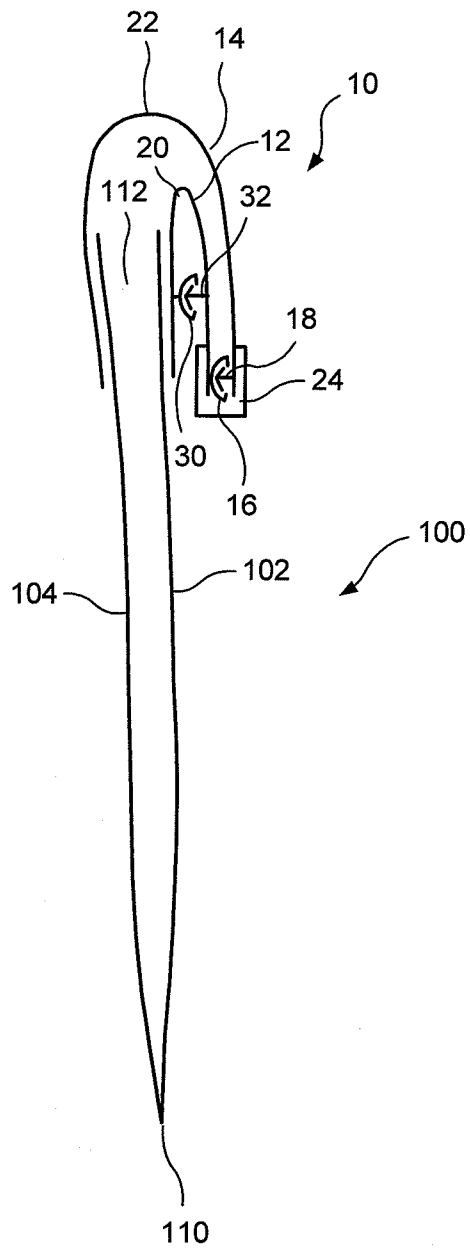


FIG. 3

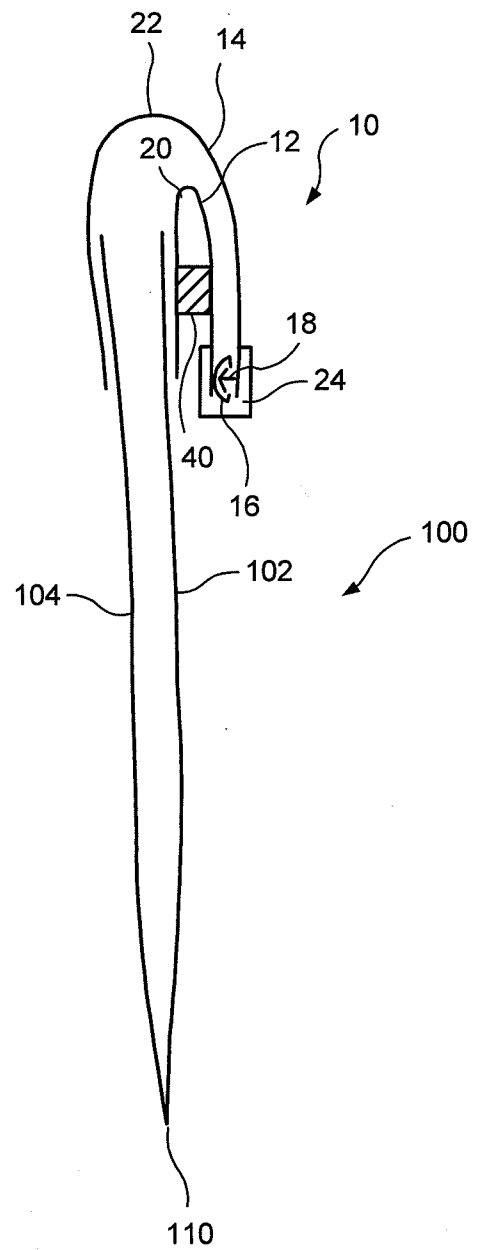


FIG. 4

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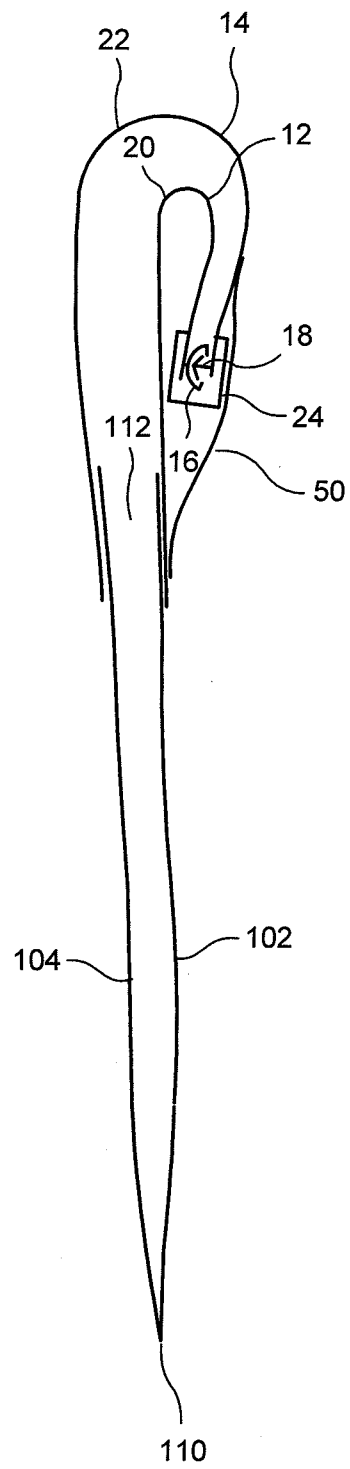


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2008/057784

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D33/25

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	EP 1 702 858 A (S2F FLEXICO [FR]) 20 September 2006 (2006-09-20)	19
A	paragraph [0022] - paragraph [0033]; figures 1,3	1-18
A	EP 1 642 839 A (REYNOLDS CONSUMER PROD [US]) 5 April 2006 (2006-04-05) paragraph [0044] - paragraph [0045]; figure 5	1-19

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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Date of the actual completion of the international search

10 June 2008

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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
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