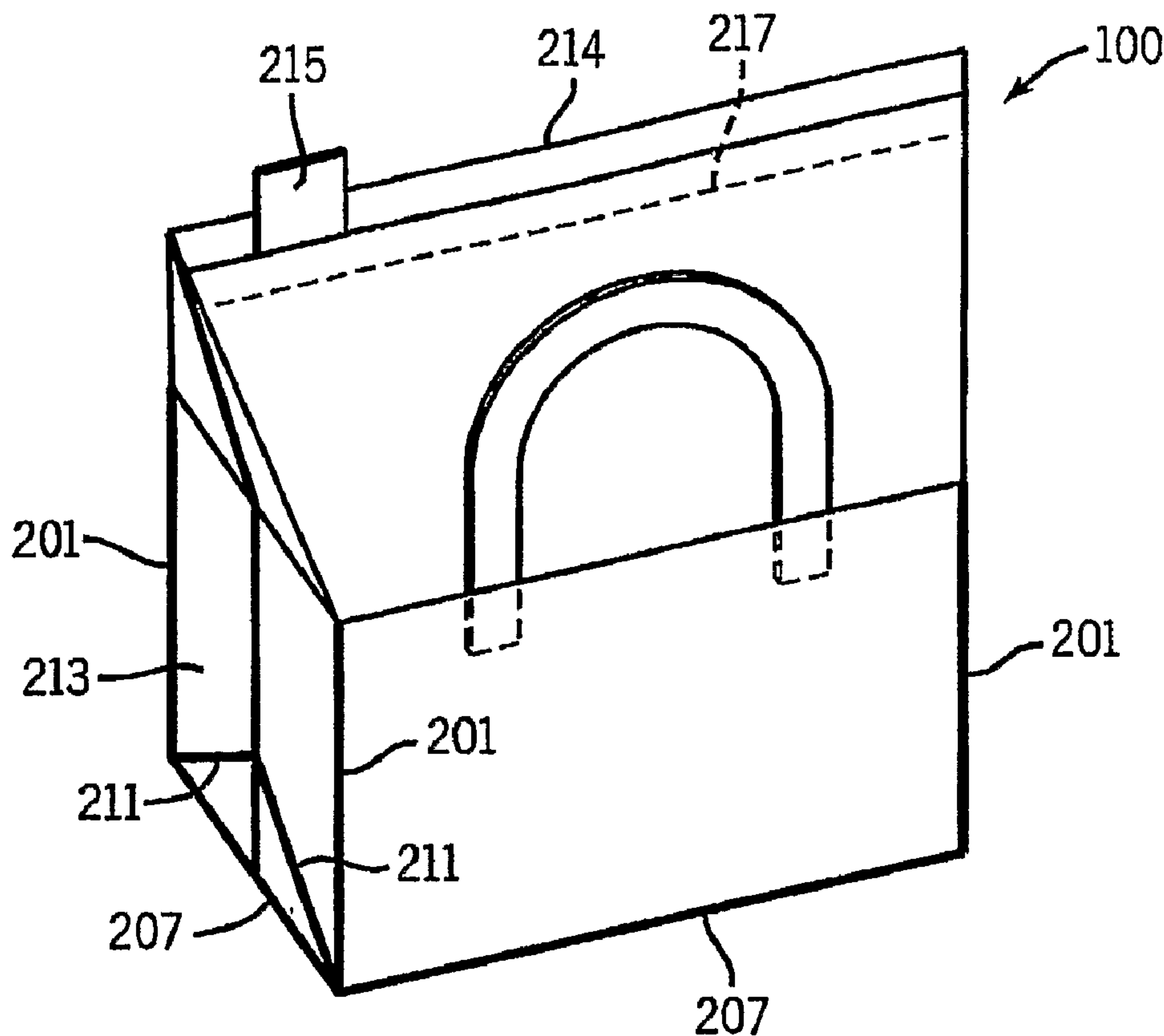




(86) Date de dépôt PCT/PCT Filing Date: 2003/12/03
 (87) Date publication PCT/PCT Publication Date: 2004/06/24
 (45) Date de délivrance/Issue Date: 2010/09/21
 (85) Entrée phase nationale/National Entry: 2005/06/07
 (86) N° demande PCT/PCT Application No.: US 2003/039035
 (87) N° publication PCT/PCT Publication No.: 2004/052729
 (30) Priorités/Priorities: 2002/12/09 (US10/314,912);
 2003/03/20 (US10/393,491)

(51) Cl.Int./Int.Cl. *B65D 33/16* (2006.01),
B31B 19/90 (2006.01), *B31B 37/00* (2006.01),
B65D 30/18 (2006.01), *B65D 33/10* (2006.01)
 (72) Inventeur/Inventor:
 WINIECKI, JERRY, US
 (73) Propriétaire/Owner:
 CMD CORPORATION, US
 (74) Agent: MOFFAT & CO.

(54) Titre : SAC REFERMABLE
 (54) Title: RECLOSEABLE BAG



(57) Abrégé/Abstract:

A bag, method of making, and machine for making are disclosed. The bag (100) has an upper (503) and lower portion (501). The lower portion has a generally rectangular bottom (610) with first, second, third and fourth bottom edges. It also has a generally

(57) **Abrégé(suite)/Abstract(continued):**

rectangular front, back left and right walls, each having a lower edge joined with the a bottom edge. The upper portion is joined to the lower portion. The bag has one or more of a zipper closure (215), a top peak with a resealable closure that extends the length thereof, four generally vertical corner seals, extending part of the way up the walls, and a resealable closure affixed along the entire length of the top.

ABSTRACT

A bag, method of making, and machine for making are disclosed. The bag (100) has an upper (503) and lower portion (501). The lower portion has a generally rectangular bottom (610) with first, second, third and fourth bottom edges. It also has a generally rectangular front, back left and right walls, each having a lower edge joined with the a bottom edge. The upper portion is joined to the lower portion. The bag has one or more of a zipper closure (215), a top peak with a resealable closure that extends the length thereof, four generally vertical corner seals, extending part of the way up the walls, and a resealable closure affixed along the entire length of the top.

Recloseable Bag

FIELD OF THE INVENTION

The present invention relates generally to the art of bag making.

BACKGROUND OF THE INVENTION

5 There are many type of bags and equipment to make them. Bags are designed with various manufacturing concerns in mind, including ease of manufacturing, handles, type of material, type of closure, as well as features related to the bag when filled with product such as ability to stand on its own, the ability to stack easily, the ability to display the product name when stacked, etc. Often designing a bag to enhance one or more features results in a trade off of other features.

10 For example, relatively easy to manufacture bags with a zipper are made by sealing one machine direction edge of a bag to form the bottom, and affixing a zipper on the other machine direction edge. However, while easy to manufacture, the bag cannot stand on its own. Affixing, as used herein, includes attaching so that it is not easily removed, such as sealing, melting, together, gluing, etc. Machine direction edge, as used herein, includes an edge that is parallel to the machine direction. Machine direction, as used herein, includes the direction a film travels through a machine.

15 Different uses for bags make certain features more or less important. For example, bags used for pet food would preferably have a two-dimensional bottom so that the bag can stand on its own when filled. Another desirable feature for pet food bags is that they form a cuboid when filled, to make shipping and stacking in stores easier. (Cuboid, as used herein, includes a six sided shape with generally right angles between

20

- 2 -

the sides.) Moreover, they would preferably present a side of the bag (as opposed to the top or bottom) when stacked so customers can easily read the label. Handles (one or more straps, loops, etc that may be used to pick up a bag) make a bag that is heavy when filled easier to carry. Also, a bag formed of multiple walls helps avoid dimpling of the outer walls of the bag by the pet food (thus preserving the appearance of the bag). Customers might also prefer a pet food bag with a resealable closure (a closure that may be resealed by the consumer, such as a zipper, hook and loop, friction fit, etc.), and/or has a tamper-proof seal (a seal that can be visually inspected to determine if it has been opened previously). Of course, ease of manufacture is desirable to reduce costs.

Most bags produced thus far cannot provide all or even most of these features. For example, typical pet food bags have non-resealable tops. Also, they cannot stand on their own, and their shape is not conducive to stacking. If they are stacked, it is usually on their side, and the stack is often unstable, with only a thin profile of the top of each bag visible to the customer.

One prior art bag that did provide some of these features is shown in US Patent D444,948, to Buchanan et al. That bag has a rectangular bottom and a cuboid shape (when filled). Even when filled the top can lay flat on the top of the cuboid, for ease of stacking. The side of the bag is presented to the customer when stacked. A handle is attached, and a hook and loop top seal allows for resealing. While this bag has advantages over the prior art it would be costly to manufacture, and the top seal does not extend across the entire top -- thus the entire top isn't resealable.

Accordingly, a bag that enjoys one or more of the features mentioned above, yet is not expensive or difficult to manufacture, is desirable.

SUMMARY OF THE PRESENT INVENTION

According to a first aspect of the invention a bag comprises a lower portion and an upper portion. The lower portion has a generally rectangular bottom with first, second, third and fourth bottom edges. It also has a generally rectangular front, back left and right walls, each having a lower edge joined with the a bottom edge. The upper portion is joined to the lower portion, and has a zipper closure at a top thereof.

According to a second aspect of the invention a bag includes the upper portion is joined to the lower portion, and has a top peak with a resealable closure that extends the length thereof.

According to a third aspect of the invention a bag includes a lower portion and an upper portion joined to the lower portion. The lower portion has a generally

- 3 -

5 rectangular bottom with first and second pairs of generally parallel sides. Pairs generally vertical walls are attached at lower edges thereof to the pairs of generally parallel sides. Four generally vertical corner seals, each joining one of the first pair of generally vertical walls to one of the second pair of generally vertical walls; extend part of the way up the generally vertical walls.

10 According to a fourth aspect of the invention a plurality of bags are formed from two webs moving in a machine direction. Each bag is formed with transverse seals extending the width of the webs. Each bag has a resealable closure mounted on a first machine direction edge of the bag, and a gusseted insert and a bottom seal on the second machine direction edge of the bag. A plurality of corner seals are disposed between the transverse seals, and extend a portion of the way from the bottom seal toward the resealable closure.

15 According to a fifth aspect of the invention a machine for making bags from two films includes an input section, and a sealing section. Each section has at least one driven roller that contacts the film as it follows a film path and moves in a machine direction. The sealing section is downstream of the input section, and has two transverse sealers, spaced in the machine direction, such that each bag is formed with spaced transverse seals extending the width of the webs. It also has a resealable closure fixture, mounted on a first machine direction edge of the bag, and a gusseted insert fixture, on a
20 second machine direction edge of the bag, and a plurality of corner sealers, disposed between the transverse sealers, and extending a portion of the way from the gusseted insert fixture toward the resealable closure fixture.

25 According to a sixth aspect of the invention a method of making a bag includes forming a lower portion with a bottom and forming an upper portion, joined to the lower portion, and having a top, and affixing a zipper closure to the top.

30 According to an eighth aspect of the invention a method of making a bag includes forming a lower portion having a bottom and two pair of generally parallel sides walls, each side wall being adjacent to two of the other side walls and each attached on lower edges thereof to the bottom. Also, four generally vertical corner seals are formed, and each joins one of the first pair of generally vertical walls to one of the second pair of generally vertical walls. The corner seals do not extend the entire height of the generally vertical walls. An upper portion is formed and joined to the lower portion.

35 According to a ninth aspect of the invention a method of forming a plurality of bags from first and second webs moving in a machine direction, comprises forming spaced transverse seals extending the width of the webs, affixing a resealable

- 4 -

closure mounted on a first machine direction edge of the bag, affixing a gusseted insert to a second machine direction edge of the bag, and forming corner seals between the transverse seals, that extend only a portion of the way from the from the bottom seal toward the resealable closure.

5 According to a tenth aspect of the invention a method of making a bag includes forming a lower portion to have a bottom with four side walls attached on lower edges thereof to the bottom, and forming an upper portion, joined to the lower portion, and having a top peak with a resealable closure affixed along the entire length of the top peak.

10 The upper portion includes a top peak with a zipper closure and/or a tamper proof seal that extends the length thereof, in various embodiments.

Four generally vertical corner seals join the front wall and the left side wall, and the corner seals do not extend the entire height of the walls, in another embodiment.

15 The side walls each have a generally vertical side seal extending from the top of the bag towards the bottom, below an upper end of the corner seals or to the bottom in various embodiments.

The bag is one of a plurality of bags formed from a film, and the side seals separate adjacent bags in another embodiment.

20 The bottom is a gusseted insert sealed to the front and back walls in another embodiment.

The lower portion is comprised of a laminated material, and/or the upper portion is comprised of a poly material, in various embodiments

25 A handle is sealed between layers of the laminate, near the top of the lower portion in another embodiment.

The bag, when filled with product to a fill level, the shape of the filled portion is generally a cuboid, and/or the upper portion lays flat to form a top of the cuboid, in various embodiments.

30 The peak is formed at least partially from a top edge on each of the front and back walls, in another embodiment.

One pair of generally vertical walls are formed from two webs of material with a gusset insert to form the bottom, in another embodiment.

35 Angle seals extend from each transverse seal to the bottom seal, and each angle seal meets the transverse seals and the bottom seals at a distance from a point where the transverse seals meet the bottom seal, in another embodiment.

Other principal features and advantages of the invention will become apparent to those skilled in the art upon review of the following drawings, the detailed description and the appended claims, and the appended claims.

Applicant seeks to provide a bag comprising a generally rectangular bottom having first and second pairs of generally parallel sides, a first pair of generally vertical walls having a first height and attached at lower edges thereof to the first pair of generally parallel sides, a second pair of generally vertical walls having a second height and attached at lower edges thereof to the second pair of generally parallel sides, a plurality of corner means for joining along less than the first and second heights each of the first pair of generally vertical walls to one of the second pair of generally vertical walls, wherein means for releasably closing the bag is disposed along entire top of the bag wherein length of said top of said bag is equal to a length of one of said first pair of vertical walls plus length of one of said second pair of vertical walls.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is photograph from a front view of a bag in accordance with the invention;

Figure 2 is photograph from a perspective view of a bag in accordance with the invention;

Figure 3 is schematic of a perspective of a bag in accordance with the invention;

Figure 4 is schematic of a perspective of a bag in accordance with the invention;

Figure 5 is schematic of a bag formed in accordance with the invention;

Figure 6 is schematic of bags being formed in accordance with the invention; and

Figure 7 is schematic of bag machine in accordance with the invention.

Before explaining at least one embodiment of the invention in detail it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments or of being practiced or carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein is for the purpose of description and should not be regarded as limiting. Like reference numerals are used to indicate like components.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

While the present invention will be illustrated with reference to it should be understood at the outset that the invention is described with respect to a preferred bag with preferred seals and manufactured in a preferred manner, the invention can also be implemented with other bags, having other shapes, made with other seals, and manufactured in other ways.

Generally, the preferred embodiment is a bag made to stand on its own when filled, and to a bag with seals disposed in a desirable fashion such that the bag is inexpensive to manufacture, and can have a full length resealable closure. More specifically, the bag has a lower portion that when filled with product has a generally

- 6 -

cuboid shape, and an upper portion that lays flat on the top of the cuboid. Generally a cuboid, as used herein, includes shapes that are similar to cuboids, but do not need to have generally 90 degree angles between sides, for example the sides may angle outward.

The bottom is generally rectangular, and the lower portion has four generally vertical walls with lower edges attached to bottom edges (i.e., the edges of the rectangular bottom). Alternatives provide for non-vertical walls and non-rectangular bottoms. The walls extend upward at generally 90 degree right angles, and the front and back are generally parallel, as are the side when filled. Generally rectangular, as used herein, includes a four sided shape that has generally 90 degree angles. Generally 90 degree angles, as used herein, includes angles that appear close to 90 degrees, and serve the purpose of a 90 degree angle. Wall, as used herein, includes the sides of the bag. Vertical, as used herein, includes generally perpendicular to the bottom of the bag.

Four corner seals join the front and back walls to side walls. The four corner seals extend to the top of the lower portion, or to the fill level, in the preferred embodiments. The seals can extend higher or lower in alternative embodiments. The corner seals and rectangular bottom help the bag stand on its own when filled, and to have a cuboid shape.

Each side wall has a side seal (i.e., a seal on a side, preferably midway front to back), disposed generally vertically, and midway front to back. The side seal extends from the top of the bag towards the bottom, preferable to the lower portion, and more preferably to the bottom. Thus, the only seals extending to the top are the side seals, and the top of the bag is a peak formed from the top edges of the front, back and side walls, and extending from side seal to side seal. The upper portion of the bag does not have corner seals, and the peak is that which would be made if the mid-sides of a rectangle (at the top of the side seals) are pulled outward, drawing the front and back toward each other, until they meet and form a peak having a length equal to length of a side wall plus the length of the front or back wall. The lower part of the upper portion retains its rectangular shape, because it is attached to the lower portion, which has the four corner seals, and is filled with product. The upper edge of the lower portion may also include an insert to help retain the rectangular shape where the upper and lower portions meet.

Figures 1 and 2 are front and perspective views, respectively, of a bag 100 such as that described above. The lower portion of bag 100 is preferably comprised of a laminate or laminated material (such as some pet food bags are currently made of, e.g.), including a poly layer. The multi-walled construction helps provide support to the bag

- 7 -

prevent the bag from dimpling. The poly layer of the laminate extends to, and forms, the upper portion. The flexible poly upper portion is easily folded upon itself to form the top of the cuboid, thus the bag is easily stacked, and the side is displayed.

5 Handles are sealed between the laminate layers, near the top of the lower portion, on the front and back walls. Sealing the handles to bag 100 give good strength to the bag, and allows the user to easily carry the bag. A zipper closure, or other resealable closure, is preferably mounted to extend the entire length of the top peak.

10 Referring now to Figures 3 and 4, schematics showing two perspective views of bag 100 show its various features. Three of the four corner seals 201 can be seen to join or seal adjacent walls, such as side wall 203 and front wall 205. (Seals are indicated as thick lines). It may be seen that corner seals 201 do not extend the entire height of the generally vertical walls. In the preferred embodiment they extend only to the top of the laminated lower portion. Join, or joined with, as used herein, includes attaching such that the attached items are not easily removed, for example, by sealing, 15 melting, together, gluing, etc. Corner seal, as used herein, includes seals that will form a corner of the bag after it is filled.

20 Two bottom seals 207 are shown, as wells as angle seals 211, which are on the side walls. They will be explained in greater detail below. Angle seals, as used herein, includes seals at an angle (other than 90 degrees) to the machine direction. Bottom seal, as used herein, includes the seals that will be at the bottom of a bag after it is filled.

25 Side seal 213 is shown, and extends from the top of bag 100 to the bottom in the preferred embodiment. It may be seen that the corner seals on the lower portion and the rectangular bottom helps form the cuboid bag shape, while the lack of corner seals on the upper portion allow the top of the bag to form a peak 214 with a zipper 215 extending the entire length thereof. A tamper proof seal 217 (such as that known in the prior art) is also shown. Other resealable closures may be used, including friction fit, hook and loop, etc. Handles are also shown.

30 Referring now to Figure 5 a schematic of bag 100, as produced is shown. Also, Figure 6 shows multiple bags 100 in production. Bag 100 may be produced in a "lay flat" fashion, and is relatively inexpensive to make. Bag 100 is preferably formed from 2 continuous films 601 and 602 (Figure 6). The films are generally parallel and follow a parallel film path through the machine. Film 601 forms the front and half of each side, and film 602 forms the back and the other half of each side.

- 8 -

Each film includes a laminate portion 603 that extends part way across the film, with one layer being a poly material that extends the entire width of the film. The poly portion can be part of or sealed to the laminate portion. The laminate will form the lower part 501 of bag 100, and the poly portion will form the upper portion 503 of the bag. Transverse seals 201 (generally perpendicular to the machine direction) are formed across the laminate portion only to form the corner seals. Transverse seals 213 are formed across the poly and laminate portions to form the side seals. Angle seals 211 are formed at an angle between side seals 213 and corner seals 201. The angle seals help provide support for the side and bottom.

A gusseted insert 610 is sealed to the two laminate portions, on the machine direction edge to form the bottom of the bag. Gusseted insert, as used herein, includes an insert that is affixed to one or more films, and the insert includes at least one gusset.

Side seals 213 also indicate the end of one bag and the start of the next. The seal can include a perforated center portion to help separate adjacent bags from one another, as is known in the art (separate includes physically disjoining or denoting the end of a leading bag and the start of a succeeding bag). Adjacent bags, as used herein, includes bags next to one another as they are formed from continuous film or films.

A zipper with a tamper proof seals is affixed to the machine direction edge opposite the gusseted insert. The zipper is continuous because the peak extends the length of the side plus the front -- thus there is no portion which cannot have the recloseable seal (which is different from the prior art). Other resealable closures are used in alternative embodiments.

Handles are sealed between layers of the laminate (preferably to the poly layer) near the top of the lower portion, which allows the user to easily carry heavy bags.

Referring now to Figure 7, a machine for making the bag 100 described above is a pouch machine 700, and includes seven modules: an input section 1, a resealable closure or zipper sealer station 2, a long sealer module 3, a cross sealer module or 4, a cross seal extension module 5, a slider module 6, and a cut-off module 7. Some of the modules, such as 4, 6 and 7, include drawrolls or driven rollers (10, 11 and 12). Input section, as used herein, includes a processing station that receives a film and feeds it to subsequent processing stations, it may include machinery for folding the film. Resealable closure fixture, as used herein, includes a fixture that affixes a resealable closure to a film.

- 9 -

Zipper sealer station 2 includes a zipper or resealable closure fixture for apply a zipper or other resealable closure to one machine direction edge of the films. The slider portion of the zipper may be applied at the zipper station or at a distinct slider station. Slider station, as used herein, includes a processing station applies a "slider" onto a pouch, usually in the machine direction. Cut-off station, as used herein, includes a processing station that cuts the film, such as that used to separate adjacent pouches (such as at the side seals). Zipper sealer station, as used herein, includes a processing station that welds or forms a zipper onto a pouch, usually in the machine direction. Resealable closure fixture, as used herein, includes a fixture that affixes a resealable closure to a film, and it may encompass distinct zipper and slider stations.

A gusseted insert fixture for sealing a gusseted insert is provided in the preferred embodiment, and may be in long sealer station 1, or another section of the machine. Long sealer section or station, as used herein, includes a processing station that forms a machine direction seal. Gusseted insert fixture, as used herein, includes a fixture that applies a gusseted insert to one or more films. Sealing section, as used herein, includes one or more sections of a bag machine that includes one or more seal bars or other devices to form a seal on a film.

Cross sealer station or module 4 includes corner sealers, for forming the corner seals that extend across only part of the film, and transverse sealers for forming the side seals that also separate adjacent bags. It may also include angle sealers for forming the angle seals, or they may be included in a separate station or module. It may further include a fixture for sealing a handle to the film (or the handle sealing fixture may be in another section). Cross sealer station, as used herein, includes a processing station that forms a cross-seal, such as the seals separating successive pouches. Cross seal extension station, as used herein, includes a processing station that forms cross seals over an extended length. Angle sealers, as used herein, includes seal bars (or other seal-creating devices) disposed to create a seal angled (other than 90 degrees) relative to the machine direction. Corner sealers, as used herein, includes seal bars (or other seal-creating devices) disposed to create a seal that will form a corner of the bag after it is filled. Transverse sealers, as used herein, includes seal bars (or other seal-creating devices) that apply a transverse seal.

A machine capable of having the appropriate sealing and other stations to implement the present invention is one such as that described in detail in United States Patent Application 20020155936, Wied et al. (and has as a co-inventor the inventor of the present invention), filed April 23, 2001, and entitled Modular Pouch Machine.

-10-

Alternatives provide for the invention to implemented with other systems, that might or might not be modular.

5 Numerous modifications may be made to the present invention which still fall within the intended scope hereof. Thus, it should be apparent that there has been provided in accordance with the present invention a method and apparatus for a bag and machine to make it that fully satisfies the objectives and advantages set forth above. Although the invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, it is intended to embrace all such alternatives, 10 modifications and variations that fall within the spirit and broad scope of the appended claims.

CLAIMS

5

1. A bag comprising:

a generally rectangular bottom having first and second pairs of generally parallel sides;

10 a first pair of generally vertical walls having a first height and attached at lower edges thereof to the first pair of generally parallel sides;

a second pair of generally vertical walls having a second height and attached at lower edges thereof to the second pair of generally parallel sides;

15 a plurality of corner means for joining along less than the first and second heights each of the first pair of generally vertical walls to one of the second pair of generally vertical walls;

wherein means for releasably closing the bag is disposed along entire top of the bag;

wherein length of said top of said bag is equal to a length of one of said first pair of vertical walls plus length of one of said second pair of vertical walls.

20

2. The bag of claim 1, wherein a top of the bag is a peak formed at least partially from a top edge on each of the first pair of generally vertical walls, and further wherein each of the second pair of generally vertical walls has a generally vertical side seal extending from the top of the bag towards the bottom.

25

3. The bag of claim 2 wherein the side seals extend at least a length toward the bottom such that they extend below an upper end of the corner means.

Application number / numéro de demande: 2509048

Figures: 1 AND 2

Pages: _____

Unscannable item(s)

received with this application

To inquire if you can order a copy of the unscannable items, please visit the
CIPO WebSite at [HTTP://CIPO.GC.CA](http://CIPO.GC.CA)

Item(s) ne pouvant être balayés

Documents reçus avec cette demande ne pouvant être balayés.

Pour vous renseigner si vous pouvez commander une copie des items ne
pouvant être balayés, veuillez visiter le site web de l'OPIC au [HTTP://CIPO.GC.CA](http://CIPO.GC.CA)

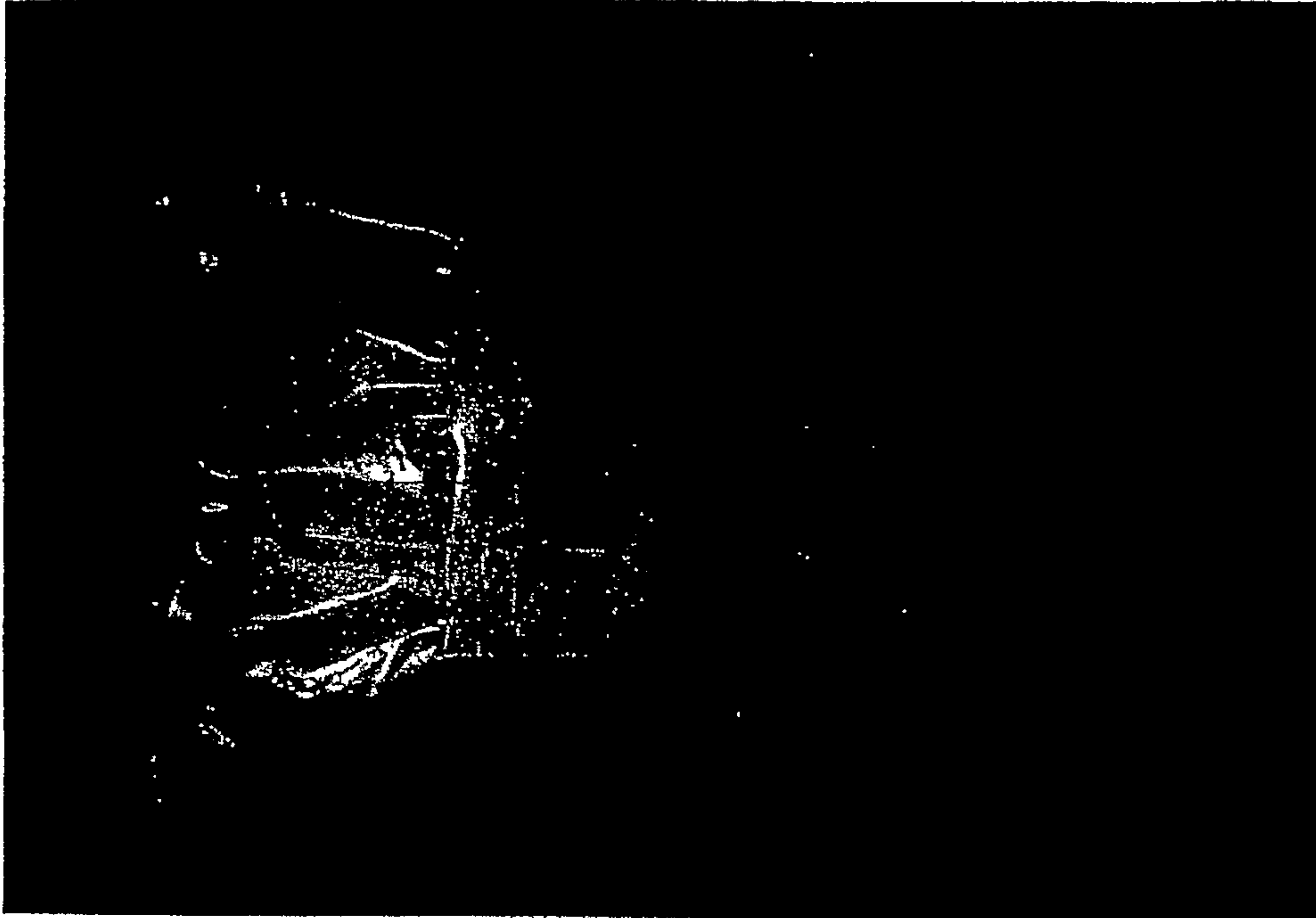


Figure 1

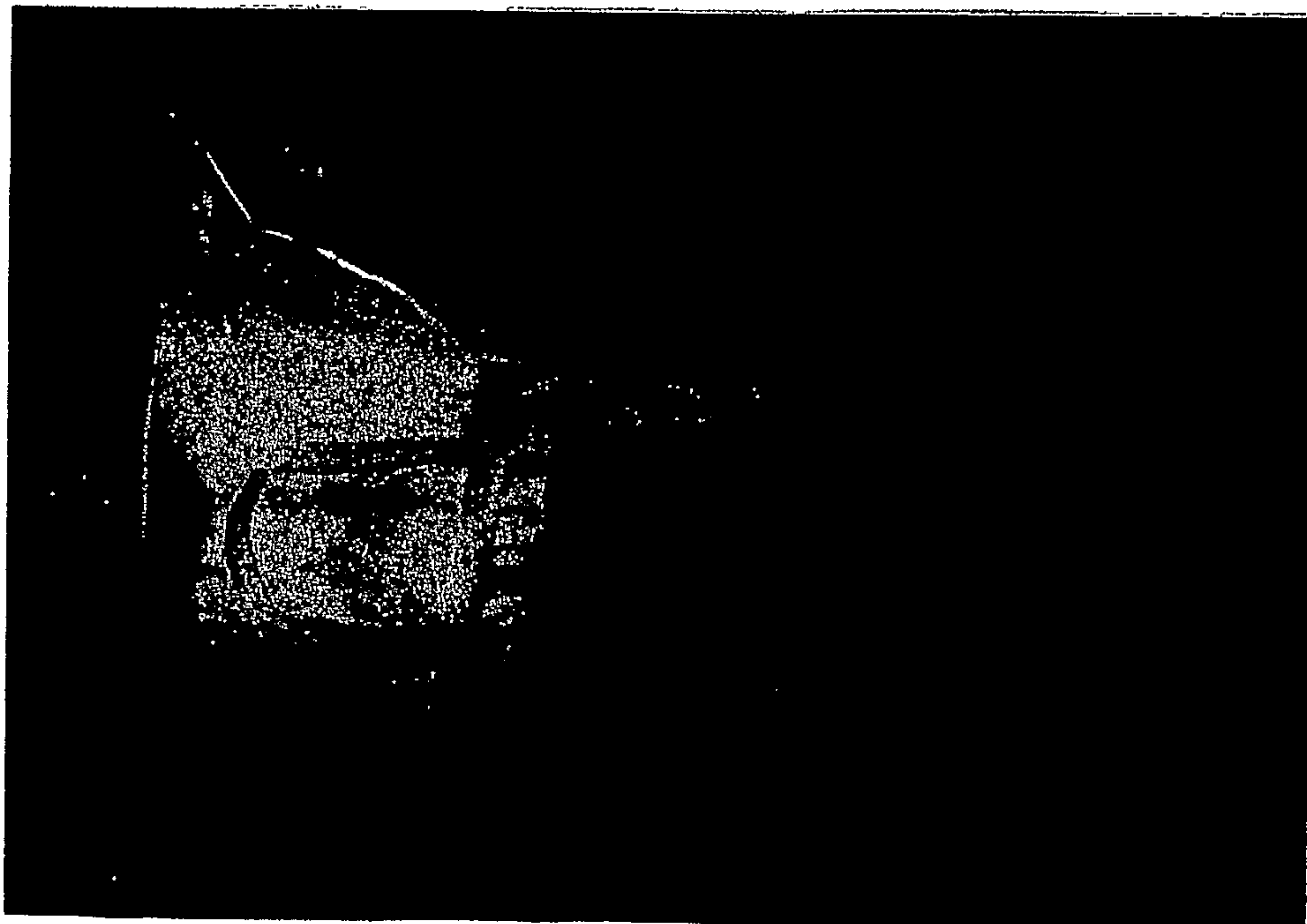
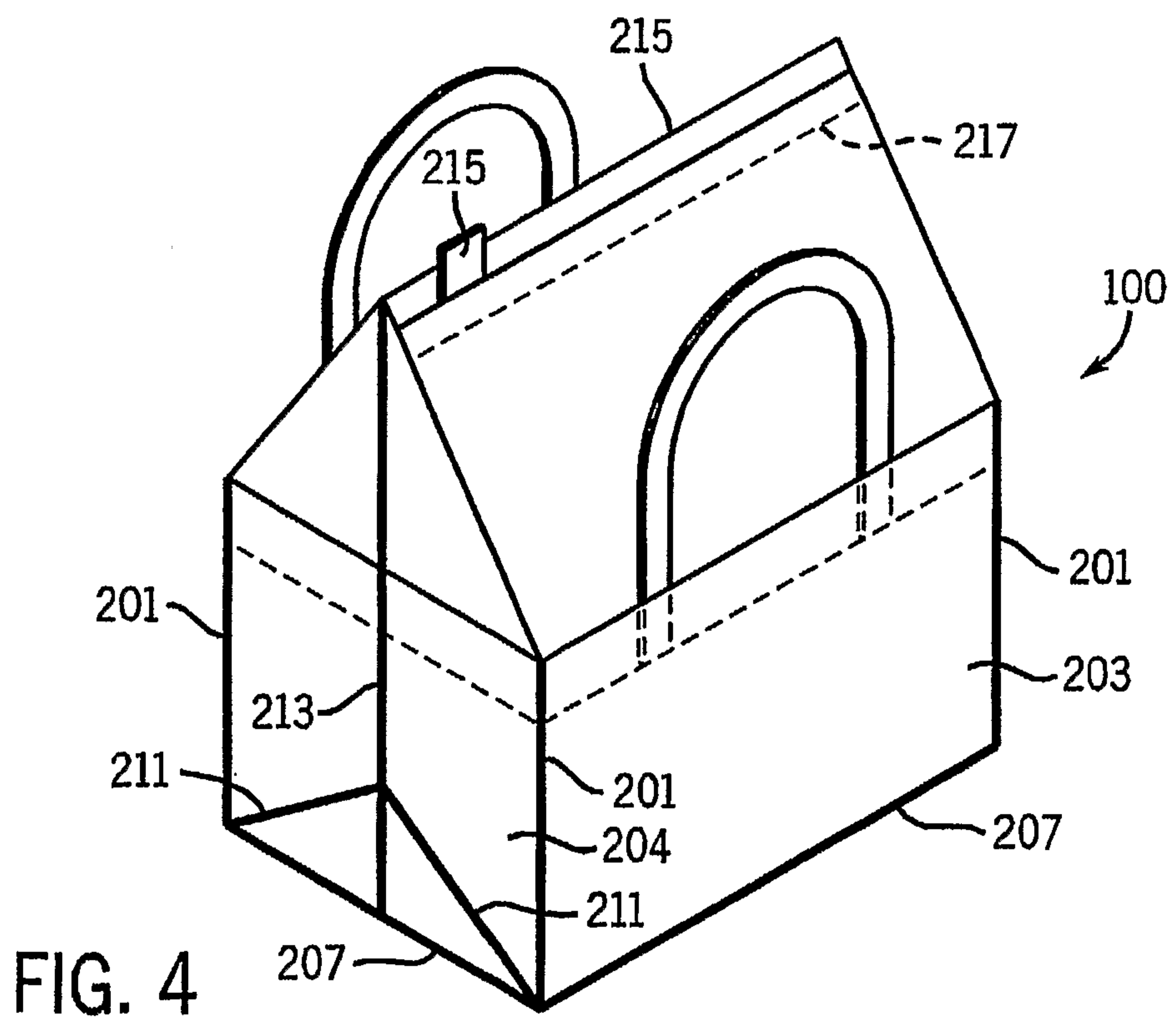
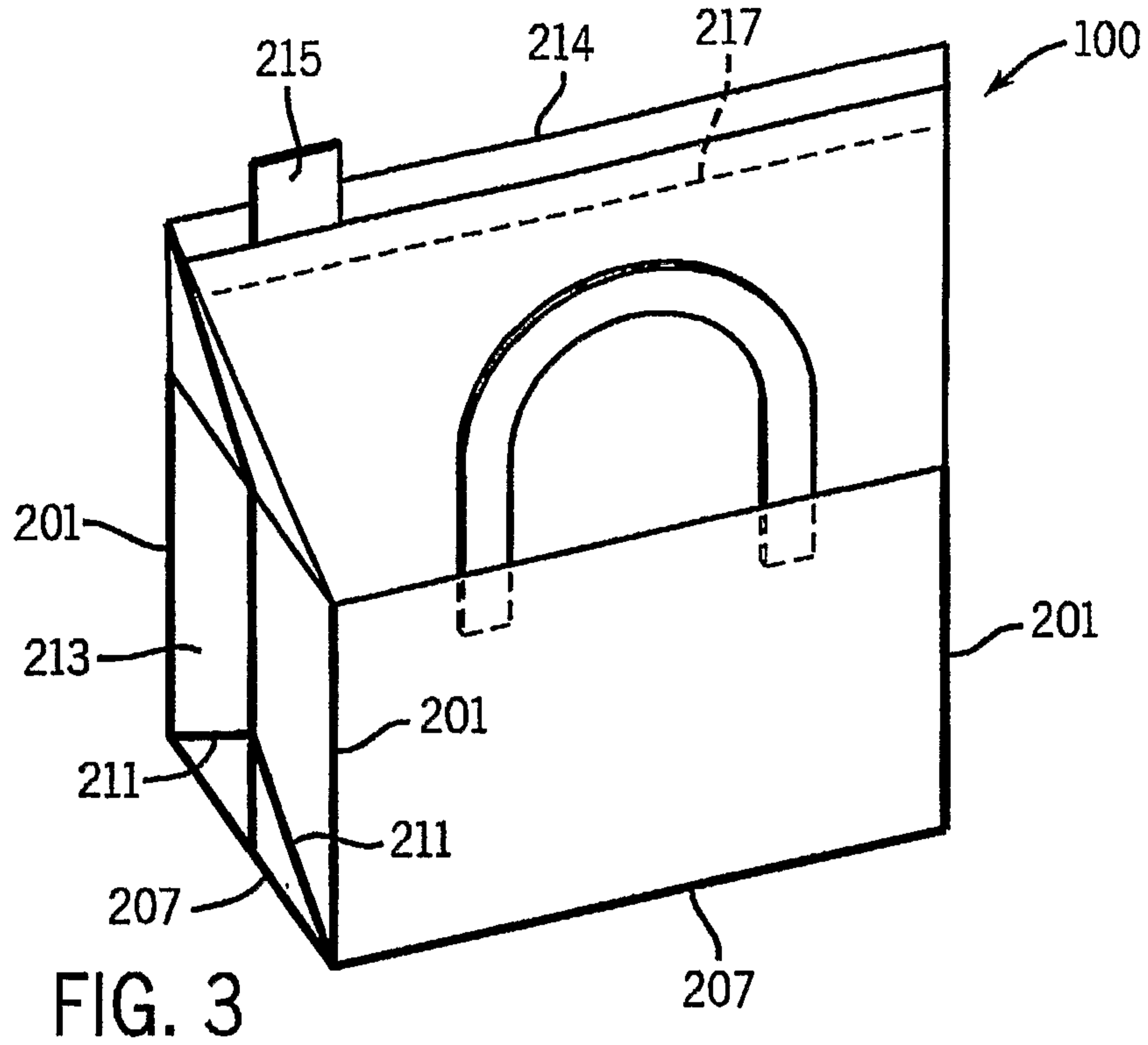


Figure 2



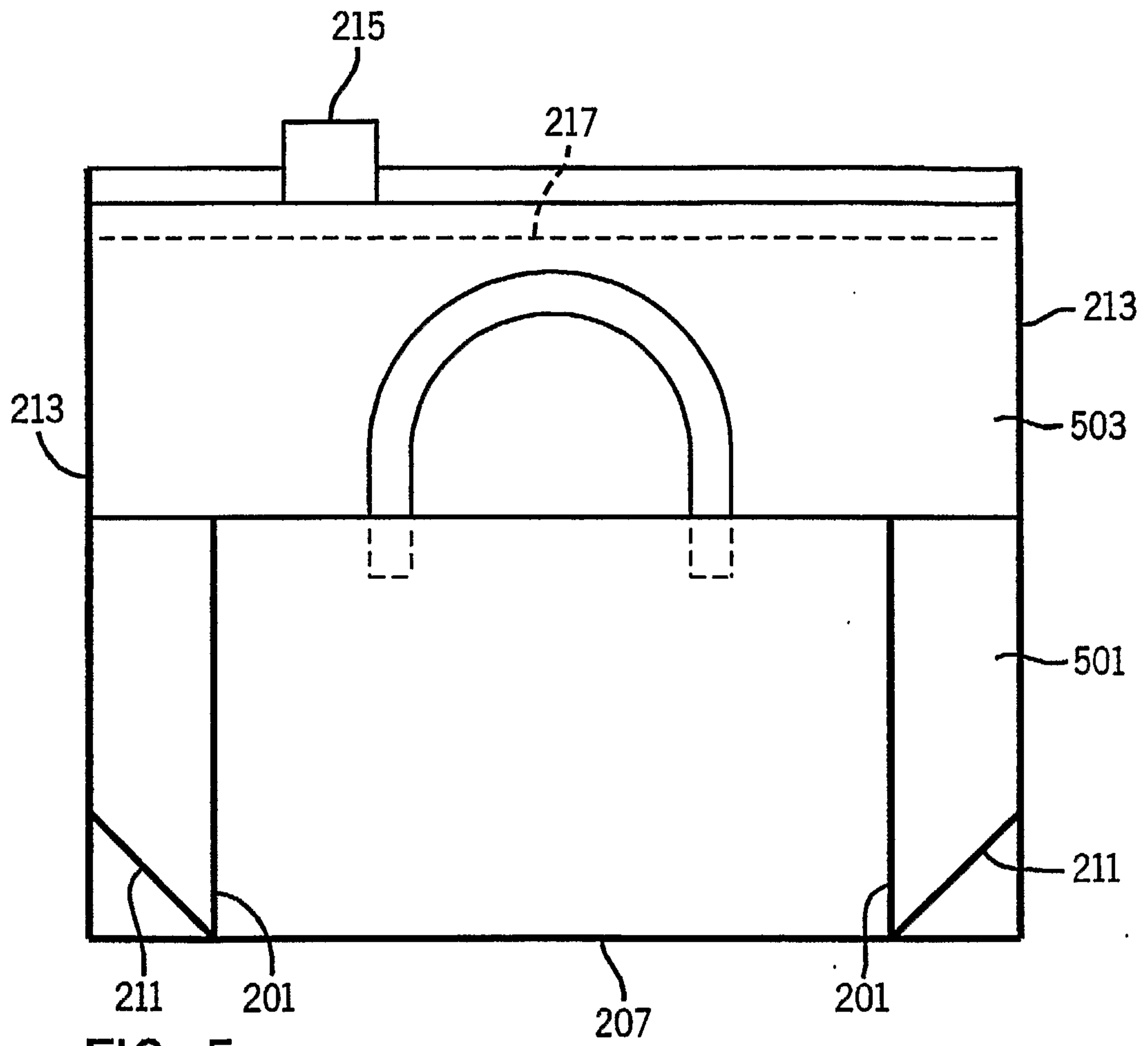


FIG. 5

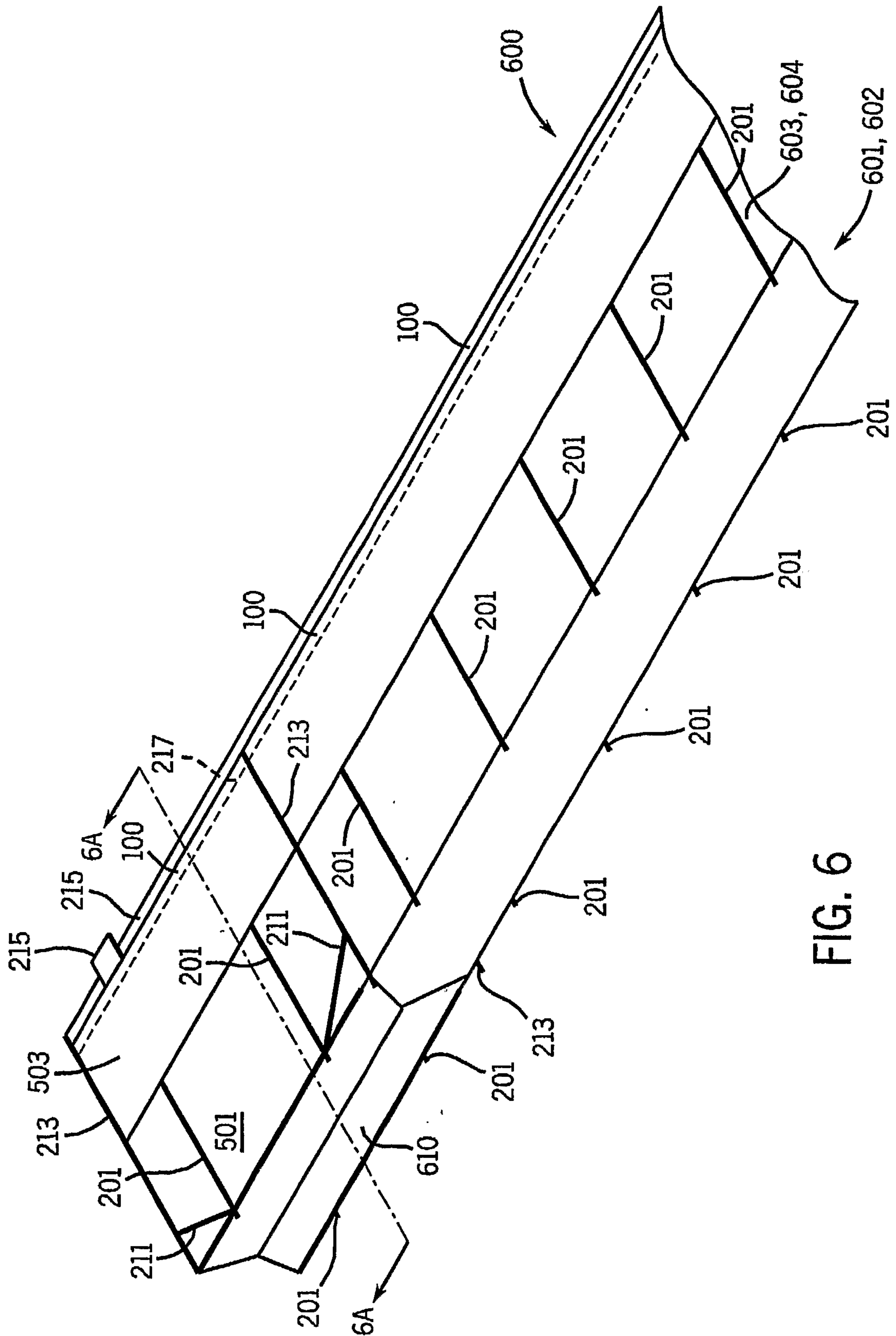


FIG. 6

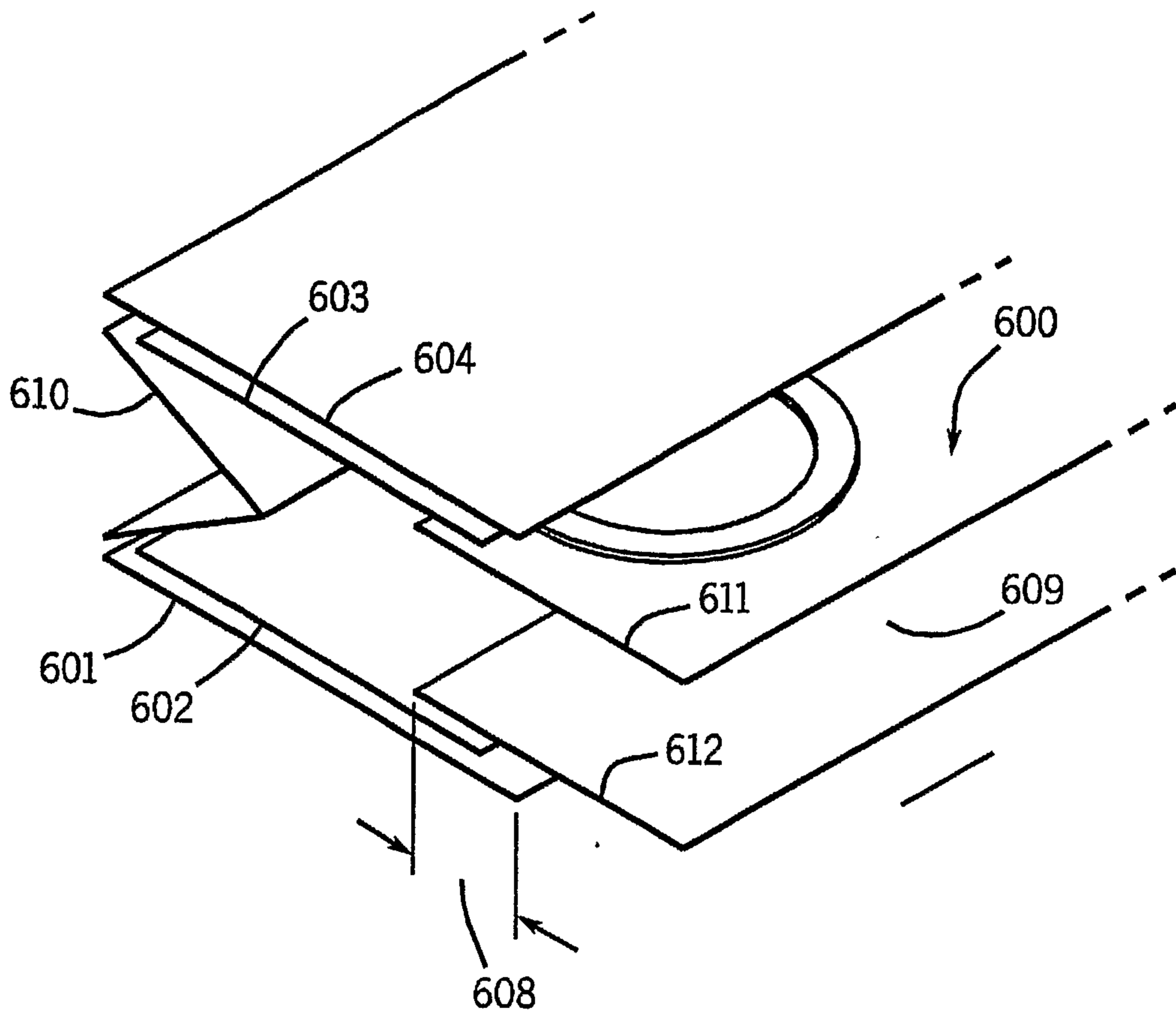


FIG. 6A

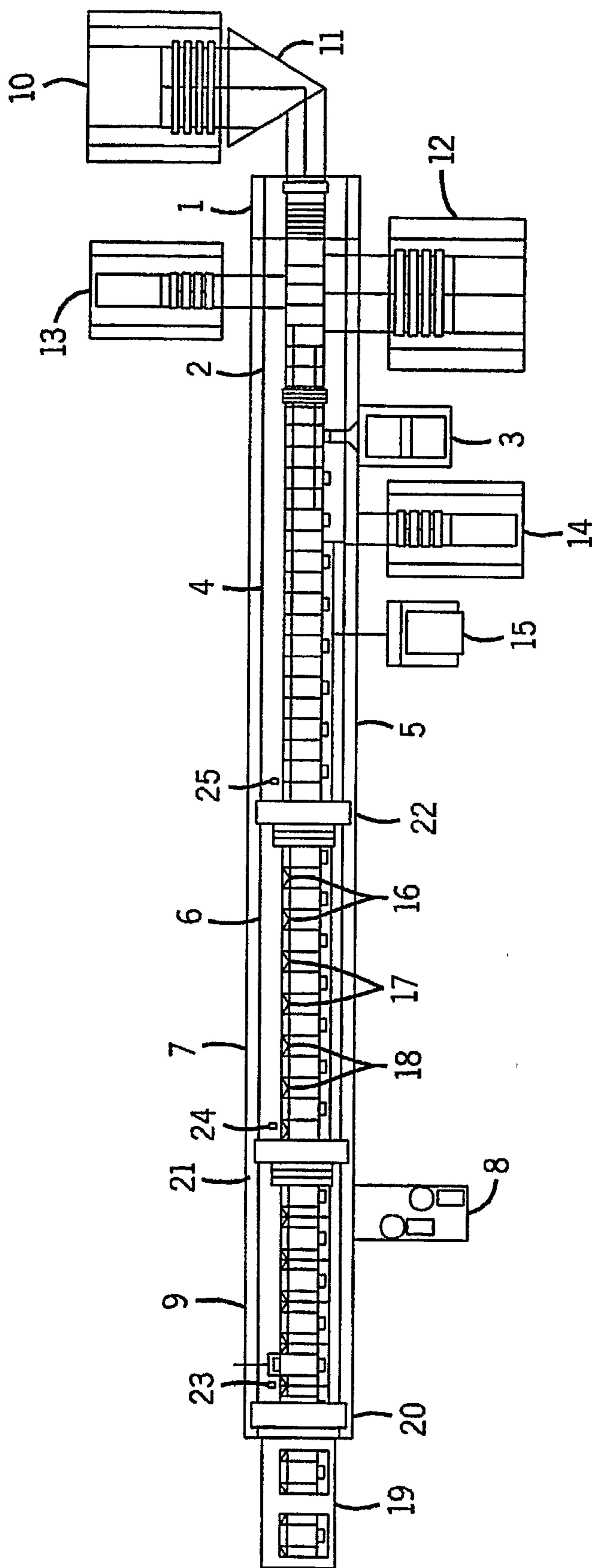


FIG. 7

