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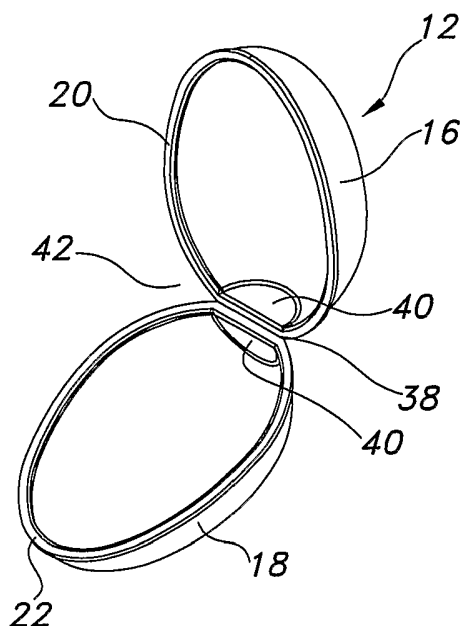
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(54) Title: THERMOFORMED PLASTIC CONTAINER FOR CHOCOLATE



(57) Abstract: An article (10) of manufacture includes (a) a three-dimensionally shaped edible candy (24, 36) including chocolate; and (b) a hollow container (12) including a wall defining an exterior surface (30) and an interior surface (32), the interior surface (32) defining a hollow portion having a shape which substantially conforms to the three-dimensional shape of the candy (24, 36) for releasably securing the candy (24, 36) within the hollow shape of the container (12), wherein the container (12) includes at least two portions (16, 18) removably secured to one and the other for releasably securing the candy (24, 36), and further wherein the container (12) includes a plastic material (14), such as a thermoformed plastic material.

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PATENT

THERMOFORMED PLASTIC CONTAINER FOR CHOCOLATE**FIELD OF THE INVENTION**

The present invention relates to a thermoformed plastic container for chocolate. More particularly, the present invention relates to a thermoformed plastic container having a chocolate container therein.

BACKGROUND OF THE INVENTION

Certain chocolate or chocolate-containing candies having appealing three dimensional shapes, such as for example chocolate Easter eggs, chocolate Easter bunnies and the like, are typically wrapped in aluminum foil. The foil is removed by the consumer prior to consumption of the candy. During shipment or storage, however, some of the foil may be torn or otherwise displaced to expose the candy, or the candy may be broken as the foil provides little protective supporting for the candy. As a result from about 7 to about 15 percent of foil-wrapped chocolate candies are removed from the marketplace as waste or breakage. Further, such foil-wrapped chocolate candies offer little resistance to product tampering.

Thus, there is a need in the art for a container that avoids the waste or breakage problems associated with foil-wrapped chocolate candies. Further, there is a need in the art for a more tamper-resistant and/or tamper-evident container for chocolate candies.

SUMMARY OF THE INVENTION

The present invention is directed to a more tamper-resistant and/or tamper-evident container for an edible product, such as a candy, more desirably a chocolate or chocolate-containing candy.

In one aspect of the present invention, an article of manufacture is provided. The article includes (a) a three-dimensionally shaped edible candy including chocolate; and (b) a hollow container including a wall defining an exterior surface and an interior surface, the interior surface defining a hollow portion having a shape which substantially conforms to the three-dimensional shape of the candy for releasably securing the candy within the hollow shape of the container, wherein the container includes at least two portions removably secured to one and the other for releasably securing the candy, and further wherein the container includes plastic material. Desirably, the container is sufficiently rigid to maintain its shape when the candy is not present within the hollow portion of the container. Desirably, the container includes a thermoformed plastic material.

The article may further include a living hinge, wherein the at least two portions of the container are secured to one and the other by the living hinge. The at least two portions of the container may be rotatably moveable about the living hinge.

The at least two portions of the container may have edge portions which abuttingly engage one and the other to releasably close the container about the candy. The edge portions may be snap-lockable to one and the other. The snap-lockable feature may be provided by the bias of the living hinge.

The article may further include a removable plastic covering over a portion of the exterior surface of the container. Desirably, the plastic covering is a shrink-wrapped plastic

covering. Substantial portions of the candy may be disposed about 1 mm from the interior surface of the container to avoid possible melting from the shrink wrapping process. Portions of the candy may contact the interior surface of the container at a location or locations distal from the plastic wrapping.

In one embodiment of the present invention, the at least two portions of the container are secured to one and the other by the living hinge. The living hinge is proximal to the location where portions of the candy contact the container body or wall.

The container may be formed from thermoformed plastic material, such as polystyrenes, polypropylenes, polyethylenes, polyethylene terephthalates, polyvinyl chloride polystyrenes, polyvinylidene chlorides, fluoride resins, polycarbonates, polyamides, polyphenylene oxides, and combinations thereof.

Desirably, the container is a thin-walled container having a thickness of less than about 1 mm.

The candy and the hollow portion of the container may be substantially egg-shaped, or the candy and the hollow portion of the container may be substantially animal-shaped, for example in the form of a rabbit. Virtually any shapes are possible, including, but not limited to, heart-shaped and Christmas tree shaped containers.

In another aspect of the present invention a method of releasably securing a candy within a container is provided. The method includes the steps of (a) providing a three-dimensionally shaped edible candy having an outer surface including chocolate; (b) providing a hollow container including a wall defining an exterior surface and an interior surface, the interior surface defining a hollow portion having a shape which substantially conforms to the

three-dimensional shape of the candy for releasably securing the candy within the hollow shape of the container, wherein the container includes at least two portions removably secured to one and the other for releasably securing the candy, and further wherein the container includes a plastic material; (c) securing the candy within the container; and (d) heat wrapping a plastic sleeve over a portion of the exterior surface of the container, wherein the candy within the container is not melted or deformed by elevated temperatures of the heat wrapping. Desirably, the container includes a thermoformed plastic material.

In another aspect of the present invention, an article of manufacture includes (a) a three-dimensionally shaped, heat or moisture sensitive edible product; and (b) a hollow container including a wall defining an exterior surface and an interior surface, the interior surface defining a hollow portion having a shape which substantially conforms to the three-dimensional shape of the edible product for releasably securing the edible product, such as a candy, within the hollow shape of the container, wherein the container includes at least two portions hingeably secured to one and the other for releasably securing the edible product, and further wherein the container includes a plastic material. Desirably, the container includes a thermoformed plastic material.

In still another aspect of the present invention, a method of releasably securing a heat or moisture sensitive edible product within a container includes the steps of (a) providing a three-dimensionally shaped edible heat or moisture sensitive edible product having an outer surface; (b) providing a hollow container including a wall defining an exterior surface and an interior surface, the interior surface defining a hollow portion having a shape which substantially conforms to the three-dimensional shape of the edible product for releasably securing the edible product within the hollow shape of the container, wherein the container includes at least two portions hingeably secured to one and the other for releasably securing

the edible product, and further wherein the container includes a plastic material; (c) securing the edible product within the container; and (c) heat wrapping a plastic sleeve over a portion of the exterior surface of the container, wherein the edible product within the container is not melted or deformed by elevated temperatures of the heat wrapping. Desirably, the container includes a thermoformed plastic material.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side elevational view of a segmented candy container of the present invention having a shrink-wrapped label over portions of the container.

Fig. 2 is a cross-sectional view of the container of Fig. 1 taken along the 2-2 axis.

Fig. 3 is a side elevation view of the container of Fig. 1 without the shrink-wrapped label disposed over the container.

Fig. 4 is an exploded view of the segmented container of Fig. 3 showing placement of a candy within the segmented portions.

Fig. 5 is a side elevation view of the container of Fig. 3 showing a candy, as illustrated by phantom lines, disposed within the container.

Fig. 6A is a side elevational view of a figurine-shaped container of the present invention.

Fig. 6B is a cross-sectional view of the figurine-shaped container of Fig. 6A taken along the 6B-6B axis.

Fig. 6C is a cross-sectional view of the figurine-shaped container of Fig. 6A taken along the 6C-6C axis.

Fig. 7 is a perspective view of an egg-shaped container of the present invention in a closed position.

Fig. 8 is a perspective view of the egg-shaped container of Fig. 7 in a partially open position.

Fig. 9 is a perspective view of the egg-shaped container of Fig. 7 in a fully open position.

Fig. 10 is a perspective view of a mold useful for forming the container of Figs. 7 and 8.

DETAILED DESCRIPTION OF THE INVENTION

The present invention provides a self-supporting, rigidly shaped container for releasably holding a chocolate or chocolate including candy that avoids the disadvantages of prior art foil-wrapped, chocolate candies. The container of the present invention advantageously provides a more secure barrier over the chocolate to provide tamper resistance and to minimize product loss due to container failure.

Fig. 1 is a side elevation view of an article of manufacture **10** which includes a segmented egg-shaped container **12**, a shrink-wrapped sleeve or label **14** disposed over certain exterior portions **30** of the container **12** while not being disposed over other portions **28** of the container **12**, and a candy (not shown), interrelated as shown in Fig. 1. While the container in Fig. 1 is depicted as egg-shaped, the present invention is not so limited and other

shaped containers may suitably be used. Nonlimiting examples of other suitably shaped containers include, but are not limited to, almond-shaped, bell-shaped, bolus-shaped, brick-shaped, cone-shaped, cube-shaped, cylindrical-shaped, donut-shaped, figurine-shaped, heart-shaped, pear-shape, pouch-shaped, pretzel-shaped, pyramid-shaped, ring-shaped, rod-shaped, spherical-shaped, star-shaped, and wedge-shaped containers.

The segmented container **12** includes two half portions **16** and **18** having respective abutting edge portions **20** and **22**. Although the segmented container **12** is depicted as having substantially equal or two half portions **16**, **18**, the present invention is not so limited. The portions **16**, **18** may be of any size or proportionality suitable for ingress and for egress of a candy (not shown) into and out of the container **12**.

Fig. 2 is a cross-sectional view of the article **10** of Fig. 1 taken along the 2-2 axis. Candy **24** is releasably contained within the container **12**. Desirably, the candy **24** is a chocolate or chocolate including candy, for example a chocolate covered confectionary or candy. The exterior portion **34** of the candy **24** is proximally disposed, but spaced apart, from the interior side wall portion **32** of the container **12**. In other words, the exterior portion **34** of the candy **24** is proximally disposed in substantially non-abutting fashion to the interior wall portion **32** of the container **12**. The candy **24** need not be spaced apart from all side wall portions **32** of the container **12**. For example, the candy **24** may abut side wall portions **32** of the container that are not covered by the shrink-wrapped label, for example interior wall portions associated with uncovered exterior container portions **28**. The shrink-wrapped label **14** is disposed in abutting relationship over exterior container portions **30** of the container **12**.

Where the candy is in non-abutting relationship to the container wall, a void or air space **26** is desirably disposed between the exterior portion **34** of the candy **24** and the

interior side wall portion **32** of the container **12**. The air space **26** act as an insulator to prevent melting or partial melting of the candy **24** as heat is applied proximally to exterior portions **30** to fit the shrink-wrap label **14** over the container **12**. Desirably, the air space **26** is small in dimension, such as about 1 mm or less. This dimension is not limiting and other suitable air space **26** dimensions may suitably be used, such as from about 0.1 mm to about 2 mm. Desirably, the shape of the candy **24** substantially matches the shape of the container **12** even though the candy **24** is slightly smaller in dimension than the container **12**.

Fig. 3 depicts the container **12** in a closed position. Desirably, the edge portions **20** and **22** are substantially proximal to one and the other in the closed position. More desirably, the edge portions **20** and **22** are abuttingly disposed or engaged to one and the other. Even more desirably, the edge portions **20** and **22** are releasably snap-locked to one and the other to hold the candy **24** within the container **12**. Such snap-locking may be provided by providing one of the edge portions with outwardly extending protrusions (not shown), such as bead-shaped or the like, and providing the other and opposed edge portion with indentations (not shown) that mateingly engage the protrusions to provide the releasably snap-locking feature for the container of the present invention.

Fig. 4 depicts the container **12** in an open position, revealing the candy **24**. The candy **24** may be easily removed from the container **12** in its open position.

As discussed above, neither the container **12** nor the candy **24** is limited to an egg shape. For example, as depicted in Figs. 6A-6C, the container and/or the candy may be a figurine shape **36**, for example a rabbit shape typical of chocolate rabbit figurines. The configuration of the figurine **36** depicted in Figs. 6A-6C is nonlimiting, and other three-

dimensionally shaped figurines, including truncated and non-truncated shapes, may suitably be used.

Figs. 7 through 9 depict further details of the container **12** of the present invention. In this embodiment, the portions **16** and **18** of the container **12** are joined or secured to one and the other via a living hinge **38**. The living hinge may impart sufficient force to keep the edge portions **20**, **22** of the container portions **16**, **18** in abutting relationship in the closed position as depicted in Fig. 7. The container **12** may also include a flat or otherwise shaped portion **40** near the bottom **42** of container **12**. Such a flat portion **42** may vary in size and shape and is useful for forming the living hinge **38** and also useful for forming a surface for supporting the candy (not shown). As the bottom **42** of the container **12** is not typically covered with the shrink-wrapped label **14**, the bottom **42** of the container **12** may not be subjected to the heat or energy associated with shrink wrapping and accordingly will not heat to an elevated temperature detrimental to the candy **24**. Thus, the bottom **42** is an adequate location for the candy to be abutting the container because the risk of melting the candy is reduced as compared to other portions of the container **12**. The container **12** may be in a closed position, as depicted in Fig. 7, a partially open position, as depicted in Fig. 8, or a fully open position, as depicted in Fig. 9.

The shrink wrapping involves the application of heat or energy to the label **14**, whereby the label abuttingly shrinks to the container **12**. Any source of energy or heat may be used, for example, thermal heat, such as hot air, steam, etc., or radiation, such as infrared frequency (IF) radiation or radio frequency (RF) radiation.

The container **12** may suitably be formed by thermoforming. Thermoforming is the process for shaping thermoplastic sheets into a structured shape through application of heat

and pressure and/or vacuum. The resulting shape may be of any suitable thickness. Desirably, the resulting shape, such as container **12**, is self-supporting. Useful non-limiting thicknesses for the container **12** include a thickness from about 0.001 mm to about 10 mm, desirably, from about 0.01 mm to about 1 mm, more desirably from about 0.1 mm to about 0.5 mm. Useful thermoformable plastic materials include, but are not limited to, polystyrenes, polypropylenes, polyethylenes, polyethylene terephthalates, polyvinyl chloride polystyrenes, polyvinylidene chlorides, fluoride resins, polycarbonates, polyamides, polyphenylene oxides, and the like. Moreover, the plastics may be foamed or non-foamed plastics. Further, the plastics may be transparent, translucent, tinted or colored.

Fig. 10 depicts a mold **42** useful for thermoforming the container **12** of the present invention. The mold cavity **44** substantially matched the container **12** in its fully open position, as depicted in Fig. 9.

The present invention, however, is not limited to the use of thermoformed plastics or thermoforming processes for forming plastic containers, and other methods for shaping plastics may suitably be used. Other suitable plastic shaping processes include, but are not limited to, injection molding, injection blow molding, stretch blow molding, extrusion blow molding and the like. Injection molding is a process which uses force to inject plastic, typically molten or softened plastic, into a hollow mold cavity to form a shaped container. In the injection blow molding process, the plastic material is injection molded onto a core pin, is then indexed to a blow molding station where it is blown against the sides of the mold cavity by air or other compressed gas and cooled. In stretch blow molding, the plastic material is injection molded, then conditioned by stretching and temperature to provide biaxial molecular orientation, and blown into a mold. In extrusion blow molding, the plastic material

is extruded, softened, and blown against the sides of the mold cavity by air or other compressed gas and cooled.

While there have been described what are presently believed to be the preferred embodiments of the invention, those skilled in the art will realize that changes and modifications may be made thereto without departing from the spirit of the invention, and it is intended to include all such changes and modifications as fall within the true scope of the invention.

WHAT IS CLAIMED IS:

1. An article of manufacture (10) comprising:
a three-dimensionally shaped edible candy (24, 36) comprising chocolate; and
a hollow container (12) comprising a wall defining an exterior surface (30) and an interior surface (32), the interior surface (32) defining a hollow portion having a shape which substantially conforms to the three-dimensional shape of the candy (24,36) for releasably securing the candy (24, 36) within the hollow shape of the container (12), wherein the container (12) comprises at least two portions (16, 18) removably secured to one and the other for releasably securing the candy (24, 36), and further wherein the container (12) comprises a plastic material.
2. The article (10) of claim 1, wherein the container (12) is rigid to maintain its shape when the candy (24, 36) is not present within the hollow portion of the container (12).
3. The article (10) of claim 1, further comprising a living hinge (38), wherein the at least two portions (16, 18) of the container (12) are secured to one and the other by the living hinge (38).
4. The article (10) of claim 3, wherein the at least two portions (16, 18) of the container (12) are rotatably moveable about the living hinge (38).
5. The article (10) of claim 1, wherein the at least two portions (16, 18) have edge portions (20, 22) which abuttingly engage one and the other to releasably close the container (12) about the candy (24, 36).

6. The article (10) of claim 5, wherein the edge portions (20, 22) are snap-lockable to one and the other.
7. The article (10) of claim 1, further comprising a removable plastic covering (14) over a portion of the exterior surface (30) of the container (12).
8. The article (10) of claim 7, wherein the plastic covering (14) is a shrink-wrapped plastic covering.
9. The article (10) of claim 8, wherein substantial portions of the candy (24, 36) are disposed about 1 mm from the interior surface (32) of the container (12).
10. The article (10) of claim 9, wherein portions of the candy (24, 36) contact the interior surface (32) of the container (12) at a location (28, 42) distal from the plastic wrapping (14).
11. The article (10) of claim 10, further comprising a living hinge (38), wherein the living hinge (38) is proximal to the location (28, 42) where portions of the candy (24, 36) contact the interior surface (32) of the container (12).
12. The article (10) of claim 1, wherein the plastic material is selected from the group consisting of polystyrenes, polypropylenes, polyethylenes, polyethylene terephthalates, polyvinyl chloride polystyrenes, polyvinylidene chlorides, fluoride resins, polycarbonates, polyamides, polyphenylene oxides, and combinations thereof.

13. The article (10) of claim 1, wherein the plastic is a thermoformed plastic.
14. The article (10) of claim 1, wherein the wall of the container (12) has a thickness of less than about 1 mm.
15. The article (10) of claim 1, wherein the candy (24, 36) and the hollow portion of the container (12) are substantially egg-shaped.
16. The article (10) of claim 1, wherein the candy (24, 36) and the hollow portion of the container (12) are substantially animal-shaped.
17. The article (10) of claim 1, wherein the animal shape is in the form of a rabbit.
18. A method of releasably securing a candy (24, 36) within a container (12), comprising:
 - providing a three-dimensionally shaped edible candy (24, 36) having an outer surface comprising chocolate;
 - providing a hollow container (12) comprising a wall defining an exterior surface (30) and an interior surface (32), the interior surface (32) defining a hollow portion having a shape which substantially conforms to the three-dimensional shape of the candy (24, 36) for releasably securing the candy (24, 36) within the hollow shape of the container (12), wherein the container (12) comprises at least two portions (16, 18) removably secured to one and the other for releasably securing the candy (24, 36), and further wherein the container (12) comprises a plastic material;
 - securing the candy (24, 36) within the container (12); and

heat wrapping a plastic sleeve (14) over a portion of the exterior surface (30) of the container (12), wherein the candy (24, 36) within the container (12) is not melted or deformed by elevated temperatures of the heat wrapping.

19. An article (10) of manufacture comprising:
a three-dimensionally shaped, heat or moisture sensitive edible product (24, 36); and
a hollow container (12) comprising a wall defining an exterior surface (30) and an interior surface (32), the interior surface (32) defining a hollow portion having a shape which substantially conforms to the three-dimensional shape of the edible product (24, 36) for releasably securing the edible product (24, 36) within the hollow shape of the container (12), wherein the container (12) comprises at least two portions (16, 18) hingeably secured to one and the other for releasably securing the edible product (24, 36), and further wherein the container (12) comprises a plastic material.

20. A method of releasably securing a heat or moisture sensitive edible product (24, 36) within a container (12), comprising:

providing a three-dimensionally shaped edible heat or moisture sensitive edible product (24, 36) having an outer surface;

providing a hollow container (12) comprising a wall defining an exterior surface (30) and an interior surface (32), the interior surface (32) defining a hollow portion having a shape which substantially conforms to the three-dimensional shape of the edible product (24, 36) for releasably securing the edible product (24, 36) within the hollow shape of the container (12), wherein the container (12) comprises at least two portions (16, 18) hingeably secured to one and the other for releasably securing the edible product (24, 36), and further wherein the container (12) comprises a plastic material;

securing the edible product (24, 36) within the container (12); and

heat wrapping a plastic sleeve (14) over a portion of the exterior surface (30) of the container (12), wherein the edible product (24, 36) within the container (12) is not melted or deformed by elevated temperatures of the heat wrapping.

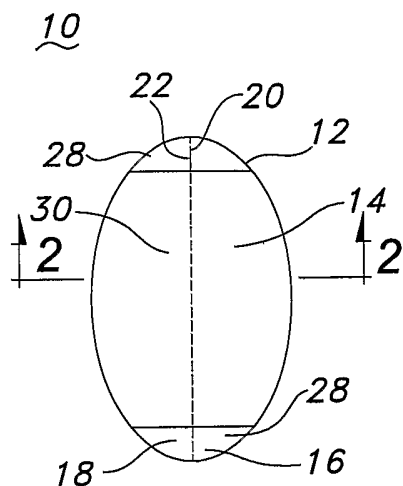
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FIG. 1

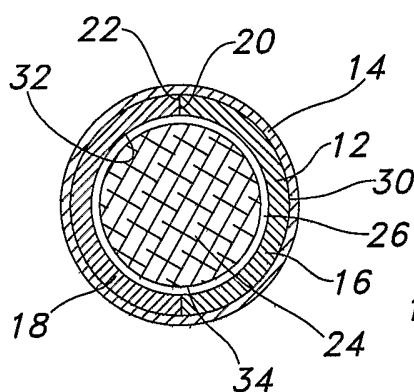


FIG. 2

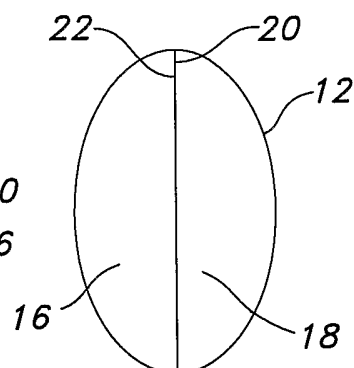


FIG. 3

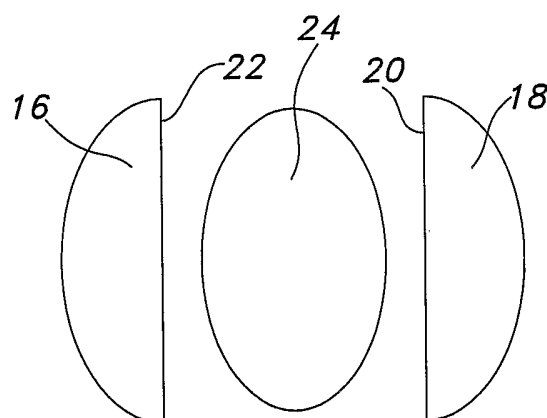


FIG. 4

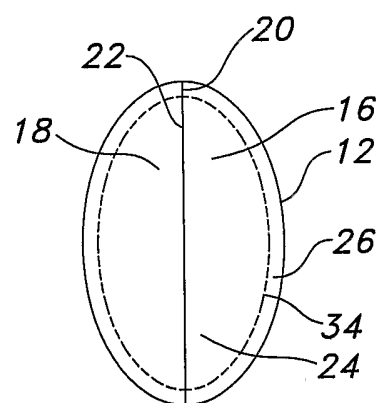


FIG. 5

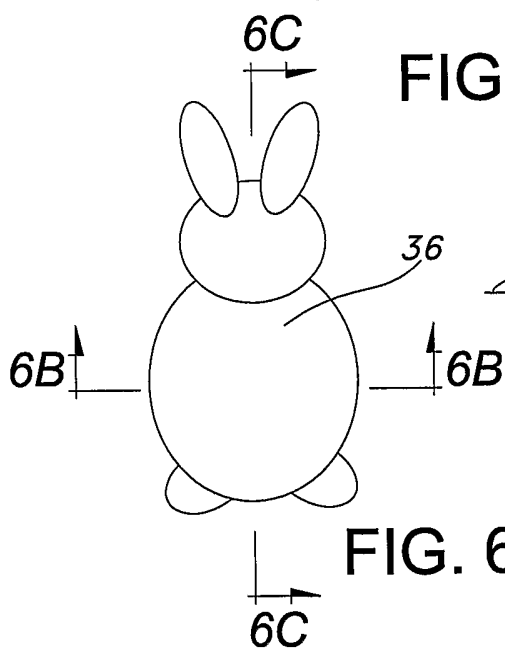


FIG. 6A

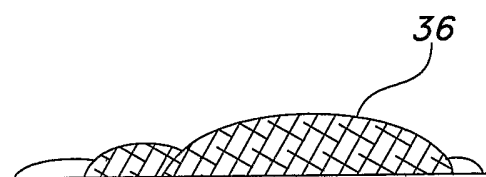


FIG. 6C



FIG. 6B

