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(54) **Method for making a tamper-evident container with reclosable fastener**

HERSTELLUNGSVERFAHREN EINES ORIGINALITÄTSGESICHERTEN BEHÄLTERS MIT WIEDERVERSCHLIESSBARER VERRIEGELUNGSVORRICHTUNG

Procédé de production d'un contenant avec indicateur d'effraction doté d'un systeme d'attache pouvant se refermer

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Description

BACKGROUND OF THE INVENTION

Field of the Invention.

[0001] The present invention relates to a method for attaching a reclosable zipper fastener to a flexible material.

Description of the Prior Art.

[0002] Reclosable containers utilizing zipper-type fasteners are well known in the packaging industry and are used for holding, displaying and dispensing a wide variety of products ranging from hardware items to food products intended for human consumption. The construction of virtually all such prior art fasteners comprises one or more female parts which releasably receive one or more corresponding male parts. In order to provide access to the interior of the container, those portions of the fastener bearing the respective female and male parts must typically be attached to opposing sides of the container such that the female and male parts will be in registry with each other. A typical such construction is disclosed in U. S. Patent No. 4,909,017 to McMahon and Spanier.

[0003] Obviously, then, according to the present state of the packaging arts, great care and precision are required in the placement and attachment of reclosable fasteners to their related containers. Notwithstanding the existence of a great variety of such fasteners and reclosable containers utilizing such fasteners, it is clear that there remains a great need in the packaging arts for a reclosable, zipper-type fastener, both parts of which can be attached to a single common surface of the material forming a wall of the container before the container is even partially formed. Such a fastener would significantly simplify the manufacturing process for reclosable containers by not interfering with the operation of standard forming and filling machines.

[0004] US 4 335 617 discloses a reclosable bag having elongated opening means adapted to be permanently opened with a slide fastener.

SUMMARY OF THE INVENTION

[0005] The present invention relates to a method according to claim 1.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

FIGURE 1 is a side elevation showing a segment of a container with the fastener attached to the inside of a segment of the flexible material according to claim 1.

FIGURE 2 is a side elevation similar to that of Fig. 1 showing the segment of the reclosable container with the tamper-evident portion removed and the fastener opened.

FIGURE 3 is a view similar to that of Fig. 1 showing a second container.

FIGURE 4 is a side elevation similar to that of Fig. 3 showing the segment of the reclosable container with the tamper-evident portion removed and the fastener opened.

FIGURE 5 is a sectional view taken along line 5-5 of Fig. 6 showing attachment of the reclosable fastener to a common interior surface of a reclosable container.

FIGURE 6 is a plan view of the reclosable container shown in Fig. 5.

[0007] Similar reference characters refer to similar parts throughout the several views of the drawings.

DETAILED DESCRIPTION

[0008] A tamper-evident container formed from a flexible material and having a reclosable fastener is generally indicated as 10 in the views of Figs. 1, 2, 5 and 6. The reclosable fastener is generally indicated as 12.

[0009] Referring to the view of Fig. 1, it can be seen that fastener 12 comprises a pair of mating, reclosable sealing strips, generally indicated as 14 and 16, respectively. Each of the sealing strips 14 and 16 comprise a base segment 18 and 20, respectively. Base segment 18 is attached to interior surface 22 of flexible material 24, and base segment 20 is similarly attached to the common interior surface 22. As shown in Fig. 1, attachment of the fastener 12 to common interior surface 22 is indicated by perimeter seal 26.

[0010] Also shown in the view of Fig. 1 is a removable portion 28 of flexible material 24 by which access to the interior of container 10 may be obtained once portion 28 is removed to form an aperture providing access to strips 14 and 16 whereby they may be separated from each other. This is clearly illustrated in the "opened" view of Fig. 2. Referring to the view of Fig. 6, it can be seen that removable portion 28 is defined by a plurality of cuts formed through flexible material 24. These cuts comprise a plurality of perforations 30 and at least one slit 32, though a pair of opposed slits 32 are illustrated in the view of Fig. 6. Slit 32 provides a free segment of flexible material 24 whereby portion 28 may be removed to provide access to fastener 12. The perforations 30 are preferably formed within the area defined by line A-A, and the slit, or slits, 32 are preferably formed within the area between arrows B.

[0011] Returning to the view of Fig. 1, sealing strip 14 further comprises a second segment 34 integrally formed therewith, but not attached to common interior surface

22. Sealing strip 16 also comprises-a second segment 36 integral with its base segment 20, but not attached to common interior surface 22. A female fastener part 38 is formed on second segment 34, and a corresponding male fastener part 40 is formed on sealing strip 16 at the juncture of base segment 20 with second segment 36.

[0012] As further shown in the view of Fig. 1, container 10 further includes another segment of flexible material 24' forming another wall thereof, and a seam 42 is provided by the joining of flexible material 24 to a corresponding segment of flexible material 24'. Referring to the views of Figs. 5 and 6, a similar seam 42' is formed at the bottom of container 10.

[0013] Referring to the view of Fig. 6, and remembering that a principal end use for the container 10 is to hold food products intended for human consumption, the formation of an hermetic seal is a particular advantage of this invention. As shown in Fig. 6, the perimeter seal 26 extends around the perimeter of fastener 12. However, a broadened segment 44 can be seen at each end of perimeter seal 26. Broadened segment 44 is frequently referred to in the packaging industry as a "splotch" seal. Such a splotch seal involves the application of heat and pressure to the distal ends of sealing strips 14 and 16 so as to form a flattened, broadened segment 44. Then, when the fastener 12 is attached to common interior surface 22 of flexible material 24 by the perimeter seal 26, an hermetic seal is formed in completely surrounding relation to the removable portion 28.

[0014] Referring now to the views of Figs. 3 and 4, a second tamper-evident container is generally indicated as 10'. Inasmuch as the structural elements of container 10' are essentially identical to those of first container 10, identical reference numerals have been used for their identification. As clearly shown in the views of Figs. 3 and 4, second container 10' further comprises a tack seal 46 to bond second segment 34 to inside surface 48 of flexible material 24' forming the opposite side of container 10'. Such a construction virtually eliminates any probability of material contained within container 10' becoming wedged or caught in the gap otherwise present between second segment 34 and flexible material 24'.

[0015] From the above description of the structure of first and second containers 10 and 10', respectively, attention is now invited to the following description of the method for attaching fastener 12 to a flexible material 24 for providing a tamper-evident reclosable opening therethrough. First, a segment of flexible material 24 is selected for forming a container 10. A plurality of cuts comprising perforations 30 and at least one slit 32 are made to define a removable portion 28. Next, a reclosable zipper-type fastener 12 is selected and cut to a predetermined length sufficient to overlie the removable portion 28. Opposed distal ends of fastener 12 are then "splotched" and the splotched length of fastener is disposed in adjacent, overlying relation to removable portion 28. The perimeter seal 26 is formed by the application of pressure and heat. If desired, tack seal 46 would be made in a subsequent step. From that point on, the container would be formed and filled using standard form and fill apparatus and methods. No further manipulation of fastener 12 and its related removable portion 28 is required.

[0016] It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained, and, since certain changes may be made in the above construction without departing from the scope of the claim, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Claims

1. A method for attaching a reclosable zipper fastener (12) to a flexible material (24) from which a container is made so as to provide a tamper-evident reclosable seal, which is separate from the side edges of the container, said method comprising the steps of:

   (a) selecting a segment of flexible material (24) to be used for forming a container;
   (b) forming a plurality of cuts (30) and at least one slit (32) through said segment of flexible material (24) to define a removable portion (28);
   (c) selecting a reclosable zipper fastener (12) comprising first and second mating, reclosable sealing strips (14, 16), said first reclosable sealing strip (16) having a base segment (20) and a second segment (36) having a male fastener part (40) formed at the juncture of the base segment and the second segment wherein the second segment (36) extends into the region defined between second segments (34) end renovable portion (28) and said second reclosable sealing strip (14) having a base segment (18) and a second segment (34) having a female fastener part (38) formed thereon;
   (d) cutting said fastener (12) to a predetermined length greater than said removable portion (28) and sufficient to remain separate from the side edges of the container;
   (e) placing said fastener (12) adjacent said flexible material (24) proximate to said cuts (30, 32); and
   (f) attaching said fastener (12) to said flexible material (24) by
   (g) forming an hermetic perimeter seal (26) around said removable portion (28), said perimeter seal (26) being located where said fastener (12) and said flexible material (24) are joined to each other at said base segments (18, 20).

Patentansprüche

1. Verfahren zum Befestigen eines wiederverschließbaren Reißverschluss-Befestigungselements (12) an einem flexiblen Material (24), aus dem ein Container hergestellt ist, um eine manipulationssichere wiederverschließbare Abdichtung bereitzustellen, die von den Seitenkanten des Behälters abgesetzt ist, wobei das Verfahren die Schritte aufweist:

   (a) Auswählen eines Abschnitts an flexiblem Material (24), das zum Bilden eines Behälters verwendet werden soll,
   (b) Bilden einer Mehrzahl von Schnitten (30) und mindestens einem Schlitz (32) durch den Abschnitt des flexiblen Materials (24), so dass ein entfernbarer Abschnitt (28) gebildet wird,
   (c) Auswählen eines wiederverschließbaren Reißverschluss-Befestigungselements (12) mit ersten und zweiten zusammenpassenden, wiederverschließbaren Dichtstreifen (14, 16), wobei der erste wiederverschließbare Dichtstreifen (16) einen Basisabschnitt (20) und einen zweiten Abschnitt (36) mit einem männlichen Befestigungselementteil (40), das an der Verbindung des Basisabschnitts und des zweiten Abschnitts ausgebildet ist, aufweist, wobei der zweite Abschnitt (36) sich in dem Bereich erstreckt, der zwischen den zweiten Abschnitten (34) und dem entfernbaren Abschnitt (28) gebildet wird, und der zweite wiederverschließbare Dichtstreifen (14) einen Basisabschnitt (18) und einen zweiten Abschnitt (34) mit einem weiblichen Befestigungselementsteil (38), das daran ausgebildet ist, aufweist,
   (d) Schneiden des Befestigungselements (12) über eine vorbestimmte Länge, die größer ist als der entfembare Abschnitt (28) und ausreichend, um abgesetzt von den Seitenkanten des Behälters zu verbleiben,
   (e) Anordnen des Befestigungselements (12) neben dem flexiblen Material (24) in der Nähe der Schnitte (30, 32) und
   (f) Befestigen des Befestigungselements (12) an dem flexiblen Material (24) durch
   (g) Ausbilden einer hermetischen Umfangsdichtung (26) um den entfernbaren Abschnitt (28), wobei die Umfangsdichtung (26) dort angeordnet ist, wo an den Basisabschnitten (18, 20) das Befestigungselement (12) und das flexible Material (24) miteinander verbunden sind.

Revendications

1. Procédé pour fixer une fixation de fermeture à glissière refermable (12) sur un matériau souple (24) à partir duquel un récipient est réalisé afin de fournir un joint refermable inviolable, qui est séparé des bords latéraux du récipient, ledit procédé comprenant les étapes consistant à :

   (a) sélectionner un segment de matériau souple (24) destiné à être utilisé pour former un récipient ;
   (b) former une pluralité de découpes (30) et au moins une fente (32) à travers ledit segment de matériau souple (24) afin de définir une partie amovible (28) ;
   (c) sélectionner une fixation de fermeture à glissière refermable (12) comprenant des première et deuxième bandes d'étanchéité de couplage refermables (14, 16), ladite première bande d'étanchéité refermable (16) ayant un segment de base (20) et un deuxième segment (36) ayant une partie de fixation mâle (40) formée à la jonction de l'élément de base et du deuxième segment, dans lequel le deuxième segment (36) s'étend dans la région définie entre le deuxième segment (34) et la partie amovible (28), et ladite deuxième bande d'étanchéité refermable (14) ayant un segment de base (18) et un deuxième segment (34) ayant une partie de fixation femelle (38) formée sur ce dernier ;
   (d) découper ladite fixation (12) sur une longueur prédéterminée supérieure à ladite partie amovible (28) et suffisante pour rester séparée des bords latéraux du récipient ;
   (e) placer ladite fixation (12) de manière adjacente audit matériau souple (24) à proximité desdites découpes (30, 32) ; et
   (f) fixer ladite fixation (12) sur ledit matériau souple (24), grâce à l'étape consistant à :
   (g) former un joint périmétral hermétique (26) autour de ladite partie amovible (28), ledit joint périmétral (26) étant positionné à l'endroit où ladite fixation (12) et ledit matériau souple (24) sont assemblés au niveau desdits segments de base (18, 20).

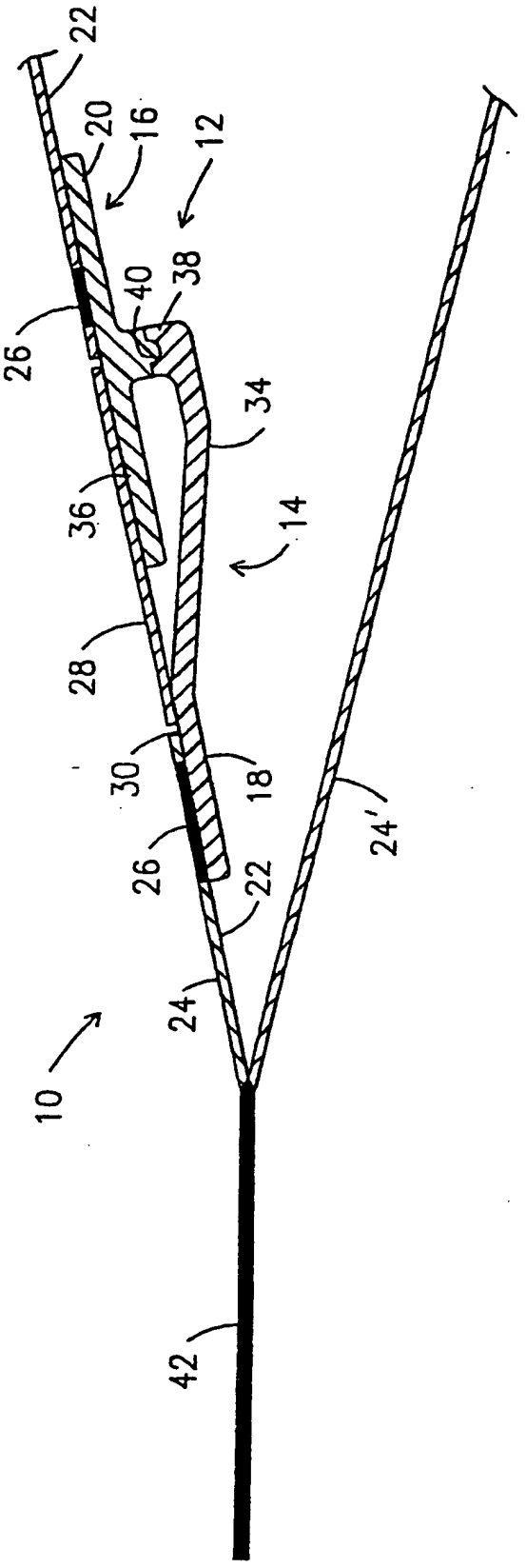


Fig. 1

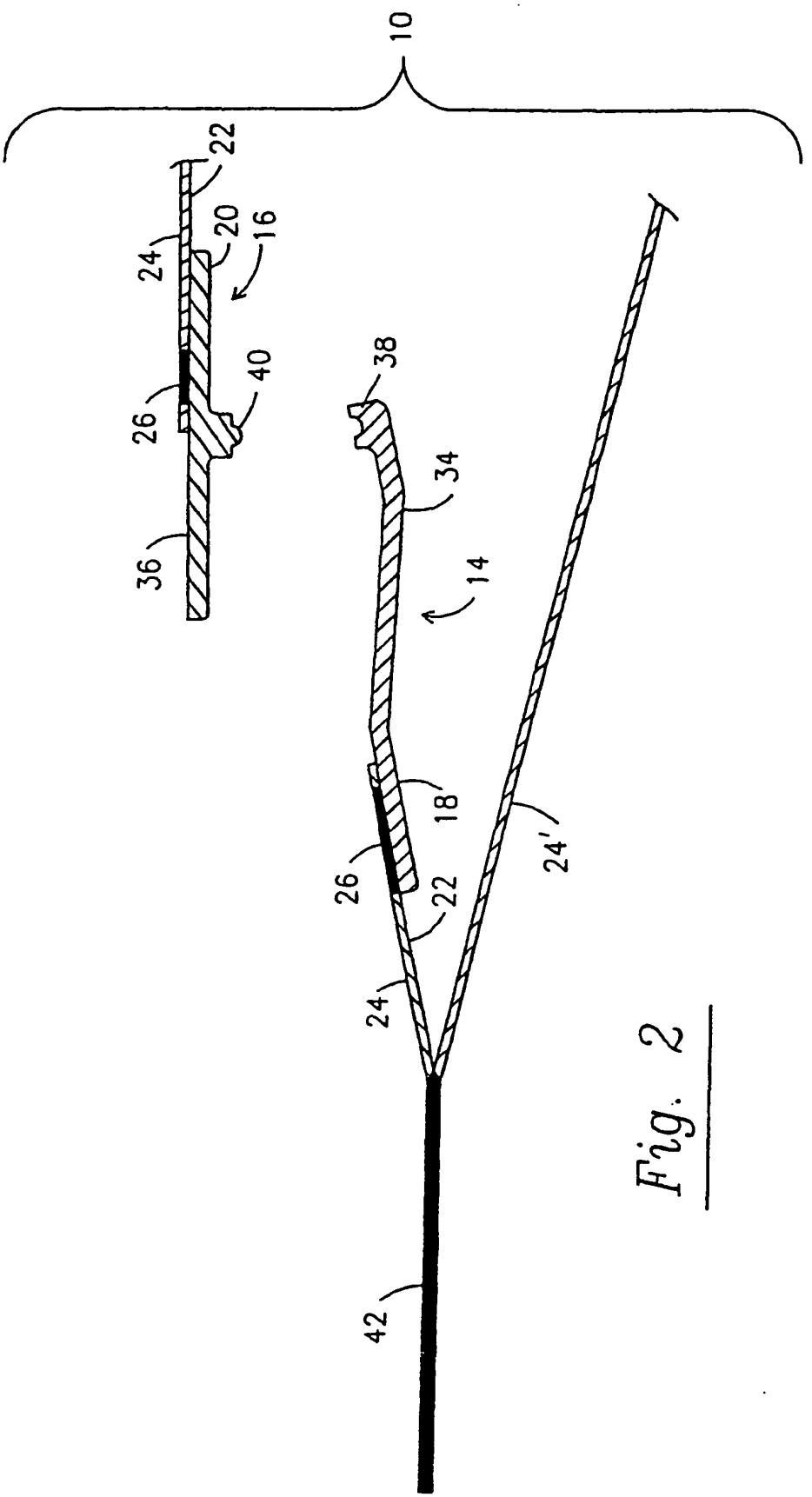


Fig. 2

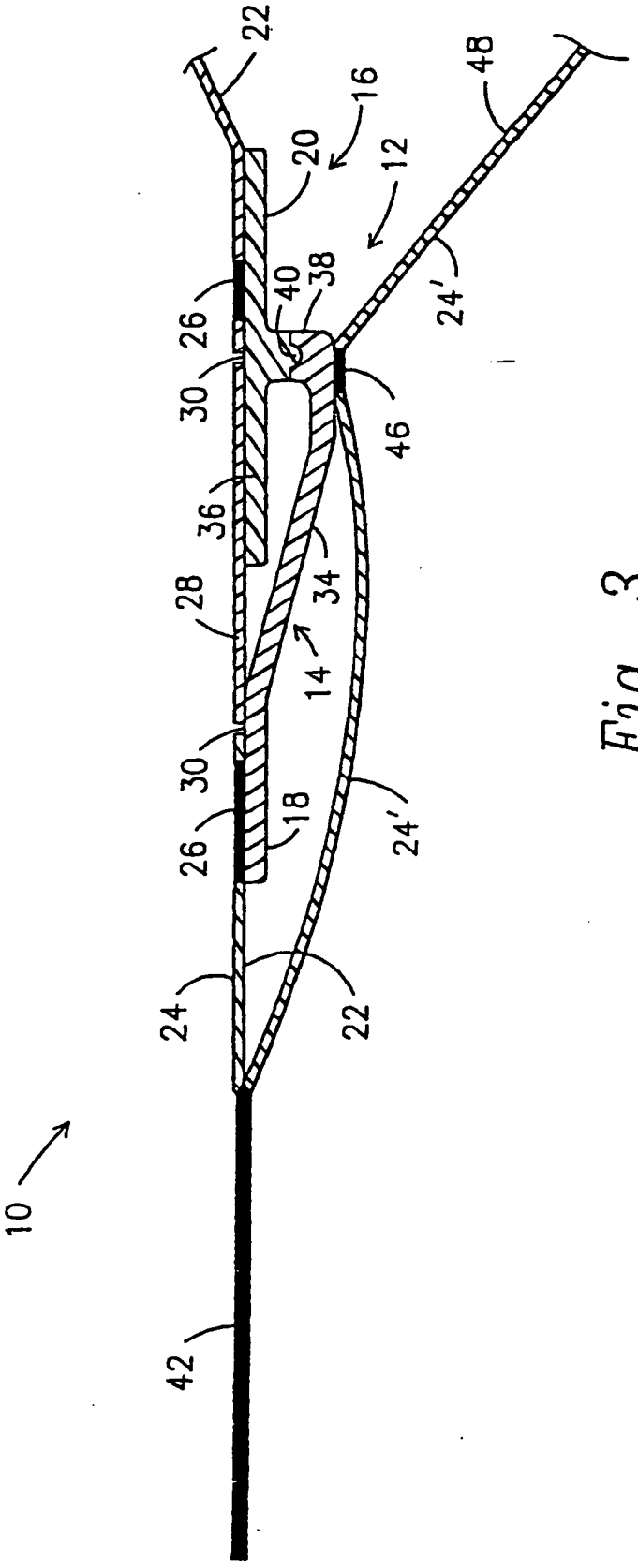


Fig. 3

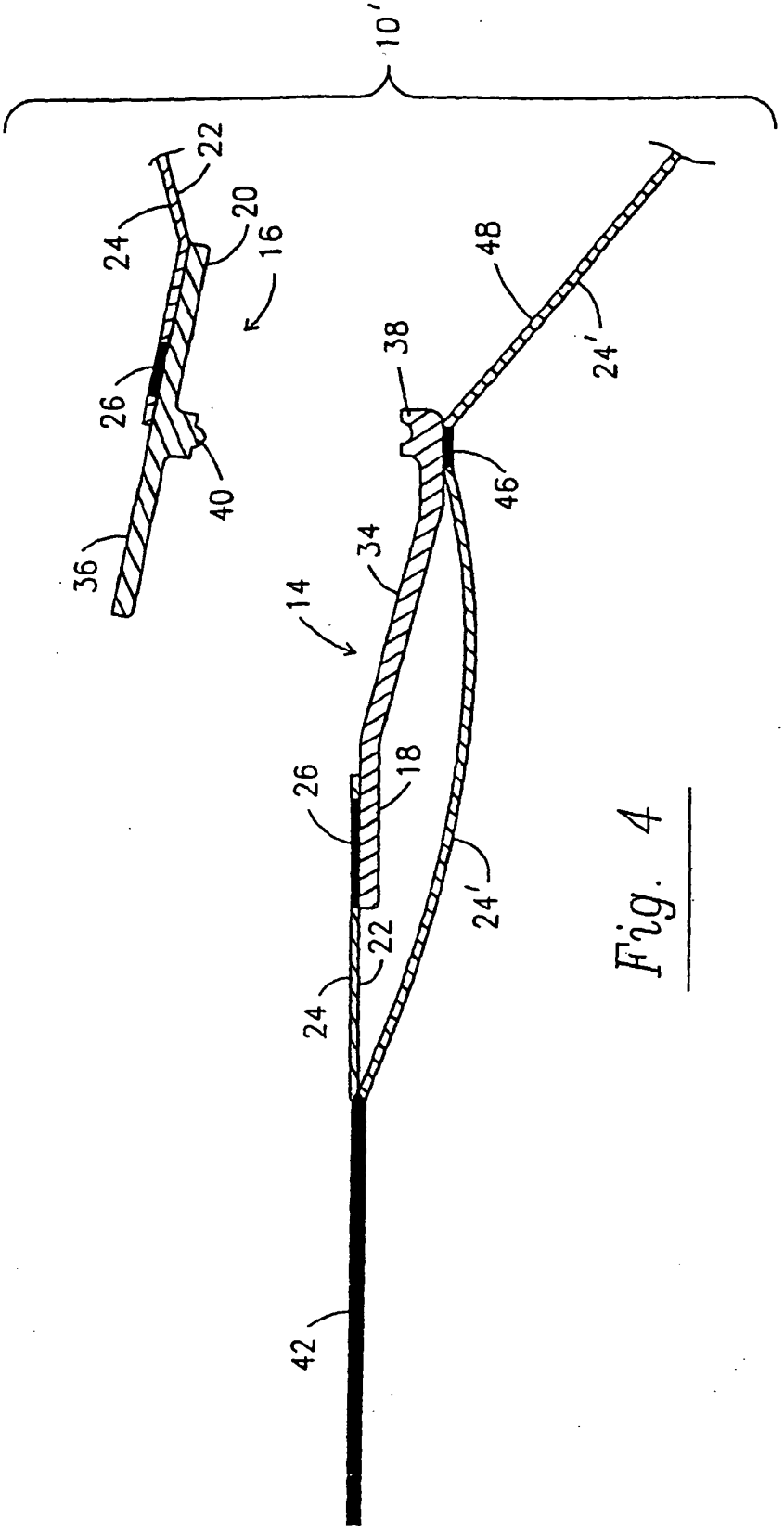


Fig. 4

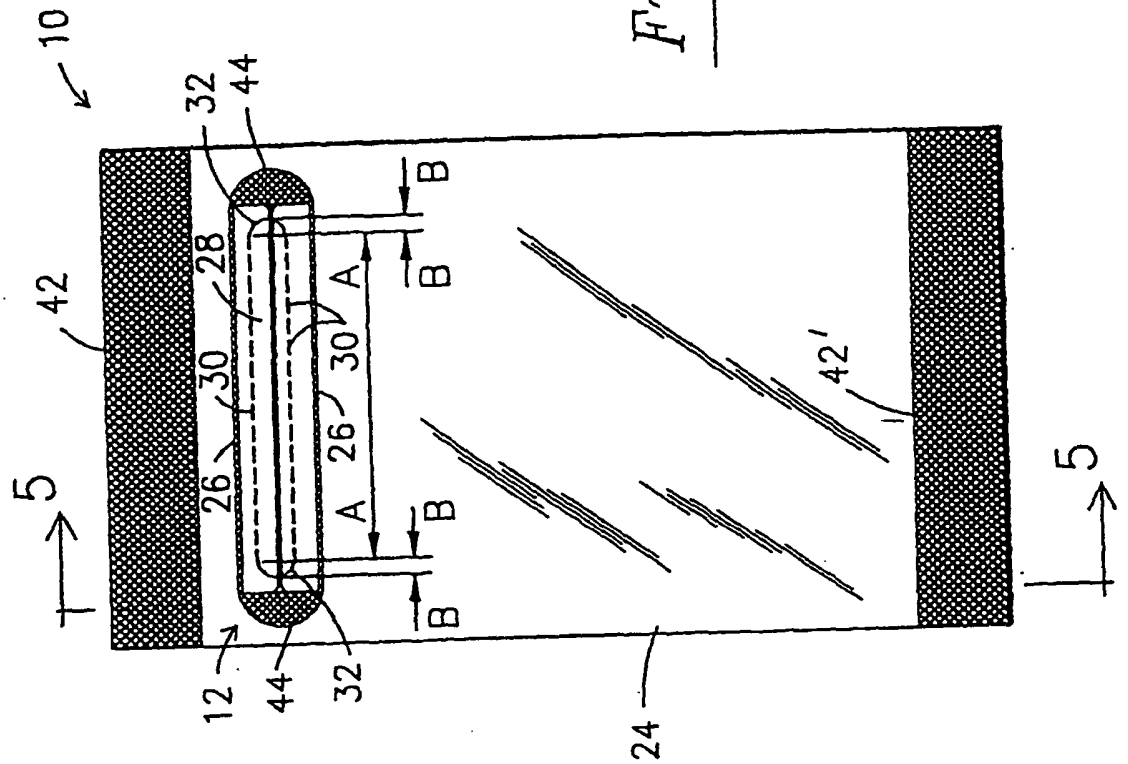


Fig. 6

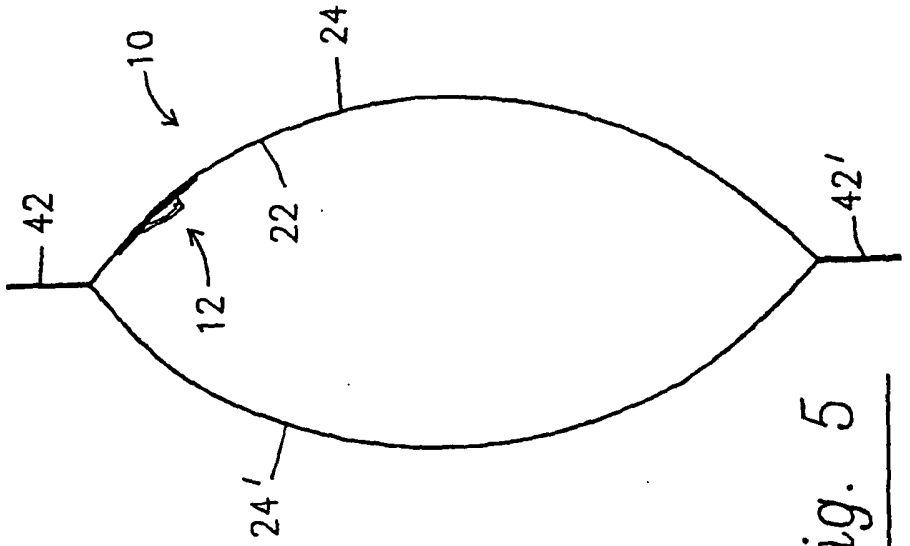


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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