



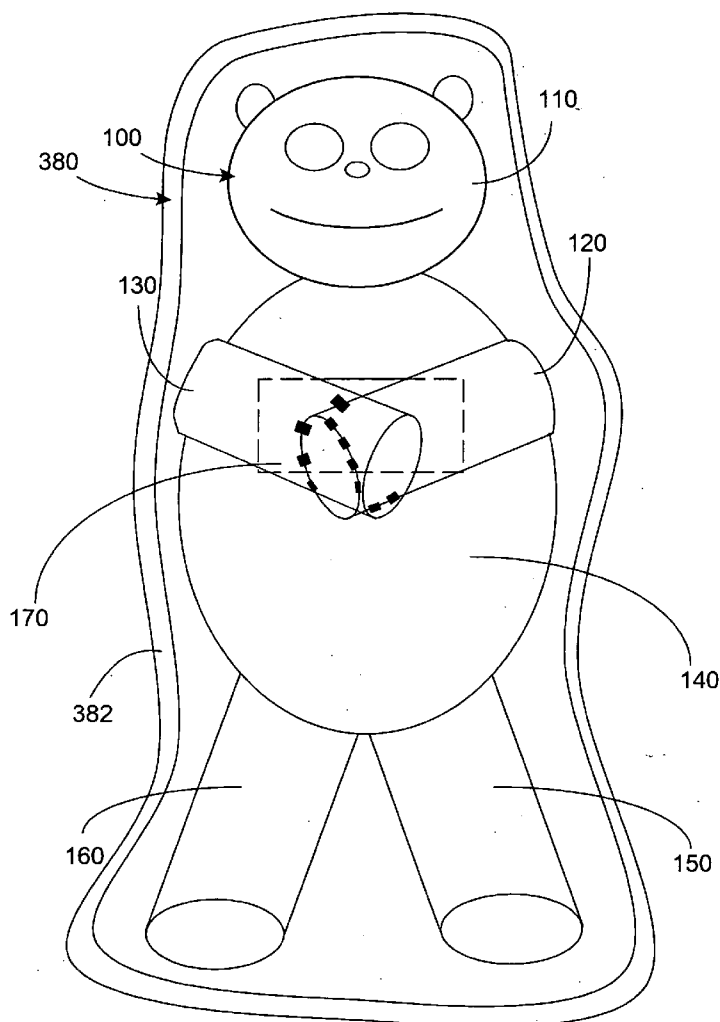
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(19) **United States**(12) **Patent Application Publication**
Li(10) **Pub. No.: US 2007/0220829 A1**(43) **Pub. Date: Sep. 27, 2007**(54) **PACKAGED PRODUCT AND METHOD OF
MANUFACTURE**(52) **U.S. Cl. 53/434; 206/524.8**(76) **Inventor: Chun Wah Li, Hong Kong (CN)**(57) **ABSTRACT**

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LAS VEGAS, NV 89169 (US)**(21) **Appl. No.: 11/391,168**(22) **Filed: Mar. 27, 2006****Publication Classification**(51) **Int. Cl.****B65B 31/00 (2006.01)****B65D 81/20 (2006.01)**

A compressible product such as a stuffed toy is formed of a memory type stuffing, such as hollow conjugate siliconized polyester fibers, optionally surrounded by an outer shell, that has an uncompressed shape at ambient atmospheric pressure. The compressible product is positioned in a packaging envelope and a pressure differential is created to deform the product into a deformed shape substantially smaller than the uncompressed shape. Optionally, a graphic on the outer shell that is visible in the uncompressed shape is obscured in the deformed shape. The packaging envelope is sealed with the compressible product in the deformed shape. When the seal is broken, the stuffing and outer shell cooperate to substantially reform the compressible product into its uncompressed shape.



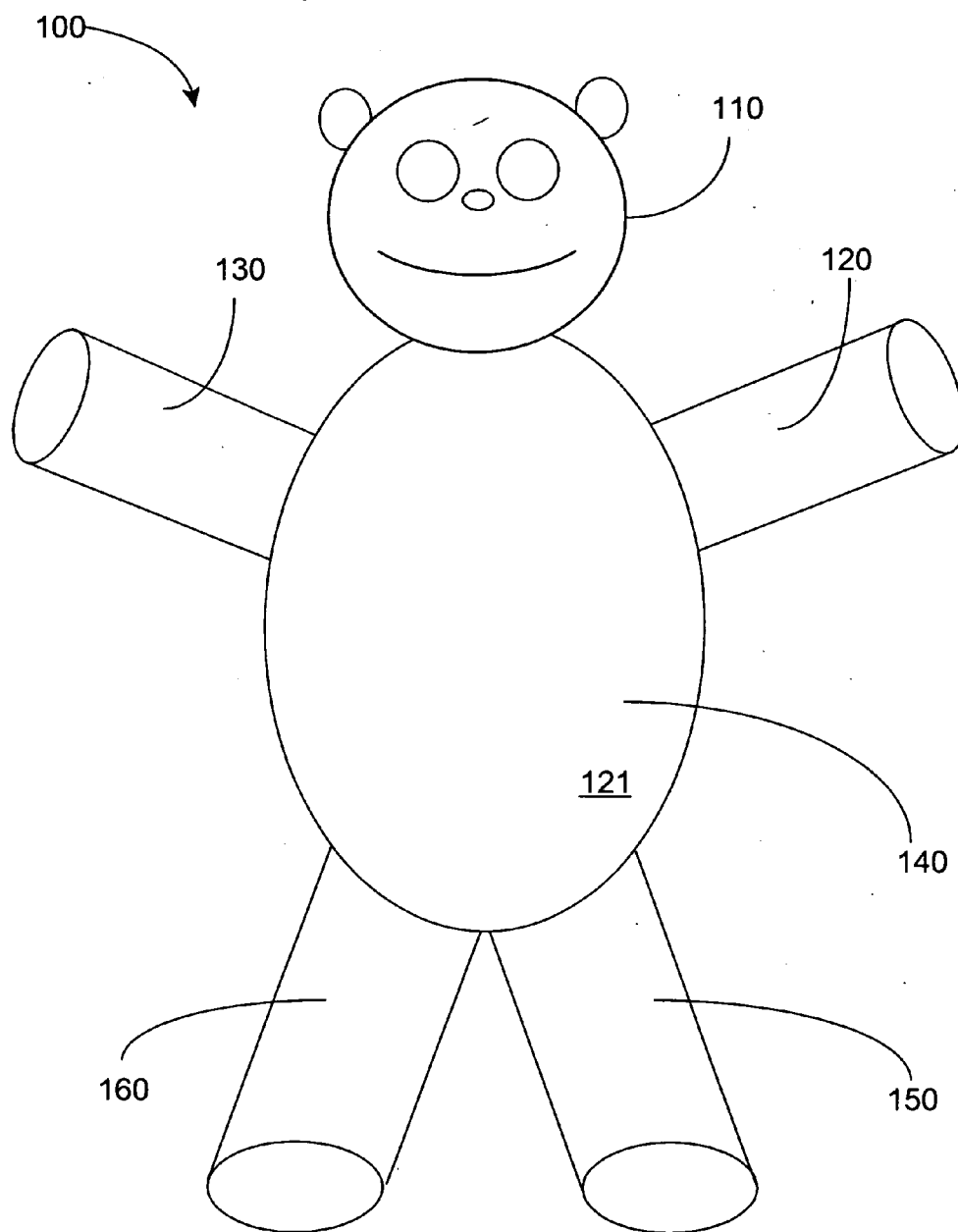


FIG. 1

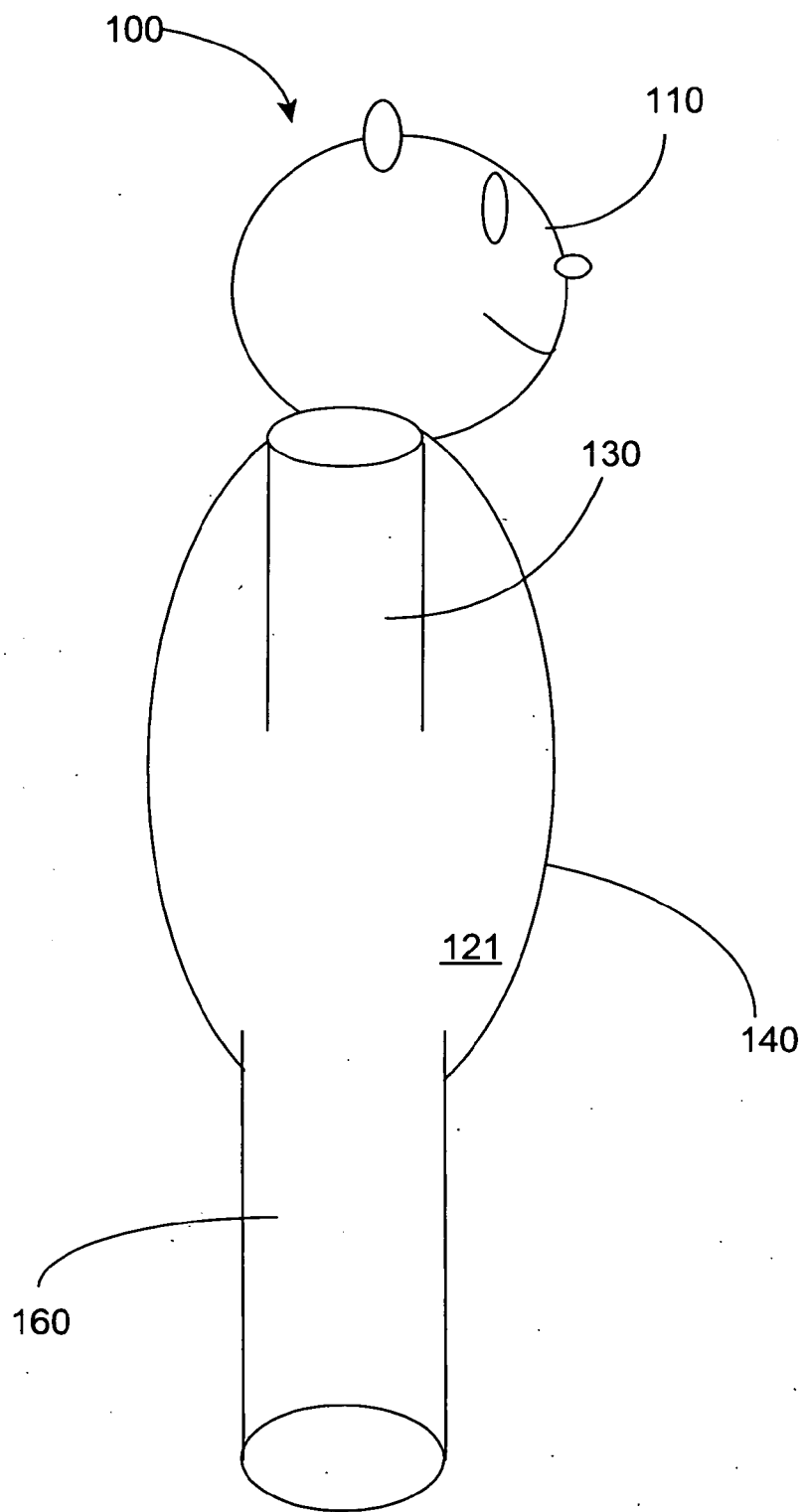


FIG. 2

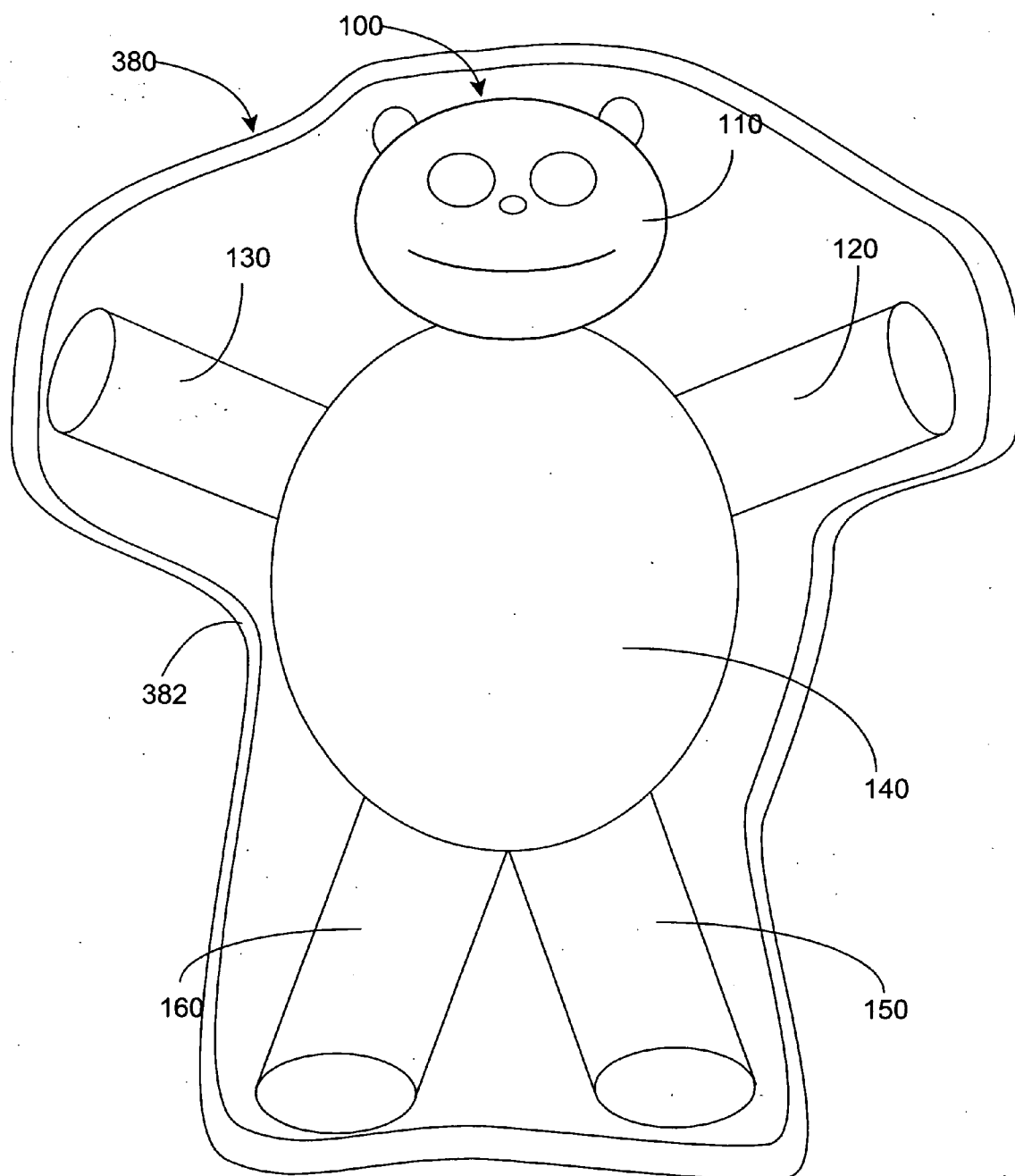


FIG. 3

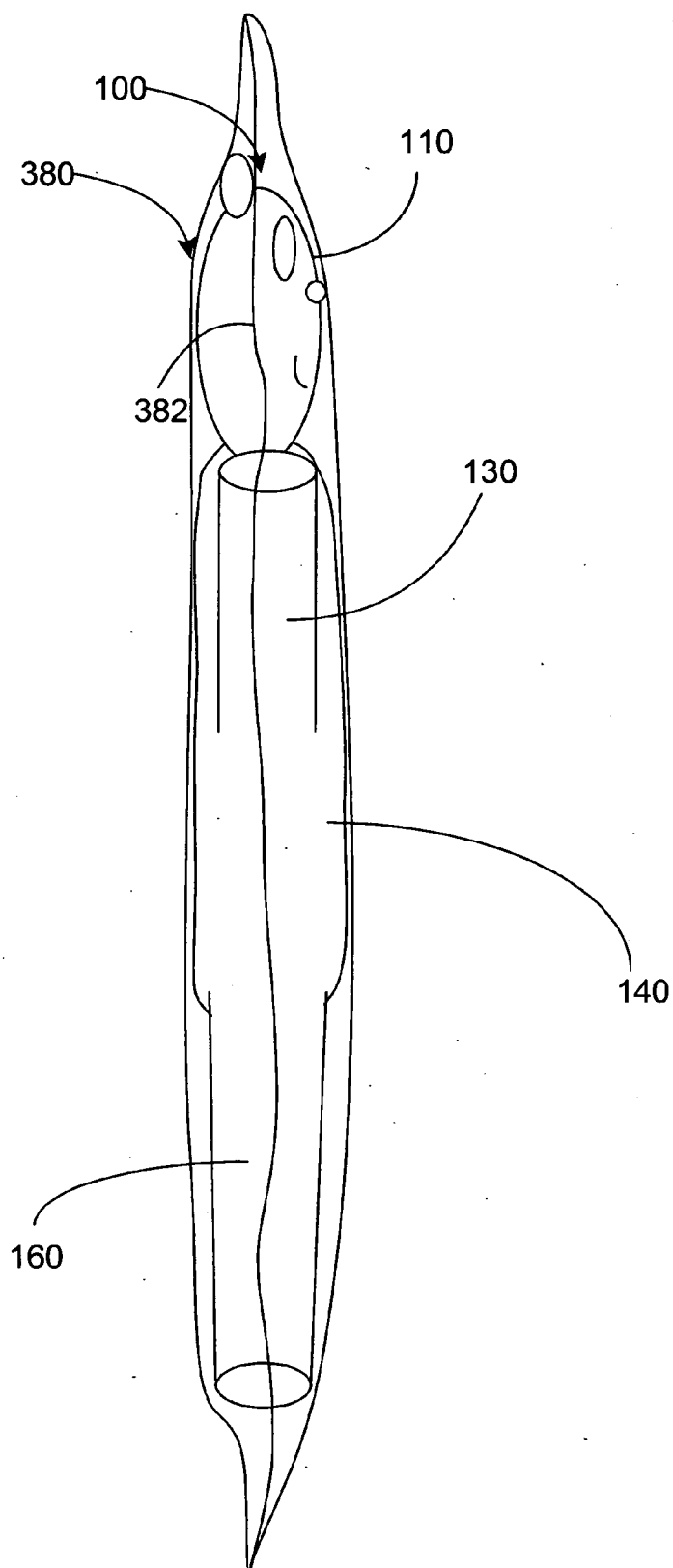


FIG. 4

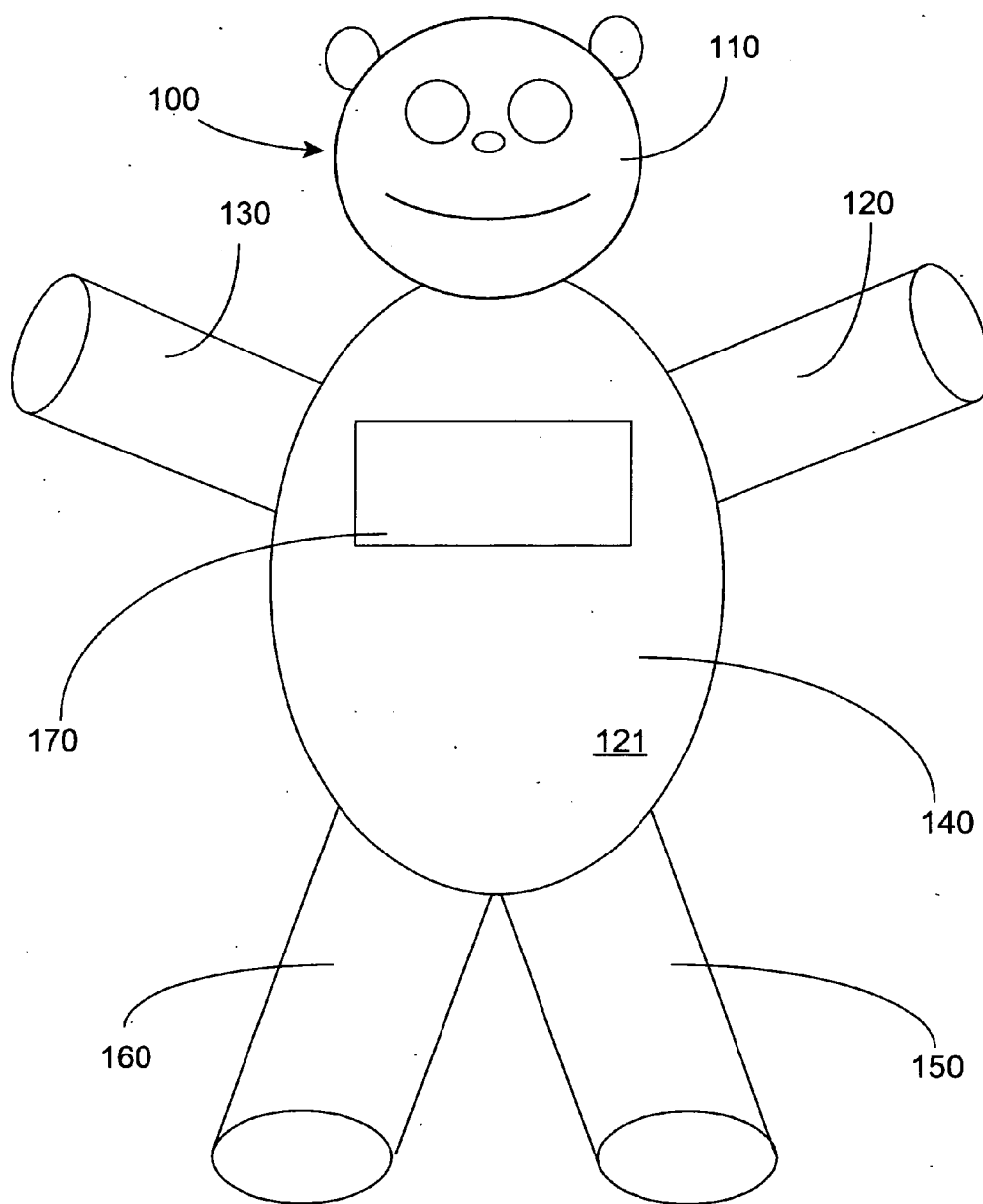


FIG. 5

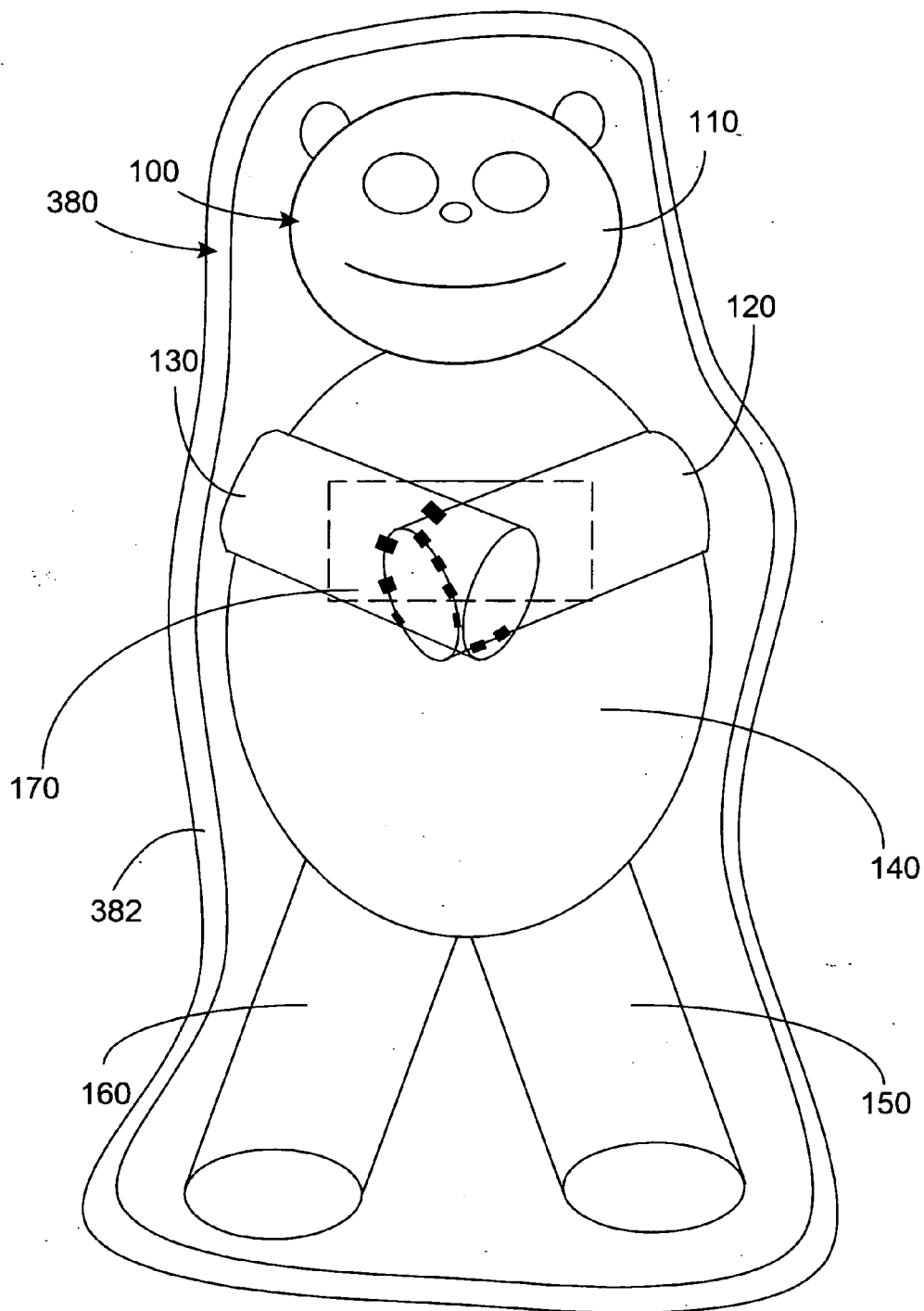
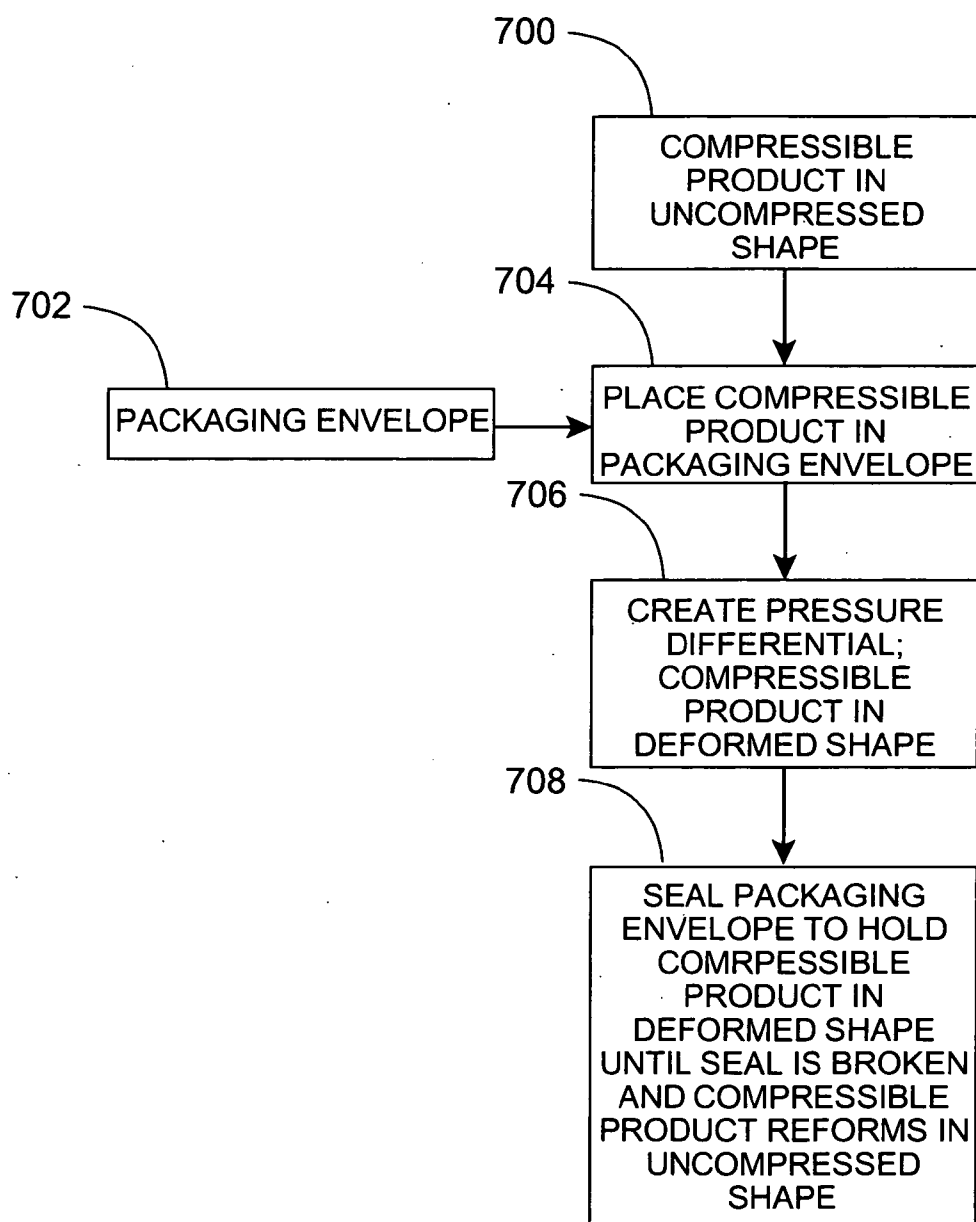


FIG. 6

**FIG. 7**

PACKAGED PRODUCT AND METHOD OF MANUFACTURE

FIELD OF THE INVENTION

[0001] The present invention relates to packaged products and methods of manufacture. More specifically, the present invention relates to methods and devices for manufacturing and packaging deformable products.

BACKGROUND OF THE INVENTION

[0002] It has long been recognized that one of the primary factors in the costs of shipping and storing of merchandise is the volume required on a vehicle or vessel, in a warehouse, or on a store shelf. As more and more powerful engines are used in transportation, and stronger material are used for construction, weight is becoming less of a critical factor, and manufacturers are looking for ways to miniaturize items, in both their eventual usage form, and the form in which they are shipped and stored prior to, or in between, usage.

[0003] Some items may be reduced in size by simply packaging less. Miniature toiletry kits, office desk sets, and snack foods have been marketed to great success for many years. Some items may be reduced in size by making more effective component parts. The current wave of personal electronic items comes immediately to mind. Some items may be reduced in size by merely packing them better, and it is in this arena that the present invention is directed.

[0004] Shrink wrapping of goods is a technique well known in the art. Taunton, U.S. Pat. No. 2,778,171 disclosed "a method of evacuating an envelope" more than fifty years ago. Other inventions followed to address the method of evacuation and the preparation of the containers, bags, and envelopes. None of these, however dealt with the items to be contained in these containers, bags, and envelopes, nor with the configuration into which they would be placed.

[0005] Compression of the item itself to reduce volume is also a technique well known in the art. Merry, U.S. Pat. No. 5,172,629 discloses "a method of compacting a sheet article" such as a shirt or underwear, made of woven fabric, to reduce the volumetric requirement. Earlier, Hammon, U.S. Pat. No. 2,659,935 disclosed a method of making compressed sponges.

[0006] Such prior art, however, has dealt primarily with the method of evacuation or compression and the apparatus to perform such evacuation or compression, rather than with the item to be evacuated or compressed. Items were assumed to be either formless, such as underwear or t-shirts, or capable of retaining their general shape when compressed. There is a need in the art for a method and device for the compression of items to reduce their space requirements, where subsequent shape recovery would be automatic and fast. Likewise, there is a need in the art for a method and device for the compression of items to reduce their space requirements, where the item being compressed has one, predetermined, shape when compressed, and a second, also predetermined, shape when released from compression.

SUMMARY OF THE INVENTION

[0007] The present invention includes a packaged product and a method for packaging a product. A packaged product

includes a compressible product with a flexible outer shell and a stuffing. The stuffing is formed from a compressible memory material such that the outer shell and the stuffing cooperate to form the compressible product into an uncompressed shape under ambient atmospheric pressure. In one optional embodiment, the stuffing may be hollow conjugate siliconized polyester fiber.

[0008] A packaged product also includes an airtight packaging envelope. The packaging envelope includes a sealable opening. The compressible product is placed within the packaging envelope. When a pressure differential is created inside the envelope and the opening is sealed, the compressible product assumes a deformed state substantially smaller than the uncompressed shape. Optionally, the deformed state includes compressing and/or folding the compressible product. When the seal is opened, the outer shell and the stuffing cooperating to substantially reform the compressible product to the uncompressed shape.

[0009] In an optional embodiment, the outer shell includes a graphic thereon that is unobscured in the uncompressed shape. When the compressible product is placed within the packaging envelope, the product is positioned to obscure the graphic on the outer shell. Consequently, when the seal is opened, the outer shell and the stuffing cooperating to substantially reform the compressible product to the uncompressed shape with the graphic unobscured. For example, in one optional embodiment, the compressible product in the uncompressed shape includes a body, a head extending from to the body, and at least one limb extending from the body. In one such optional embodiment, the graphic appears on the body, and the body is positioned in the packaging envelope with the head and/or the limb folded to obscure the graphic.

[0010] The present invention also includes a method for packaging a product and a product manufactured according to the method. According to an embodiment of the method, a flexible outer shell is provided. The outer shell is stuffed with a stuffing formed from a compressible memory material. Optionally, the stuffing is hollow conjugate siliconized polyester fiber. The outer shell and the stuffing cooperate to form a compressible product in an uncompressed shape under ambient atmospheric pressure.

[0011] An airtight packaging envelope including an a sealable opening is provided. The compressible product is placed into the packaging envelope and a pressure differential is created inside the envelope. Optionally, in placing the compressible product into the packaging envelope, the compressible product may be folded and in creating a pressure differential, the compressible product may be compressed. The opening is sealed such that the compressible product assumes a deformed state inside the packaging envelope substantially smaller than the uncompressed shape. The packaging envelope and compressible product in a deformed state form a compressed packaged product. When the seal is opened, the outer shell and the stuffing cooperate to substantially reform the compressible product to the uncompressed shape.

[0012] As above, in one optional embodiment, the outer shell may include a graphic thereon that is unobscured in the uncompressed shape. In one such optional embodiment, the method includes positioning the compressible product in the packaging envelope to obscure the graphic on the outer shell such that the product is and when the seal is opened, the

outer shell and the stuffing cooperating to substantially reform the compressible product to the uncompressed shape to reveal the graphic. For example, in one optional embodiment, the compressible product in the uncompressed shape includes a body, a head extending from the body, and at least one limb extending from the body. The graphic appears on the body and when the compressible product is placed in the packaging envelope, the head and/or the limb are folded to obscure the graphic.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a front view of a compressible product in an uncompressed shape according to an optional embodiment of the present invention;

[0014] FIG. 2 is a left side view of a compressible product in an uncompressed shape according to the optional embodiment of FIG. 1;

[0015] FIG. 3 is a front view of a packaged product with a compressible product according to the optional embodiment of FIG. 1 in a deformed shape;

[0016] FIG. 4 is a left side view of a packaged product according to the optional embodiment of FIG. 3;

[0017] FIG. 5 is a front view of a compressible product in an uncompressed shape according to an optional embodiment of the present invention;

[0018] FIG. 6 is a front view of a packaged product with a compressible product according to the optional embodiment of FIG. 5 in a deformed shape;

[0019] FIG. 7 is a flow chart of a method according to an optional embodiment of the present invention.

DESCRIPTION

[0020] Reference is now made to the figures wherein like parts are referred to by like numerals throughout. The present invention is a packaged product 500 that includes a compressible product 100 and a packaging envelope 380. FIGS. 1 and 5 show optional embodiments of a compressible product 100 according to the current invention. The compressible product 100 may take many different forms such as a stuffed animal or toy or other plush object. However, it is contemplated that the compressible product 100 may be any item of a deformable nature.

[0021] The compressible product 100 includes a compressible stuffing having an uncompressed shape. The stuffing is formed from a compressible memory material. By compressible memory material, a material is contemplated that may be deformed and compressed, but returns to its uncompressed shape when released. In one optional embodiment, the stuffing is hollow conjugate siliconized polyester fibers, such as 15 D 64 mm Hollow Conjugate Siliconized A grade polyester fibers. However, in alternate optional embodiments, other material may be used, as long as such material is readily deformable and compressible, and capable of resuming its uncompressed shape when released.

[0022] Optionally, the stuffing is stuffed into a flexible outer shell 121 and the stuffing and outer shell 121 cooperate to form the uncompressed shape. In such an optional embodiment, the outer shell 121 could take any form. In an optional embodiment in which the compressible product is

a stuffed animal or other plush toy, the outer shell 121 may be fabric, textile, fur, or other outer covering.

[0023] At ambient atmospheric pressure, the outer shell 121 and stuffing cooperate to form a compressible product 100 in an uncompressed shape. This uncompressed shape is distinguished from a deformed shape that is discussed in greater detail below and shown in FIGS. 3, 4, and 6.

[0024] In one optional embodiment, decorative imagery such as facial features 111 may be included on the outer shell. In one particular embodiment, shown in FIGS. 5 and 6, a graphic 170 may be visible, i.e. unobscured, on the outer shell 121. The graphic 170 may take many different forms, but in an optional embodiment the graphic is a message, such as "Happy Birthday" or "Get Well Soon," an image, or other visually perceptible graphic 170 that is displayed in a graphic area on the outer shell 121.

[0025] The compressible product may take any shape. Referring generally to FIGS. 1-6, in an optional embodiment the compressible product 100 consists of a body 140 connected to a head 110 and one or more limbs 120, 130, 150, 160, such as a left arm 120, a right arm 130, a left leg 150, and a right leg 160. The body 140 may optionally have a graphic in a designated graphic area 170. In this optional embodiment, the limbs 120, 130, 150, 160 and the head 110 are disposed about the body 140 as would be expected for the semblance of a person, an animal, or a similar creature. The head 110 exhibits facial features 111 intended to resemble eyes and a mouth. In alternate optional embodiments, facial features 111 may differ, being more or less detailed, may exhibit different details, or may be omitted.

[0026] Turning to FIGS. 3 and 4, in the optional embodiment illustrated, the packaged product 500 also includes a packaging envelope 380. In one optional embodiment, the packaging envelope 380 is a plastic bag, sheath, tube, or other container that can be sealed in an airtight fashion. In an optional embodiment, the packaging envelope 380 is formed from a flexible plastic ply that will conform to the shape of the compressible product 100 placed inside it.

[0027] To carry out the method of the present invention, as shown in FIG. 7, the compressible product 100 provided 700 is placed 704 in the packaging envelope 380 provided 702. In placing the 704 compressible product 100 in the packaging envelope 380, the compressible product 100 may be simply inserted or, in an optional embodiment, may be positioned within the packaging envelope 380. For example, in one optional embodiment, shown in FIG. 6, the compressible product 100 may be folded inside the packaging envelope 380 so it is held in a folded configuration as discussed in greater detail below. In one such optional embodiment, a compressible product having a graphic 170 thereon is placed in the packaging envelope 380 with the graphic 170 obscured or hidden. Thus, in the example discussed above in which a compressible product 100 includes a body 140 with a head 110 and limbs 120, 130, 150, 160 extending therefrom, a graphic 170 on the compressible product 100, such as the body 140, may be obscured by folding the head 140 and/or one or more limbs 120, 130, 150, 160 across the body.

[0028] Referring generally to FIGS. 3, 4, 6, and 7, a pressure differential is created 706 to reduce the pressure inside the packaging envelope 380 below ambient atmo-

spheric pressure. The pressure differential inside the packaging envelope **380** causes the packaging envelope **380** to collapse, and allows ambient air pressure to compress the compressible product **100** into a deformed shape substantially smaller than the uncompressed shape. Optionally, the pressure differential is created by evacuating air from the packaging envelope **380** through an opening. For example, air may be evacuated through the opening using a vacuum pump.

[0029] For example, in an optional embodiment in which hollow conjugate siliconized polyester fibers fill a textile outer shell, one may anticipate that the compressible product **100** will be reduced in volume by approximately 80% when in its deformed shape compared to its uncompressed shape. However, it is noted that this is exemplary only and, in alternate optional embodiments, such compression ratio may be higher or lower. While the optional embodiment illustrated anticipates that the airtight package **380** will be highly evacuated, such evacuation is not essential and in alternate optional embodiments evacuation may be to a lesser degree or omitted.

[0030] With continued reference to FIGS. **3**, **4**, **6**, and **7**, to maintain the pressure differential, the packaging envelope **380** is sealed **708**. As may be appreciated, if the compressible product **100** is positioned before the pressure differential is created, the packaging envelope **380** will hold the compressible product **100** in position when the packaging envelope **380** collapses around the compressible product **100**. The seal **382** may take many different forms, including adhesive, an interlocking seam, mechanical fasteners, or the like. In an optional embodiment in which the packaging envelope **380** is a flexible plastic ply, a seal may be created by heating and crimping opposing surfaces until the ply melts and forms a seal.

[0031] When the seal **382** is broken, the pressure inside and outside the packaging envelope **380** reaches equilibrium and the outer shell **121** and stuffing cooperate to substantially reform the compressible product **100** to its uncompressed shape. For example, in one optional embodiment in which the packaging envelope **380** is heat sealed, the seal **382** may be broken by cutting the airtight package **380**. In alternate optional embodiments, the airtight package **380** may be resealable or reformable, so that the airtight package **380** may be reused. In the optional embodiment illustrated, the compressible product **100**, once removed from the airtight package **380**, substantially reforms itself from its deformed shape to its uncompressed shape. For example, once removed from the airtight package **380** and released, the memory-type stuffing of which the compressible product **100** substantially reforms its uncompressed shape, so that the compressible product **100** in its deformed shape in FIGS. **3** and **4** reforms itself into its uncompressed shape as shown in FIGS. **1** and **2**, just as the compressible product **100** in its deformed shape in FIG. **6** reforms itself into its uncompressed shape as shown in FIG. **5**. In an optional embodiment of FIGS. **5** and **6** in which a graphic **170** is included on the outer shell **121**, the reforming of the uncompressed shape serves to reveal the graphic **170** that was obscured in the deformed shape.

[0032] It contemplated that the compressible product **100** may be constructed to allow repeated compression and decompression of the compressible product **100**.

[0033] While certain embodiments of the present invention have been shown and described it is to be understood that the present invention is subject to many modifications and changes without departing from the spirit and scope of the claims presented herein.

I claim:

1. A packaged product comprising:

a compressible product comprising a flexible outer shell and a stuffing, said stuffing formed from a compressible memory material such that said outer shell and said stuffing cooperate to form said compressible product into an uncompressed shape under ambient atmospheric pressure; and

an airtight packaging envelope including a sealable opening such that when said compressible product is placed within said packaging envelope, a pressure differential is created to reduce the pressure inside said packaging envelope below ambient atmospheric pressure, and said opening is sealed, said compressible product assumes a deformed state substantially smaller than said uncompressed shape, and when said seal is opened, said outer shell and said stuffing cooperating to substantially reform said compressible product to said uncompressed shape.

2. The packaged product of claim 1 wherein said deformed state includes compressing said compressible product.

3. The packaged product of claim 1 wherein said deformed state includes folding said compressible product.

4. The packaged product of claim 1 wherein said outer shell includes a graphic thereon that is unobscured in said uncompressed shape such that when said compressible product is placed within said packaging envelope, said product is positioned to obscure said graphic on said outer shell and when said seal is opened, said outer shell and said stuffing cooperating to substantially reform said compressible product to said uncompressed shape with said graphic unobscured.

5. The packaged product of claim 4 wherein said compressible product in said uncompressed shape includes a body, a head extending from said body, and at least one limb extending from said body.

6. The packaged product of claim 5 wherein said graphic appears on said body, and said body is positioned in said packaging envelope with one of said head or said limb folded to obscure said graphic.

7. The packaged product of claim 1 wherein said stuffing is hollow conjugate siliconized polyester fiber.

8. A packaged product comprising:

a compressible product comprising a flexible outer shell and a stuffing, said stuffing formed from a compressible memory material such that said outer shell and said stuffing cooperate to form said compressible product into an uncompressed shape under ambient atmospheric pressure, said outer shell including a graphic thereon that is unobscured in said uncompressed shape; and

an airtight packaging envelope including a sealable opening such that when said compressible product is placed within said packaging envelope with said product positioned to obscure said graphic on said outer shell, a pressure differential is created to reduce the pressure

inside said packaging envelope below ambient atmospheric pressure, and said opening is sealed, said compressible product assumes a deformed state substantially smaller than said uncompressed shape with said graphic obscured, and when said seal is opened, said outer shell and said stuffing cooperating to substantially reform said compressible product to said uncompressed shape with said graphic unobscured.

9. The packaged product of claim 8 wherein said deformed state includes compressing said compressible product.

10. The packaged product of claim 8 wherein said compressible product in said uncompressed shape includes a body, a head extending from to said body, and at least one limb extending from said body.

11. The packaged product of claim 10 wherein said graphic appears on said body, and said body is positioned in said packaging envelope with one of said head or said limb folded to obscure said graphic.

12. The packaged product of claim 8 wherein said stuffing is hollow conjugate siliconized polyester fiber.

13. A method for packaging a product, comprising:

providing a flexible outer shell;

stuffing said outer shell with a stuffing, said stuffing formed from a compressible memory material such that said outer shell and said stuffing cooperate to form a compressible product in an uncompressed shape under ambient atmospheric pressure;

providing an airtight packaging envelope including an a sealable opening;

placing said compressible product into said packaging envelope;

creating a pressure differential to reduce the pressure inside said packaging envelope below ambient atmospheric pressure; and

sealing said opening such that said compressible product assumes a deformed state inside said packaging envelope substantially smaller than said uncompressed shape wherein the packaging envelope and compressible product in a deformed state form a compressed packaged product, and when said seal is opened, said outer shell and said stuffing cooperate to substantially reform said compressible product to said uncompressed shape.

14. A compressed packaged product manufactured by the method of claim 13.

15. The method of claim 13 wherein said step of creating a pressure differential includes compressing said compressible product.

16. The method of claim 13 wherein said step of placing said product into said packaging envelope includes folding said compressible product.

17. The method of claim 13 wherein said outer shell includes a graphic thereon that is unobscured in said uncompressed shape, said method further comprising positioning said compressible product in said packaging envelope to obscure said graphic on said outer shell such that said product is and when said seal is opened, said outer shell and said stuffing cooperating to substantially reform said compressible product to said uncompressed shape with said graphic unobscured.

18. The method of claim 17 wherein said compressible product in said uncompressed shape includes a body, a head extending from to said body, and at least one limb extending from said body.

19. The method of claim 18 wherein said graphic appears on said body, said method further comprising folding one of said head or said limb to obscure said graphic after placing said compressible product in said packaging envelope.

20. The method of claim 13 wherein said stuffing is hollow conjugate siliconized polyester fiber.

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