US 20100021090A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0021090 A1**

(43) **Pub. Date: Jan. 28, 2010**

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(54) **REUSABLE BAG FOR FOOD STORAGE**

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(21) Appl. No.: **12/179,022**

(22) Filed: **Jul. 24, 2008**

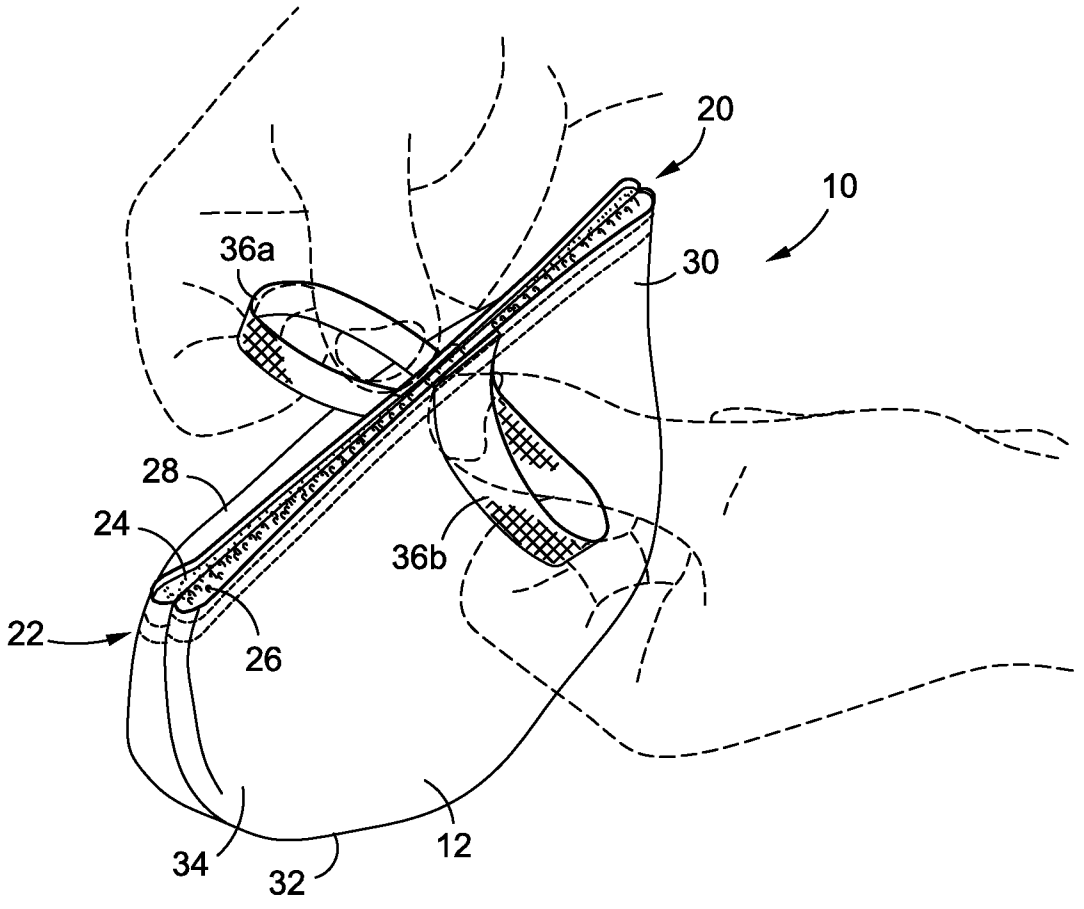
Publication Classification

(51) **Int. Cl.**
B65D 33/16 (2006.01)
B65D 30/08 (2006.01)
B65D 30/04 (2006.01)

(52) **U.S. Cl.** **383/42**; 383/116; 383/117

(57) **ABSTRACT**

The present invention is directed to a reusable bag for food storage. The reusable bag has a nylon shell defining an interior compartment for receiving a food item, and an interior surface. The reusable bag also has a polymer-containing coating that at least partially covers the interior surface of the nylon shell. The polymer-containing coating is of the type that is suitable for contacting and handling the food item, and in one embodiment is formed of a liquid silicone rubber. The reusable bag advantageously provides for suitable food storage while also being durable and washable to allow repeated re-use of the bag.



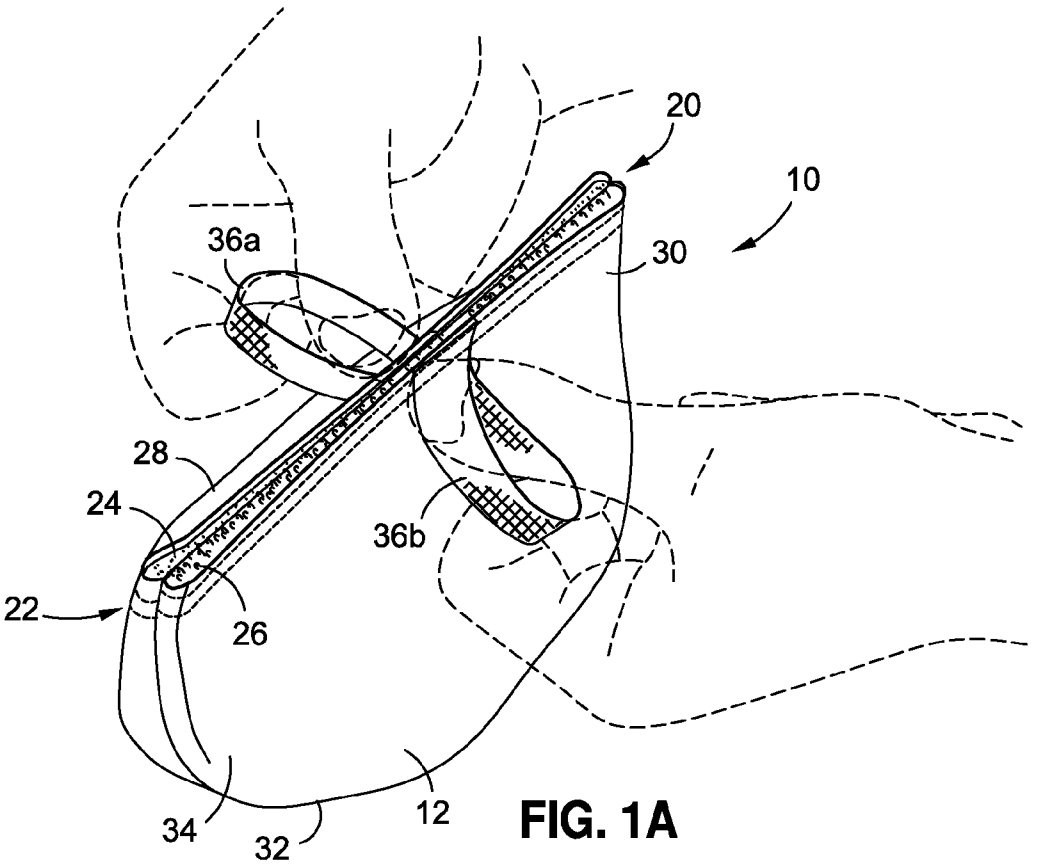

20
10
36a
30
28
24
36b
22
26
34
32
12

FIG. 1A

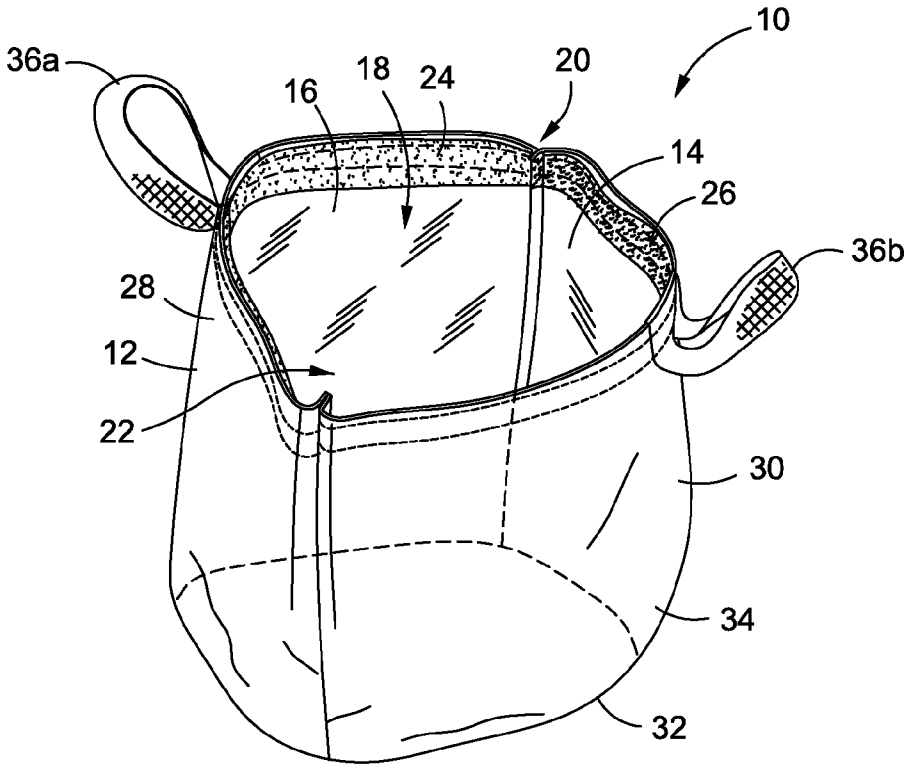

10
36a
16
18
24
20
14
26
36b
28
12
22
30
34
32

FIG. 1B

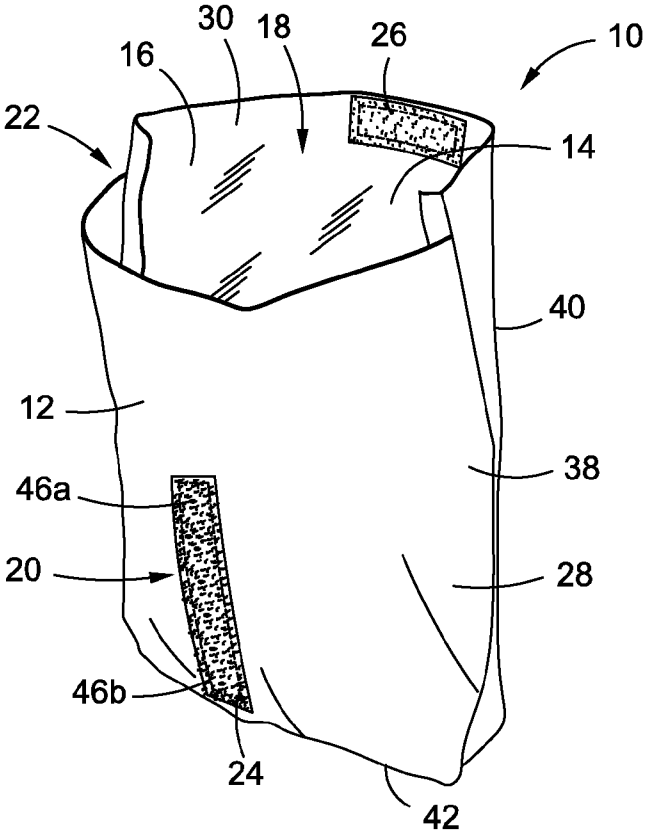

30
18
26
10
16
22
14
40
12
38
46a
20
28
46b
24
42

FIG. 2A

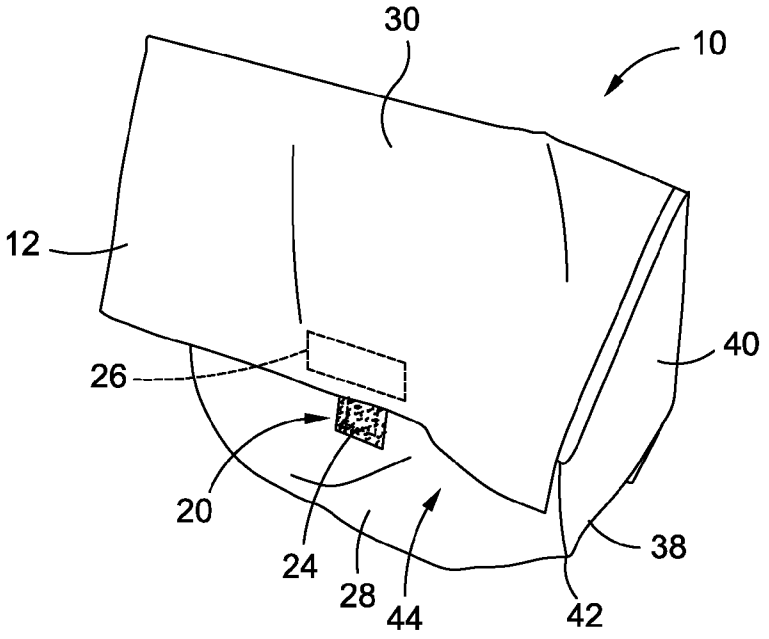

30
10
12
40
26
20
38
24
28
44
42

FIG. 2B

REUSABLE BAG FOR FOOD STORAGE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable.

STATEMENT RE: FEDERALLY SPONSORED RESEARCH/DEVELOPMENT

[0002] Not Applicable

BACKGROUND OF THE INVENTION

[0003] 1. Technical Field

[0004] The present invention relates generally to bags suitable for the storage and transport of food. More particularly, the present invention is directed to a reusable storage bag that is suitable for contacting and handling food, while also providing properties such as washability and durability that allow for continued re-use thereof.

[0005] 2. Related Art

[0006] Sandwich bags are well known in the art as being suitable articles for the storage of food. Examples of such bags include the well-known Ziploc® bags, which are typically in the form of resealable plastic zipper bags. Such bags are often used for short term storage and transport of food, such as in lunch bags, and may also optionally be used for more long-term storage of food and food items. The storage bags come in a wide variety of sizes to accommodate different types and quantities of food and other items. The bags provide a convenient means of containing food items for storage and transport that protects the food items from the environment, while also advantageously reducing the incidence of leakage of the food contents from the bag.

[0007] However, a problem with conventional food storage bags is that, due to sanitary reasons, they are typically considered to be only minimally re-usable. This is because food items stored in the bag typically leave behind food residues that can be difficult and inconvenient to clean from the food bags. While the bags can be washed by hand, the thin plastic layers that make up most conventional sandwich are not suited for machine washing, making washing of the bags inconvenient and undesirable to most users. Thus, the food storage bags are often disposed of after only a single or few uses. In the past, the relative inability to re-use the food storage bags has not been much of a problem to many consumers who value the bags' "disposability." However, as the public becomes aware of the need for environmentally friendly products, the disposal of such bags after a single or only a few uses is increasing viewed as wasteful and even environmentally harmful, and more consumers are seeking out alternative products that are reusable and thus more environmentally friendly.

[0008] Yet another problem with conventional food storage bags is that the relatively thin plastic layers typically used to form the bags have limited durability, and can readily puncture or rip if abraded or contacted with a sharp object. This susceptibility of the food storage bags to puncturing or ripping further limits the re-usability of conventional food storage bags. Furthermore, while more durable and/or washable materials are conventionally used for the transport of non-food items, such as synthetic or natural fabrics used in the fabrication of totes or purses, such materials are typically not suitable for contacting and/or handling food. For example, porous fabrics may undesirably absorb or leak food, and certain conventional materials may even contaminate food items upon contact therewith, rendering them unsuitable for use in the storage of food items.

[0009] Accordingly, there remains a need in the art for food storage bags, such as sandwich bags, that are re-usable to provide a more environmentally friendly food storage product. In particular, there is a need for food storage bags that are readily washable and/or that have increased durability to promote re-use thereof, while also being suitable for contact with and/or handling of food items.

BRIEF SUMMARY OF THE INVENTION

[0010] The present invention specifically addresses and alleviates the above-identified deficiencies in the art. In this regard, the present invention is directed to a reusable bag for food storage. The reusable bag has a nylon shell defining an interior compartment for receiving a food item, and an interior surface. The reusable bag also has a polymer-containing coating that at least partially covers the interior surface of the nylon shell. The polymer-containing coating is of the type that is suitable for contacting and handling the food item, and in one embodiment is formed of a liquid silicone rubber. The reusable bag advantageously provides for suitable food storage while also being durable and washable to allow repeated re-use of the bag.

[0011] The present invention is best understood by reference to the following detailed description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] These as well as other features of the present invention will become more apparent upon reference to the drawings wherein:

[0013] FIGS. **1**A-**1**B are a schematic front views of an embodiment of a reusable bag for food storage according to the invention; and

[0014] FIGS. **2**A and **2**B are schematic front views of another embodiment of a reusable bag for food storage according to the invention.

[0015] Common reference numerals are used throughout the drawings and detailed description to indicate like elements.

DETAILED DESCRIPTION OF THE INVENTION

[0016] The detailed description set forth below is intended as a description of the presently preferred embodiment of the invention, and is not intended to represent the only form in which the present invention may be constructed or utilized. The description sets forth the functions and sequences of steps for constructing and operating the invention. It is to be understood, however, that the same or equivalent functions and sequences may be accomplished by different embodiments and that they are also intended to be encompassed within the scope of the invention.

[0017] Reusable food storage bags **10** have been discovered that are suitable for multiple reuse. The reusable bags **10** are readily washable, such as machine-washable, to allow for easy cleaning of the bags **10** to prepare them for reuse. The reusable bags **10** also have improved durability to reduce the likelihood and extent of deterioration of the bags **10**. The reusable bags **10** thus provide a convenient and environmentally friendly means of safely storing food items. Food items stored in the reusable bags **10** can include any of those stored

in conventional sandwich and/or freezer bags, including but not limited to sandwiches, fruits and vegetables, snacks, and the like. It should furthermore be noted that the reusable bags **10** are not limited to the storage of food items, and can also advantageously be used for the storage of non-food items such as household items.

[0018] One embodiment of a reusable bag **10** according to the invention is depicted in FIGS. **1**A-**1**B. The reusable bag **10** comprises a shell **12** that defines an interior compartment **14** for receiving the food item. The shell **12** is preferably formed of a relatively durable and washable material, such as for example a natural or synthetic woven or unwoven material. In a preferred embodiment the shell **12** is formed of nylon, which is a synthetic material formed from polyamide polymers as known to those of ordinary skill in the art. Nylon materials have many advantages in that they have high abrasion resistance and durability, and are resistant to mold and fungi. Nylon materials are also readily washable, and may even be provided in a machine washable form. The nylon shell **12** can comprise various shapes, sizes and configurations according to the type of food item to be stored therein, including but not limited to sandwich bag and/or a freezer bag shapes.

[0019] The reusable bag **10** further comprises a polymer-containing coating **16** that at least partially covers an interior surface **18** of the shell **12**, and that is suitable for contacting and handling the food item, such as to render the bag **10** suitable for use in food storage. In one version, the polymer-containing coating **16** comprises a silicone-containing coating, such as a liquid silicone rubber. For example, a suitable silicone-containing coating may comprise the product sold as Elastosil® LR 6294 A/B, which is a liquid silicone rubber developed by Wacker Silicones Corp. This silicone rubber product has been determined by the FDA to meet food contact suitability criteria by being suitable for repeated food contact use as indicated in Food Contact Title 21 CFR 177.2600 (Rubber Articles for Repeated Use). In particular, the Wacker silicone rubber product has been determined to be suitable under this title for a number of different types of foods, including but not limited to aqueous products including acid or nonacid products, dairy products including water-in-oil and oil-in-water emulsions that are high or low-fat, low-moisture fats and oils, beverages containing up to or more than 8 percent of alcohol or nonalcoholic beverages, bakery products including moist bakery products with a surface containing free fat or oil or containing no free fat or oil, and dry solids with a surface containing free fat or oil or containing no free fat or oil. The silicone rubber product is also suitable for various different types of food storage conditions, including but not limited to high temperature heat-sterilized, boiling water sterilized, hot filled or pasteurized above or below 150° F., room temperature filled and stored, refrigerated storage, frozen storage, ready-prepared foods intended to be reheated in container at time of use, and cooking at temperatures exceeding 250° F. The coating **16** covers at least those portions of the interior shell surface **18** that contact the food item to provide an appropriate surface for handling the food, and even preferably covers substantially the entire interior surface **18** of the shell **12**. The bag **10** can thus be understood to advantageously combine the durability and washability of the bag shell **12**, with the suitable food handling/contacting properties of the interior coating **16**, to provide a bag **10** that is capable of being reused multiple times for the safe and secure storage of food items.

[0020] The reusable bag **10** as shown in FIGS. **1**A-**1**B further comprises one or more closure means **20** operative to open and close the interior compartment **14**, such as when removing a food item from, or placing a food item into, the interior compartment **14**. The closure means **20** can comprise any of those conventionally used in the art to close storage or other bags, including but not limited to closures of the hook and loop type (i.e. Velcro™), slidable closures (i.e. Ziploc® closures), snaps, buttons, magnets, zippers, and the like, and may be located about the opening **22** to the interior compartment **14**. The more durable shell **12** provided as a part of the reusable bag **10** also advantageously allows for the use of closure means **20** that are typically not used or that are difficult to incorporate conventional plastic sandwich and/or freezer bags. For example, the shell **12** may provide a sufficiently durable framework for the incorporation of Velcro™, snaps, buttons and/or zippers that are otherwise unsuitable for use with the thin plastic layers typically used with conventional bags. In the embodiment as shown in FIG. **1**, the closure means **20** comprises a hook and loop type closure (i.e. Velcro™), with a first closure strip **24** being attached to a first side **28** of the shell interior surface **18**, and a second closure strip **26** being attached to the opposing second side **30** of the shell interior surface **18**, the first and second strips **24**, **26** being complimentary to one another such that the strips grasp each other upon closure of the shell opening **22**.

[0021] The configurations of the reusable bag embodiments shown in FIGS. **1**A-**1**B and **2**A-**2**B will now be described in more detail. As shown in FIGS. **1**A-**1**B, the nylon shell **12** comprises a bottom panel **32** and surrounding side panels **34** that are sewn into the bottom panel **32** and to each other. The nylon shell **12** thus comprises an overall cylindrical configuration that is other than that typically provided in conventional sandwich bags, and that provides an increased interior compartment volume for the storage of food items. In the version shown, the closure means **20** is of the hook and loop variety, as discussed above, and the shell **12** may also advantageously be provided with grasping loops **36***a*, **36***b* or straps on opposing exterior sides of the shell **12**, to aid in opening of the bag **10** for insertion/removal of food items.

[0022] In the version shown in FIGS. **2**A-**2**B, the nylon shell **12** comprises a single panel **38** of material folded back upon itself and sewn together along the sides **40** and bottom **42** to form a pouch-like bag **10**. The nylon shell **12** also comprises a closure means **20** of the hood and loop variety as in FIGS. **1**A-**1**B, with the closure means differing from that shown in FIGS. **1**A-**1**B in that the first closure strip **24** comprises a vertically oriented strip attached to a first side **28** of the shell **12** on a shell exterior surface **44**, and the second closure strip **26** comprises a complimentary strip attached to an opposing second side **30** of the shell on the shell interior surface **18**, and towards the shell opening **22**. Folding the second side **30** over the first side **28** thus brings the first and second strips **24**, **26** in contact and closes the reusable bag **10**. In this embodiment, the second strip **26** may be folded to contact the first strip **24** at a vertical height along the strip **24** that is selected to provide a desired interior compartment size. For example, the second strip **26** may be placed in contact with the top **46***a* of the first strip **24** to provide a larger interior compartment size, or may be placed in contact with the bottom **46***b* of the first strip **24** to provide a smaller interior compartment size.

[0023] Thus, the improved reusable bag **10** provides significant advantages over conventional food storage bags. The reusable bag **10** is preferably made of materials, such as nylon, that are readily washable, and even machine washable. The reusable bag **10** also exhibits improved durability and abrasion resistance, and thus can be fabricated in non-conventional configurations and with closure means **20** that are other than those typically used for conventional plastic storage bags. The reusable bag **10** also provides the advantages of conventional storage bags in that the reusable bag is food-safe, and thus suitable for handling and storing food, and can be used for freezing, transporting or otherwise storing food items as well as other storable items. Thus, the reusable bag **10** advantageously combines durability and washability with the ability to store food items, thus rendering the bag **10** capable of being washed and re-used multiple times to provide a convenient and environmentally friendly means of storing food and other items.

[0024] Additional modifications and improvements of the present invention may also be apparent to those of ordinary skill in the art. Thus, the particular combination of components and steps described and illustrated herein is intended to represent only certain embodiments of the present invention, and is not intended to serve as limitations of alternative devices and methods within the spirit and scope of the invention. Along these lines, it should be understood that the reusable bag can comprise sizes, shapes and configurations other than those specifically shown, and may take any of a variety of forms that are known or later developed in the art, and further contemplates that existing or newly formed storage bag forms, should fall within the scope of the present invention. Also, it should be understood that the closure means can be other than that specified. Furthermore, the bag shell **12** and interior coating **16** can further comprise various different materials that are other than those specifically described, such as combinations of nylon with other materials, and coatings comprising alternative, food safe, polymeric coatings.

What is claimed is:

1. A reusable bag for food storage comprising:

(a) a nylon shell defining an interior compartment for receiving a food item, the nylon bag comprising an interior surface; and

(b) a polymer-containing coating at least partially covering the interior surface of the nylon shell, the polymer-containing coating being suitable for contacting and handling the food item.

2. The reusable bag according to claim **1**, wherein the polymer-containing coating comprises a silicone-containing coating.

3. The reusable bag according to claim **1**, wherein the silicone-containing coating comprises a liquid silicone rubber.

4. The reusable bag according to claim **1**, wherein the polymer-containing coating covers portions of the interior surface that contact the food item.

5. The reusable bag according to claim **4**, wherein the polymer-containing coating covers substantially the entire interior surface of the nylon shell.

6. The reusable bag according to claim **1**, wherein the nylon shell further comprises one or more closure means attached thereto operative to close the interior compartment.

7. The reusable bag according to claim **6** wherein the closure means comprises at least one of a hook and loop closure, slidable closure, snaps, and magnets.

8. The reusable bag according to claim **1**, wherein the nylon shell is in the shape of a sandwich bag.

9. The reusable bag according to claim **1**, wherein the bag is machine-washable.

10. A method of storing a food item, the method comprising:

(a) providing the reusable bag of claim **1**;

(b) inserting the food item into the interior compartment of the bag; and

(c) closing the bag.

* * * * *