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(54) **THREE-DIMENSIONAL INSERT CONSTRUCTION**

DREIDIMENSIONALE EINSATZKONSTRUKTION

INSERT TRIDIMENSIONNEL

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(73) Proprietor: **WITT, Carol Joyce**
Zurich, IL 60047 (US)

(72) Inventors:

- **WITT, Carol, Joyce**
Lake Zurich, IL 60047 (US)

- **NOWAKOWSKI, Anthony, J.**
Crystal Lake, IL 60014 (US)
- **ABEL, Gretchen, J.**
Antioch, IL 60002 (US)

(74) Representative: **Chettle, Adrian John et al**
Withers & Rogers,
Goldings House,
2 Hays Lane
London SE1 2HW (GB)

(56) References cited:
DE-A- 2 730 133 **GB-A- 545 113**
US-A- 3 286 831

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Description

Technical Field

[0001] The present invention generally relates to the packaging art, and more particularly, to a three-dimensional insert construction provided in a continuous web of inserts that may readily be handled by automated packaging equipment or the like.

Background Art

[0002] Packaging apparatus particularly adapted for handling inserts or coupons provided in the continuous perforated web are known in the art from, for example, U.S. Patent No. 5,079,901, assigned to the assignee of the present invention. That patent describes an apparatus and system that receives a continuous perforated web of coupons, provides a forwardmost coupon between pairs of feed rolls and burst rolls, and at a desired time, separates the forwardmost coupon from the continuous web by applying a bursting tension to a transverse perforation separating the forwardmost coupon from the next succeeding coupon. The separated coupon is then passed to a point of insertion at a desired time such as into a moving container based on signals provided by timing circuitry.

[0003] Other insertion handling apparatus are known such as that described in U.S. Patent No. 5,549,233. That patent describes an insert handling system that processes three-dimensional piece inserts with the use of laterally-spaced pairs of rolls. This configuration enables the three-dimensional aspect of the insert to be "passed through" the handling apparatus intermediate to the spaced sets of rolls. However, problems may occur with these equipment types where the projected piece insert requires a flat area to be used to drive the piece either for bursting or for projection of an individual piece into a container or the like.

[0004] German patent #DE 27 30 133 A1 discloses a bag, intended for liquid or granular product, made from two rolls of foil and a two-part insert attached thereto. This patent indicates that such a structure addresses the issue of a liquid-containing bag or granular-containing bag breaking or tearing open when exposed to high mechanical stresses. The structure of the bag and insert is said to overcome those structures.

[0005] One attempt to overcome the problems of the existing art has been to provide an insert that utilizes a piece of rigid cardstock or the like together with a three-dimensional item. The additional rigidity provided by the cardstock adds desired stiffness to the insert or to use stiffer films.

[0006] However, none of the prior art has addressed or overcome the problem of the three dimensional contents of an insert being laterally displaced to the peripheral sides of the cardstock during storage or handling and interfering with the rollers utilized in the burst oper-

ation. This is particularly problematic when a relatively high throughput of inserts is required, requiring frequent stoppages of the processing line.

[0007] Other approaches have included the use of glue applied to the cardstock to secure the object in a desired location on the cardstock and/or the object. While this approach solves the problem of lateral movement of the three-dimensional object, it dramatically increases the manufacturing cost of the insert. In addition, proper alignment of the object with the glued portion of the cardstock is often problematic. The residual glue on the object may also be undesirable to the end user.

[0008] Yet another approach is referred to as "skin pack," in which plastic film is attached to a porous paper backer material through which a vacuum is drawn to conform the film to the item to be packaged. Although this method also solves the problem of lateral movement, the porous paper backer is, inherently, not well suited for most permeability requirements of food-contact inserts.

Disclosure of Invention

[0009] Accordingly, it is a general object of the invention to overcome the deficiencies of the prior art.

[0010] It is a further object of the present invention to provide a three-dimensional insert which is easily fabricated at acceptable cost, while enabling ready handling in a coupon-handling system.

[0011] The present invention provides these and other additional objects with a three-dimensional insert comprising a piece of cardstock or paperboard (hereinafter referred to as cardstock) defined by first and second opposed ends and first and second opposed sides. A thermosealable, olefin coating or film is applied to the top surface of the cardstock. An overwrap material is contacted with the coating and is bonded therewith to provide a seal between the overwrap material and the surface of the cardstock. This arrangement presents relatively consistent surfaces that are readily grasped by coupon processing equipment. In this way, a prize or other three-dimensional object is retained in the overwrap without moving toward the peripheral sides utilized in handling the insert.

Brief Description of Drawings

[0012] Fig. 1 is an isometric view of first and second inserts provided in a continuous web of inserts according to the present invention.

[0013] Fig. 2 illustrates a piece of cardstock with an thermosealable coating on the cardstock.

[0014] Fig. 3 is a sectional view of the insert shown in Fig. 1 taken along the lines 3-3.

Modes for Carrying Out the Invention

[0015] Generally, the present invention relates to an

insert used in a packaging application. The insert is particularly suited for handling by automated processing equipment such as that disclosed in U.S. Patent No. 5,549,233, the subject matter of which is incorporated herein by reference. Such equipment is adapted to engage the peripheral side edges of the insert while a three-dimensional object located in the central portion of the insert passes between the sets of rolls to enable handling of various types of three-dimensional objects. By way of example, the three-dimensional object may be a premium, prize or a package component that is intended to be inserted into a container such as a cereal box, bag or pouch. Alternatively, the insert may be a packet of flavoring or seasoning that is intended to be placed into a container, while remaining physically separated from the remaining contents of the container.

[0016] Fig. 1 is an isometric view of first and second inserts or coupons 10, 12 provided in a continuous web or stream of inserts. In the preferred embodiment, each of the inserts 10, 12 includes a three-dimensional piece or object 10p, 12p which will ultimately be placed within a container or the like. By way of example, the objects 10p, 12p may be prizes or the like provided in cereal boxes, bread wrappers or other suitable containers. Alternatively, the pieces 10p, 12p may be small packages which are utilized in food packaging or other similar applications.

[0017] The inserts 10, 12 are preferably provided in a continuous perforated web format and are separated from each other by a perforation 14 disposed to extend transversely to the web which connects inserts 10, 12 together. The remaining inserts in the web are similarly connected to each other.

[0018] Fig. 2 illustrates a relatively flat piece 20 of cardstock, paperboard or other material having a suitable rigidity to withstand processing by automated handling equipment. In this way, the cardstock piece provides structural support for the insert. The cardstock piece is defined by a pair of opposed ends 20e, a pair of opposed sides 20s, and a top surface. Fig. 2 also shows the cardstock piece 20 having a thermosealable coating 22 applied to the entire top surface of the cardstock. Preferably, the coating 22 is an olefin-based material or other material having suitable thermo-sealing characteristics.

[0019] Alternatively, a pair of strips of coating or other adhesive (not shown) may be applied to the peripheral edges of the cardstock piece 20, preferably proximate to the sides 20s. In this embodiment, the surface of card 20 may be coated with heat sealable olefin-based material strips that extend the lengthwise dimension of the piece 20 between ends 20e. It should also be understood that the coating may be applied to the top surface of the cardstock piece in other forms, such as in the form of spaced lands or the like.

[0020] The cardstock piece 20 with thermo-sealable coating and object 10p are surrounded by a plastic overwrap material such as overwrap material 26. For exam-

ple, the overwrap material may be utilized to circumscribe the object and cardstock 20 to provide a barrier with the outside such as an aseptically packaged insert. Preferably, the overwrap material ends 26e are heat sealed together to provide a transverse band which is then perforated or otherwise weakened proximate to the ends 20e of the cardstock. The sides 26s of the overwrap material are also preferably heat sealed or otherwise bonded or affixed to the lateral sides of the top surface of the cardstock piece 20 to completely enclose the three-dimensional object. One alternative method for engaging the overwrap material with the lateral sides of the top surface of the cardstock 20 is with the use of rollers or the like which provides a suitable compressive forces to the overwrap material and coating to provide a seal therebetween. In any event, a seal is provided between the overwrap material and the thermo-sealable coating on the surface of the cardstock at locations proximate to the side edges of the cardstock piece. In the preferred embodiment, the overwrap material is fabricated of the same material as the coating, for example an olefin-based material. However, the overwrap may be fabricated of a different material so long as its bonding characteristics are such that it will be readily secured with the coating on the top surface of the cardstock upon the application of heat and/or compressive forces applied to the lateral edges of the cardstock piece.

[0021] Accordingly, the three-dimensional object such as a promotional piece or packet is prevented from being laterally moved or dislodged toward the peripheral side edges of the insert and is kept away from the handling equipment. In addition, this arrangement presents relatively flat, uniform side surfaces which are the portions of the insert to be handled by the processing equipment.

[0022] As described in U.S. Patent No. 5,549,233, the web of inserts is presented to handling apparatus which engages the sides of the insert. In this regard, spaced pairs of feed rolls engage the side edges of the forwardmost insert in the web and pass the coupon downstream to a pre-dispense location, preferably such that the forwardmost coupon is engaged by spaced pairs of burst rolls while the perforation separating the forwardmost coupon is disposed between the pairs of feed rolls and the burst rolls. At the desired time, the burst rolls are rotated at relative angular speed greater than that of the feed rolls to apply a bursting tension to the perforation between the forwardmost coupon and the next succeeding coupon to disengage the forwardmost coupon from the remainder of the web and to position the coupon into a container or the like. In this way, three-dimensional inserts of the type described above may be readily placed into containers.

[0023] Accordingly, a three-dimensional insert meeting the aforesaid objectives has been described. The insert provides improved structural integrity as well as improved handleability.

Claims

1. An insert (10, 12) adapted for use in conjunction with packaging apparatus comprising:

a three-dimensional object (10p, 12p);
 a piece of cardstock (20) including a top surface defined by first and second ends (20e) and first and second side edges (20s);
 a thermo-sealable coating (22) applied to at least a portion of the top surface of the piece of cardstock (20); and
 an overwrap material (26) circumscribing the three-dimensional object (10p, 12p) and the cardstock (20), the overwrap material being in sealing relation with the coating (22) proximate to the first and second side edges (20s) to prevent lateral movement of the three-dimensional object (10p, 12p) toward the side edges (20s) of the cardstock (20).

2. The insert (10, 12) as in claim 1 wherein the coating (22) extends the lengthwise dimension of the cardstock (20).

3. The insert (10, 12) as in claim 1 or 2 wherein the overwrap material (26) is heat-applied to the coating (22).

4. The insert (10, 12) as in claim 1, 2 or 3 wherein the overwrap material (26) is heat-sealed proximate the ends (20e) of the cardstock (20) to provide a relatively flat transverse band surface.

5. The insert (10, 12) as in claim 4 wherein the relatively flat transverse band surface interconnects the insert (10) with a second insert (12) provided in a continuous web, the transverse band including a perforation (14) formed therein.

6. The insert (10, 12) as in claim 1, 2, 3, 4 or 5 wherein the coating (22) comprises an olefin-based thermo-sealable material.

7. The insert (10, 12) of claims 1, 2, 3, 4, 5 or 6 wherein the coating (22) is applied only to the periphery of the cardstock (20).

8. The insert (10, 12) of claim 7 wherein the coating (22) is applied only proximate the side edges (20s).

9. The insert (10, 12) of claims 1, 2, 3, 4, 5 or 6 wherein the coating (22) is applied to substantially all of the top surface.

10. A continuous web of a plurality of three-dimensional inserts (10, 12) adapted for handling by automated packaging apparatus, each insert (10, 12) in the

web comprising:

a three-dimensional object (10p, 12p);
 a piece of cardstock (20) including a top surface, first and second ends (20e), and first and second side edges (20s);
 a coating (22) applied to at least a portion of the top surface of the cardstock (20); and
 an overwrap material (26) in surrounding relation to the three-dimensional object (10p, 12p) and to the cardstock (20), the overwrap material (26) being in heat-sealing engagement with the coating (22) proximate to the first and second side edges (20e) to present opposed, relatively flat side surfaces engageable with the packaging apparatus.

11. The continuous web as in claim 10 wherein the coating (22) comprises a thermo-sealable olefin-based material.

12. The continuous web as in claim 11 wherein the overwrap material (26) is heat-sealed proximate to the ends (20s) of the cardstock (20) to provide a relatively flat transverse band connecting one insert (10) in the web with a succeeding insert (12) in the web.

13. The continuous web as in claim 12 wherein the transverse band has a weakened portion formed therein.

14. The continuous web as in claim 13 wherein the weakened portion is a perforation (14).

15. The continuous web of claims 10, 11, 12, 13 or 14 wherein the coating (22) is applied only to the periphery of the cardstock (20).

16. The continuous web of claim 15 wherein the coating (22) is applied only proximate the side edges (20s).

17. The continuous web of claims 10, 11, 12, 13 or 14 wherein the coating (22) is applied to substantially all of the top surface.

Patentansprüche

1. Einsatz (10, 12) zur Verwendung mit einer Verpackungseinrichtung mit

einem dreidimensionalen Objekt (10p, 12p),
 einem Stück Pappe (20) mit einer Oberseite, die von einem ersten und einem zweiten Ende (20e) und einer ersten und einer zweiten Kante (20s) definiert ist,
 einer unter Wärmeeinwirkung dicht abschlie-

ßenden Beschichtung (22), die auf mindestens einen Teil der Oberseite des Stücks Pappe (20) aufgetragen ist, und einem Umwickelmaterial (26), das das dreidimensionale Objekt (10p, 12p) und die Pappe (20) umschließt, wobei das Umwickelmaterial der Beschichtung (22) nahe der ersten und der zweiten Seitenkante (20s) dicht abschließend zugeordnet ist, um eine seitliche Bewegung des dreidimensionalen Objekts (10p, 12p) zu den Seitenkanten (20s) der Pappe (20) zu verhindern.

2. Einsatz (10, 12) nach Anspruch 1, bei dem die Beschichtung (22) sich in Längsrichtung der Pappe (20) erstreckt.
3. Einsatz (10, 12) nach Anspruch 1 oder 2, bei dem das Umwickelmaterial (26) unter Wärmeeinwirkung auf die Beschichtung (22) aufgebracht ist.
4. Einsatz (10, 12) nach Anspruch 1, 2 oder 3, bei dem das Umwickelmaterial (26) an den Enden (20e) der Pappe (20) unter Wärmeanwendung abgedichtet wird, um eine verhältnismäßig flache, quer verlaufende bandförmige Fläche herzustellen.
5. Einsatz (10, 12) nach Anspruch 4, bei dem die verhältnismäßig flache, quer verlaufende Bandfläche den Einsatz (10) mit einem zweiten Einsatz (12) verbindet, der in einer kontinuierlichen Bahn zugeführt wird, wobei im Querband eine Perforation (14) ausgebildet ist.
6. Einsatz (10, 12) nach Anspruch 1, 2, 3, 4 oder 5, bei dem die Beschichtung (22) ein wärmeabdichtbares Material auf Olefinbasis aufweist.
7. Einsatz (10, 12) nach Anspruch 1, 2, 3, 4, 5 oder 6, bei dem die Beschichtung (22) nur am Umfang der Pappe (20) aufgetragen ist.
8. Einsatz (10, 12) nach Anspruch 7, bei dem die Beschichtung (22) nur nahe den Seitenkanten (20s) aufgetragen ist.
9. Einsatz (10, 12) nach Anspruch 1, 2, 3, 4, 5 oder 6, bei dem die Beschichtung (22) im wesentlichen auf die gesamte Oberseite aufgetragen ist.
10. Durchgehende Bahn aus einer Vielzahl dreidimensionaler Einsätze (10, 12), die zur Verarbeitung in Verpackungsautomaten geeignet ist, wobei jeder Einsatz (10, 12) der Bahn

ein dreidimensionales Objekt (10p, 12p), ein Stück Pappe (20) mit einer Oberseite, einem ersten und einem zweiten Ende (20e) und

einer ersten und einer zweiten Kante (20s), eine Beschichtung (22), die auf mindestens einen Teil der Oberseite des Stücks Pappe (20) aufgetragen ist, und ein Umwickelmaterial (26) aufweist, das das dreidimensionale Objekt (10p, 12p) und die Pappe (20) umschließt, wobei das Umwickelmaterial auf der Beschichtung (22) nahe der ersten und der zweiten Seitenkante (20s) unter Wärmeaufbringung dicht abschließend aufgebracht ist, um gegenüberliegende, relativ flache Seitenflächen darzubieten, an denen die Verpackungseinrichtung angreifen kann.

11. Durchgehende Bahn nach Anspruch 10, bei der die Beschichtung (22) ein unter Wärmeaufbringung dicht abschließbares Material auf Olefinbasis aufweist.
12. Durchgehende Bahn nach Anspruch 11, bei der das Umwickelmaterial (26) an den Enden (20s) der Pappe (20) unter Wärmeaufbringung dicht abgeschlossen ist, um ein verhältnismäßig flaches, quer verlaufendes Band herzustellen, das einen Einsatz (10) mit einem nachfolgenden Einsatz (12) in der Bahn verbindet.
13. Durchgehende Bahn nach Anspruch 12, bei der im quer verlaufenden Band ein Schwächungsbereich ausgebildet ist.
14. Durchgehende Bahn nach Anspruch 13, bei dem der Schwächungsbereich eine Perforation (14) ist.
15. Durchgehende Bahn nach Anspruch 10, 11, 12, 13 oder 14, bei der die Beschichtung (22) nur auf den Umfang der Pappe aufgetragen ist.
16. Durchgehende Bahn nach Anspruch 15, bei der die Beschichtung (22) nur nahe den Seitenkanten (20s) aufgetragen ist.
17. Durchgehende Bahn nach Anspruch 10, 11, 12, 13 oder 14, bei der die Beschichtung (22) im wesentlichen auf die gesamte Oberseite aufgetragen ist.

Revendications

1. Insert (10, 12) prévu pour être utilisé en association avec une machine d'emballage comportant :
 - . un objet tridimensionnel (10p, 12p) ;
 - . une pièce de carton (20) présentant une face supérieure définie par une première et une seconde extrémité (20e) et un premier et un second bord latéral (20s) ;
 - . un revêtement thermoscellable (22) appliqué

- sur au moins une partie de la face supérieure de la pièce de carton (20) ; et
- un matériau d'emballage (26) enveloppant l'objet tridimensionnel (10p, 12p) et le carton (20), le matériau d'emballage venant en contact étanche avec le revêtement (22) à proximité du premier et du second bord latéral (20s) afin d'empêcher le mouvement latéral de l'objet tridimensionnel (10p, 12p) vers les bords latéraux du carton (20).
2. Insert (10, 12) selon la revendication 1, caractérisé en ce que le revêtement (22) s'étend selon la longueur du carton (20).
 3. Insert (10, 12) selon la revendication 1 ou la revendication 2, caractérisé en ce que le matériau d'emballage (26) est appliqué à chaud sur le revêtement (22).
 4. Insert (10, 12) selon la revendication 1, la revendication 2 ou la revendication 3, caractérisé en ce que le matériau d'emballage (26) est thermoscellé à proximité des extrémités (20e) du carton (20) pour former une bande transversale sensiblement plate.
 5. Insert (10, 12) selon la revendication 4, caractérisé en ce que la bande transversale sensiblement plate relie l'insert (10) à un second insert (12) en bande continue, la bande transversale étant traversée par un poinçonnage (14) pratiqué dans celle-ci.
 6. Insert (10, 12) selon la revendication 1, 2, 3, 4 ou 5, caractérisé en ce que le revêtement (22) comprend un matériau thermoscellable à base d'oléfine.
 7. Insert (10, 12) selon la revendication 1, 2, 3, 4, 5 ou 6, caractérisé en ce que le revêtement (22) n'est appliqué que sur le pourtour du carton (20).
 8. Insert (10, 12) selon la revendication 7, caractérisé en ce que le revêtement (22) n'est appliqué qu'à proximité des bords latéraux (20s).
 9. Insert (10, 12) selon la revendication 1, 2, 3, 4, 5 ou 6, caractérisé en ce que le revêtement (22) est appliqué sur pratiquement toute la surface de la face supérieure.
 10. Bande continue comprenant une pluralité d'inserts tridimensionnels (10, 12) prévue pour la manipulation par des machines d'emballage automatisé, chaque insert (10, 12) de la bande comportant :
 - un objet tridimensionnel (10p, 12p) ;
 - une pièce de carton (20) présentant une face supérieure, une première et une seconde extrémité (20e) et un premier et un second bord latéral (20s) ;
 - un revêtement (22) appliqué sur au moins une partie de la face supérieure de la pièce de carton (20) ; et
 - un matériau d'emballage (26) enveloppant l'objet tridimensionnel (10p, 12p) et le carton (20), le matériau d'emballage (26) venant en contact étanche à chaud avec le revêtement (22) à proximité du premier et du second bord latéral (20e) afin de présenter des surfaces latérales opposées sensiblement plates s'engageant dans la machine d'emballage.
 11. Bande continue selon la revendication 10, caractérisée en ce que le revêtement (22) comprend un matériau thermoscellable à base d'oléfine.
 12. Bande continue selon la revendication 11, caractérisée en ce que le matériau d'emballage (26) est scellé à chaud à proximité des extrémités (20s) du carton (20) pour fournir une bande transversale sensiblement plate reliant un insert (10) de la bande à un insert (12) le suivant.
 13. Bande continue selon la revendication 12, caractérisée en ce que la bande transversale présente une zone d'affaiblissement formée dans celle-ci.
 14. Bande continue selon la revendication 13, caractérisée en ce que la partie affaiblie est un poinçonnage (14).
 15. Bande continue selon la revendication 10, 11, 12, 13 ou 14 caractérisée en ce que le revêtement (22) n'est appliqué que sur le pourtour du carton (20).
 16. Bande continue selon la revendication 15, caractérisée en ce que le revêtement (22) n'est appliqué qu'à proximité des bords latéraux (20s).
 17. Bande continue selon la revendication 10, 11, 12, 13 ou 14, caractérisée en ce que le revêtement (22) est appliqué sur pratiquement toute la surface de la face supérieure.

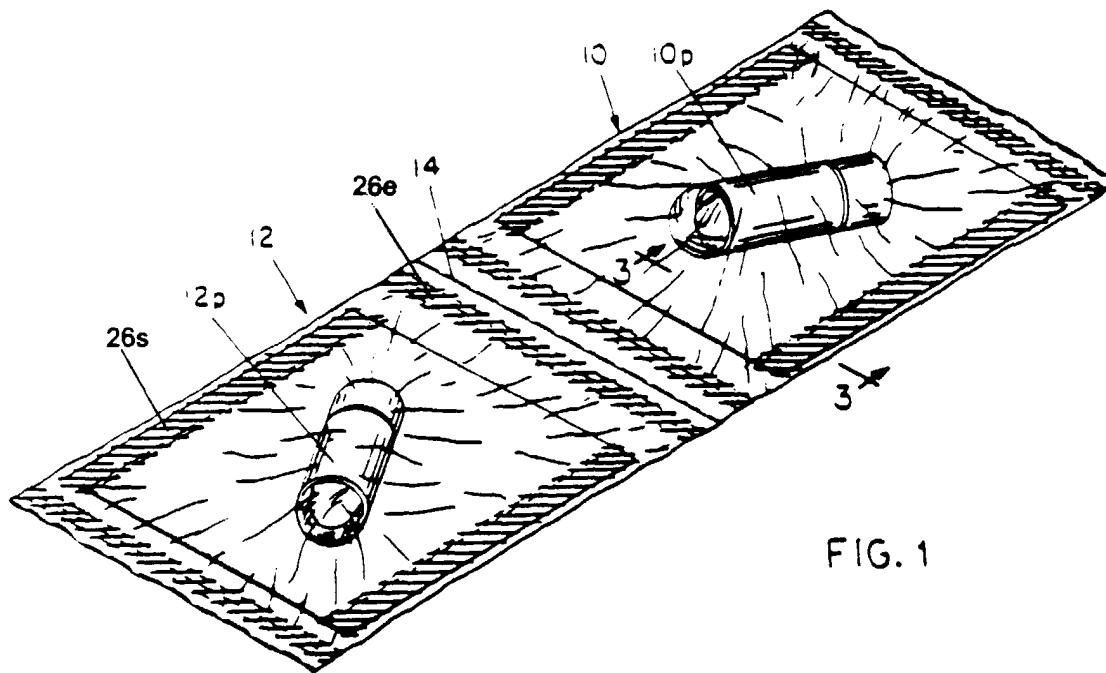


FIG. 1

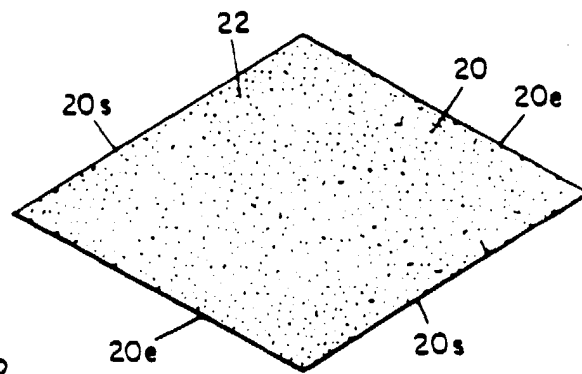


FIG. 2

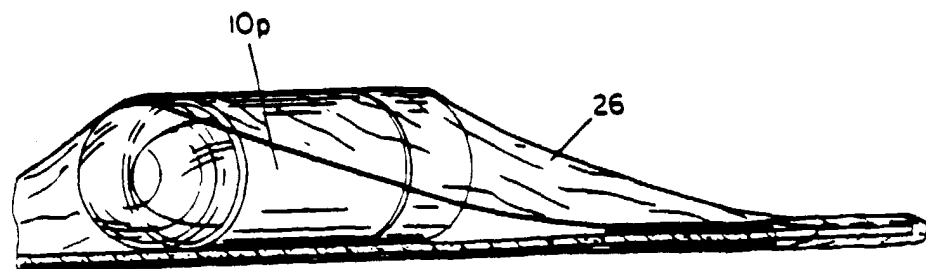


FIG. 3