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(54) **DISPENSING SYSTEM FOR SANITARY TISSUE PRODUCTS**

(71) Applicant: **The Procter & Gamble Company**, Cincinnati, OH (US)

(72) Inventors: **Jerry Ray Stephens**, Hamilton, OH (US); **Stephanie Moy Pianfetti**, Anderson Township, OH (US); **Paul Joseph Coffaro**, Cincinnati, OH (US)

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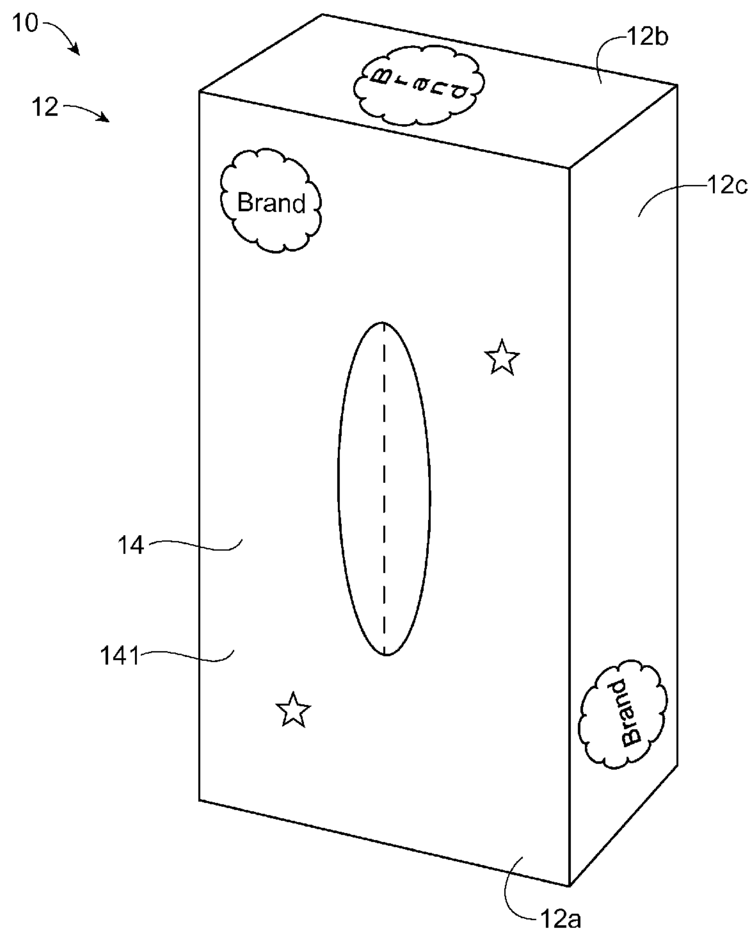
(57) **ABSTRACT**

A dispensing system for a plurality of sanitary tissue products is provided. The dispensing system includes a soft-sided package made of a outer wrap having a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or less. The system optionally comprises a sleeve that substantially surrounds the soft-sided package and is made of a material that has greater rigidity than the outer wrap of the soft-sided package. The sleeve includes indicia in a reading orientation. Both the soft-sided package and the sleeve have a height dimension and both may be oriented vertically. The height of the sleeve can be less than the height of the package. The dispensing system may also include a substantially horizontal shelf and a portion of the sleeve may be in contacting relationship with the shelf.



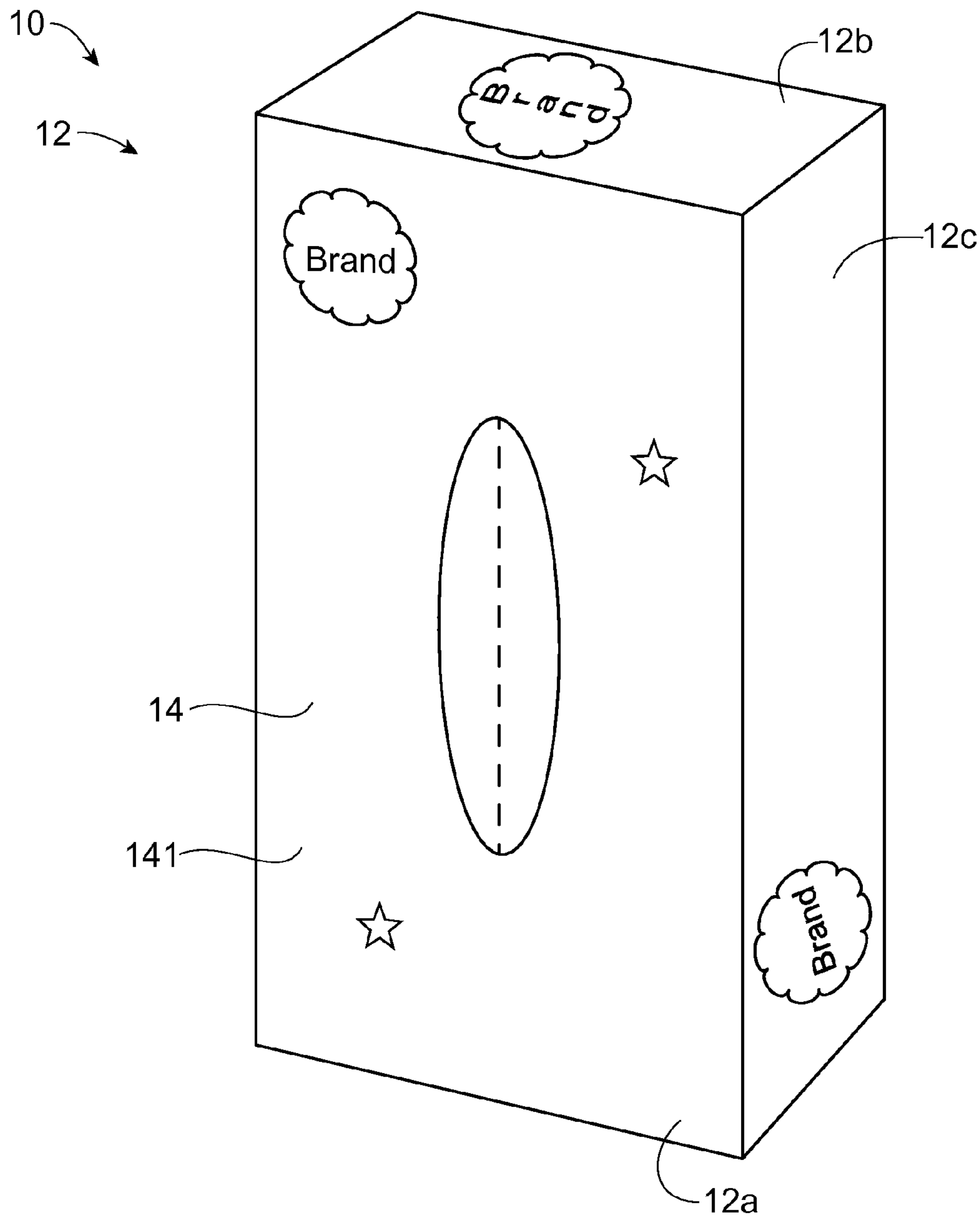


Fig. 1

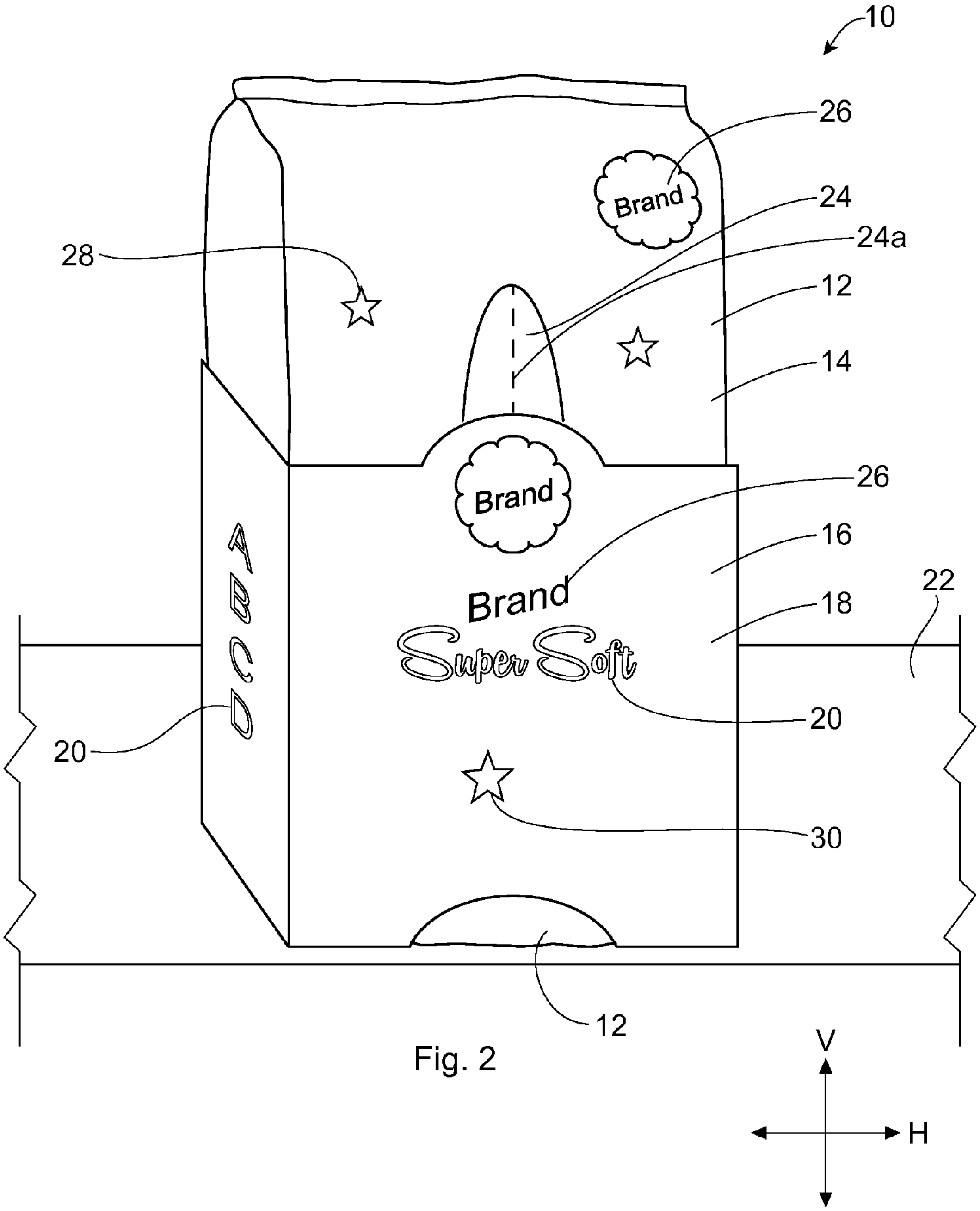

10
26
Brand
24
24a
28
12
14
Brand
26
16
A
B
C
D
Brand
18
22
Super Soft
20
20
30
12
V
H

Fig. 2

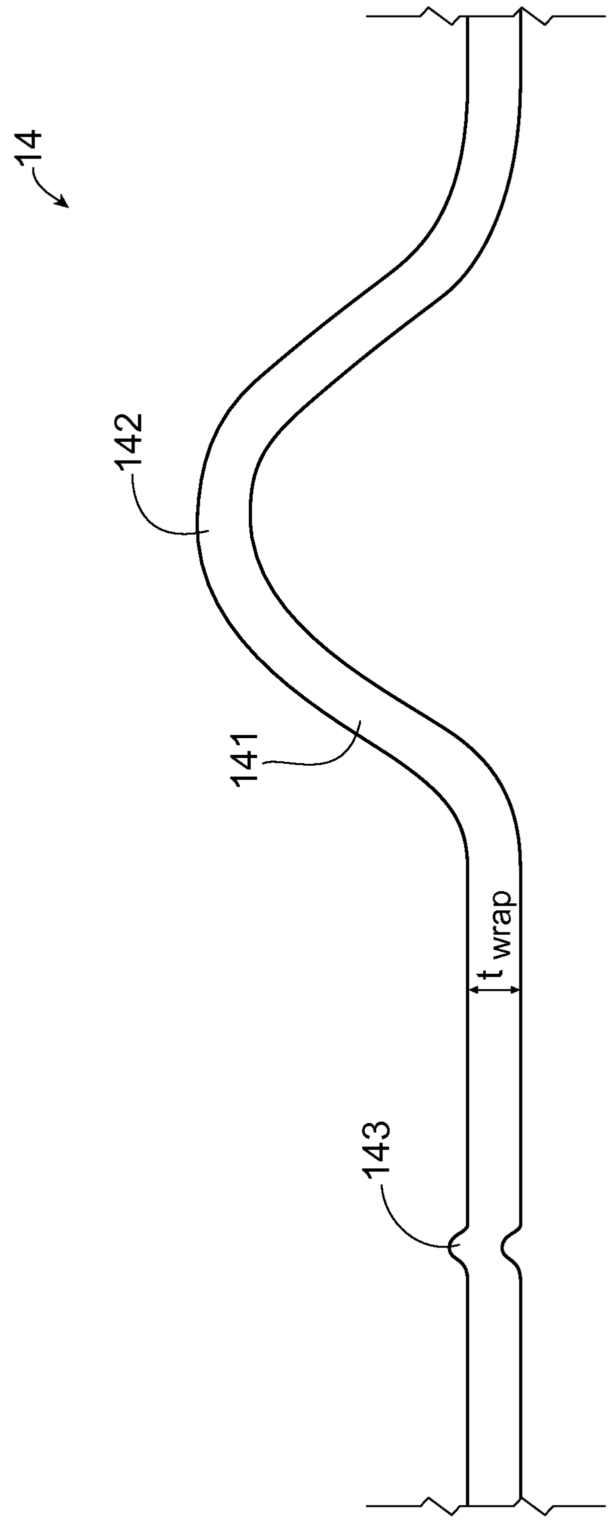


Fig. 3

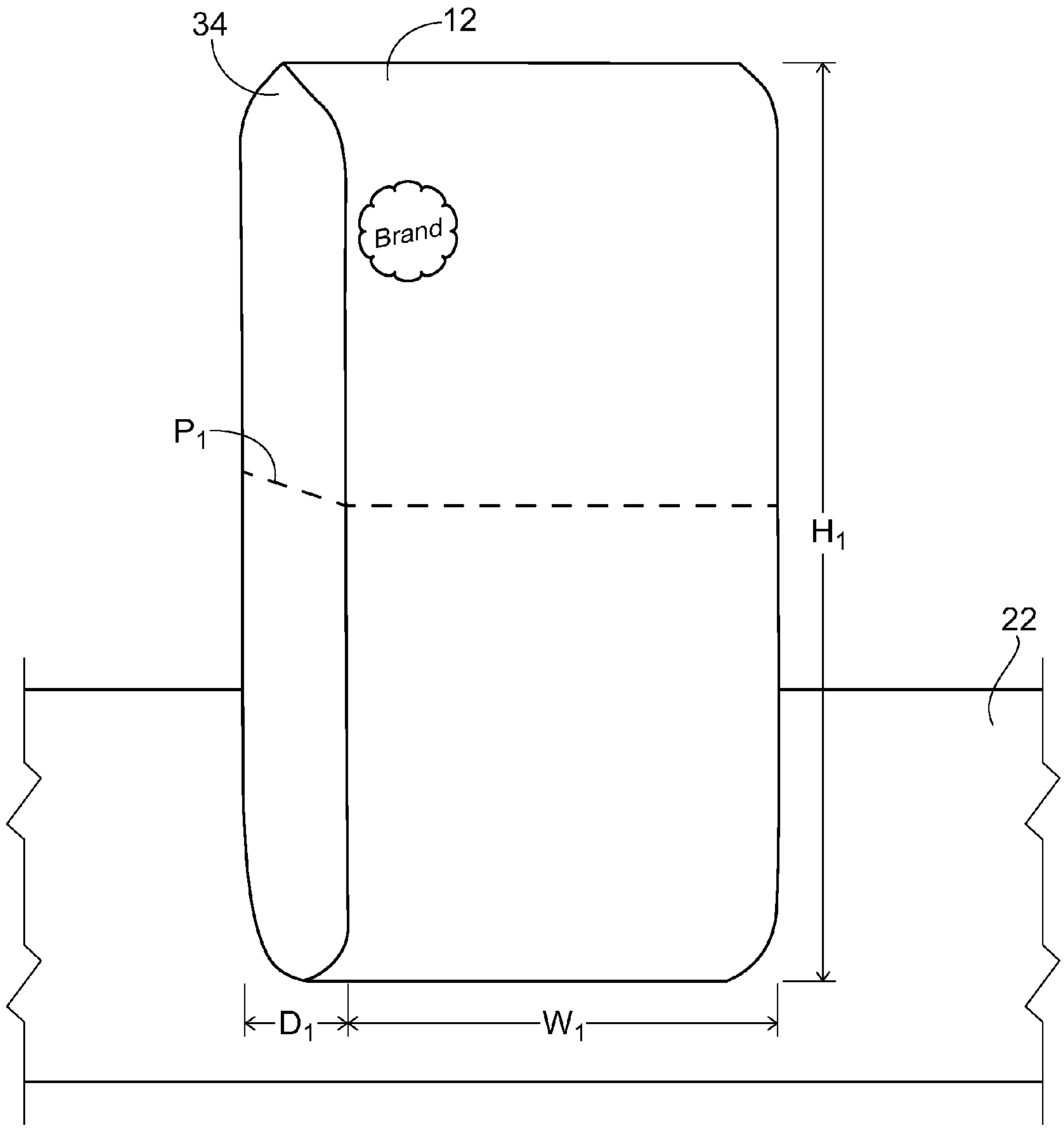


Fig. 4

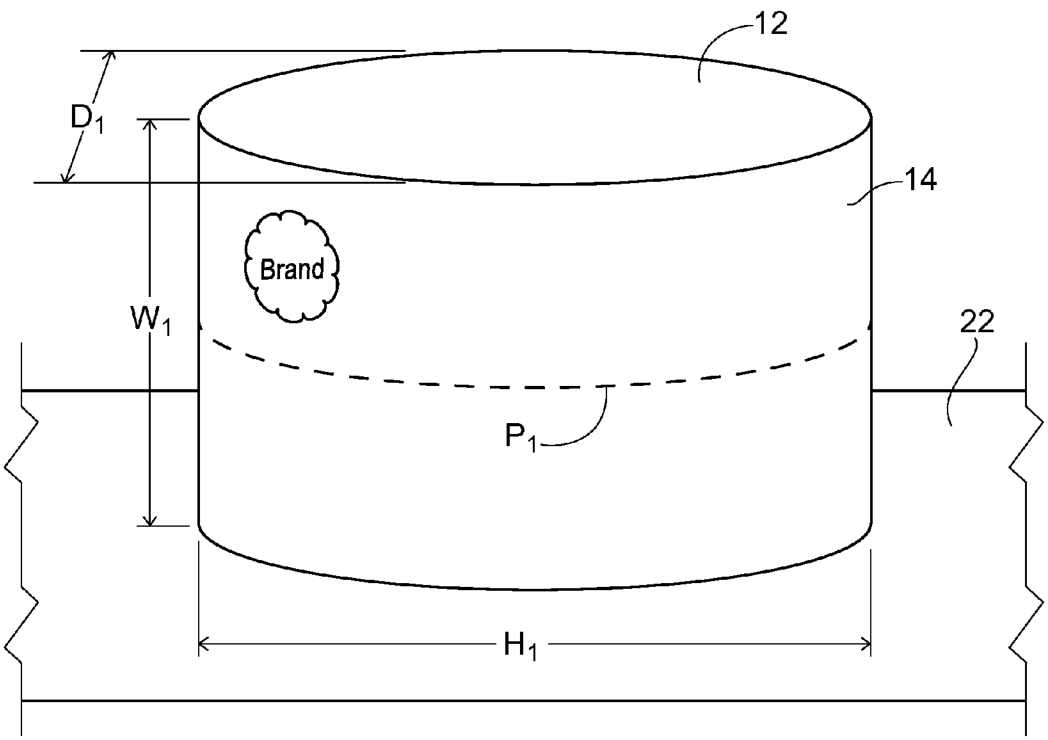


Fig. 5

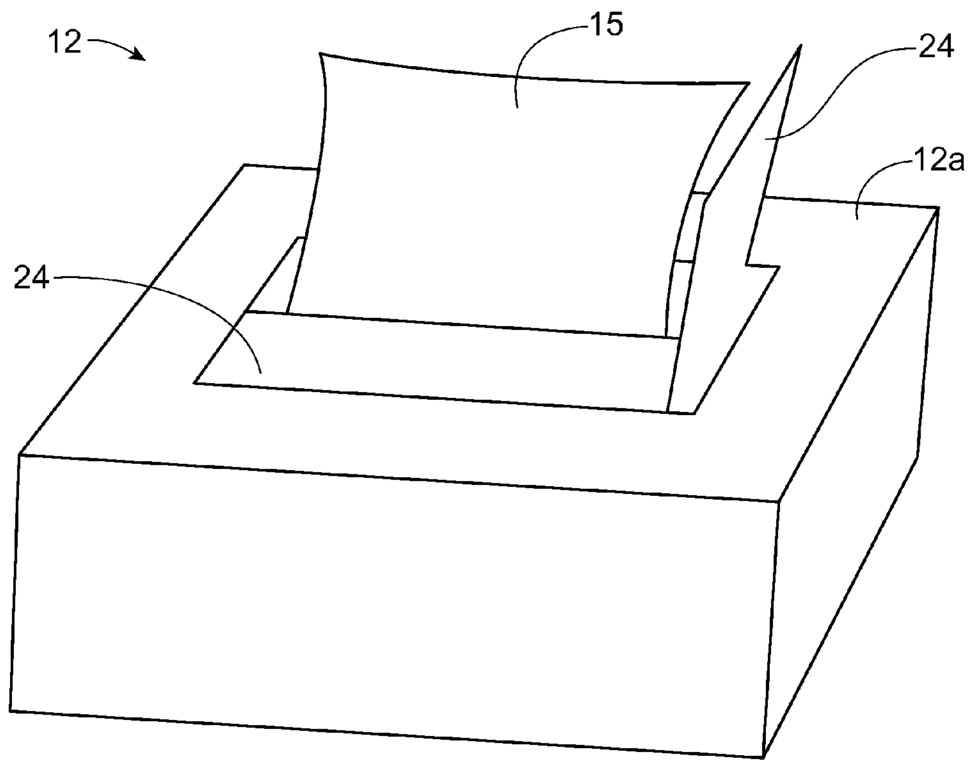


Fig. 6

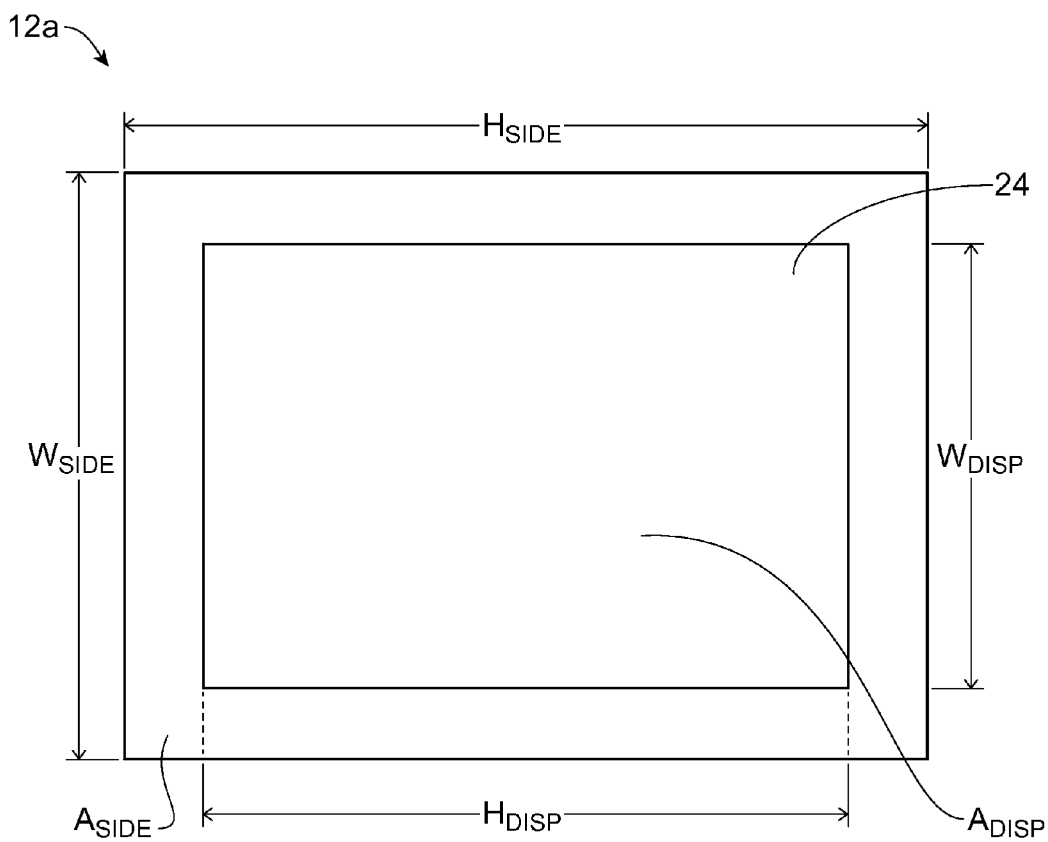


Fig. 7

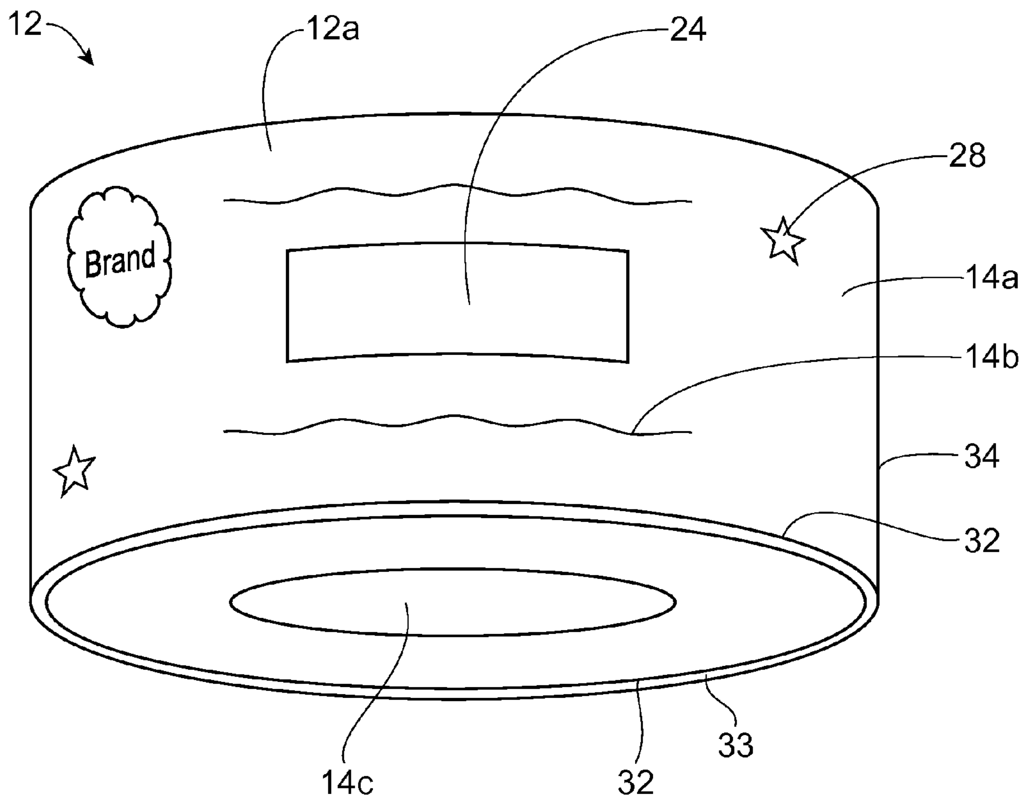


Fig. 8

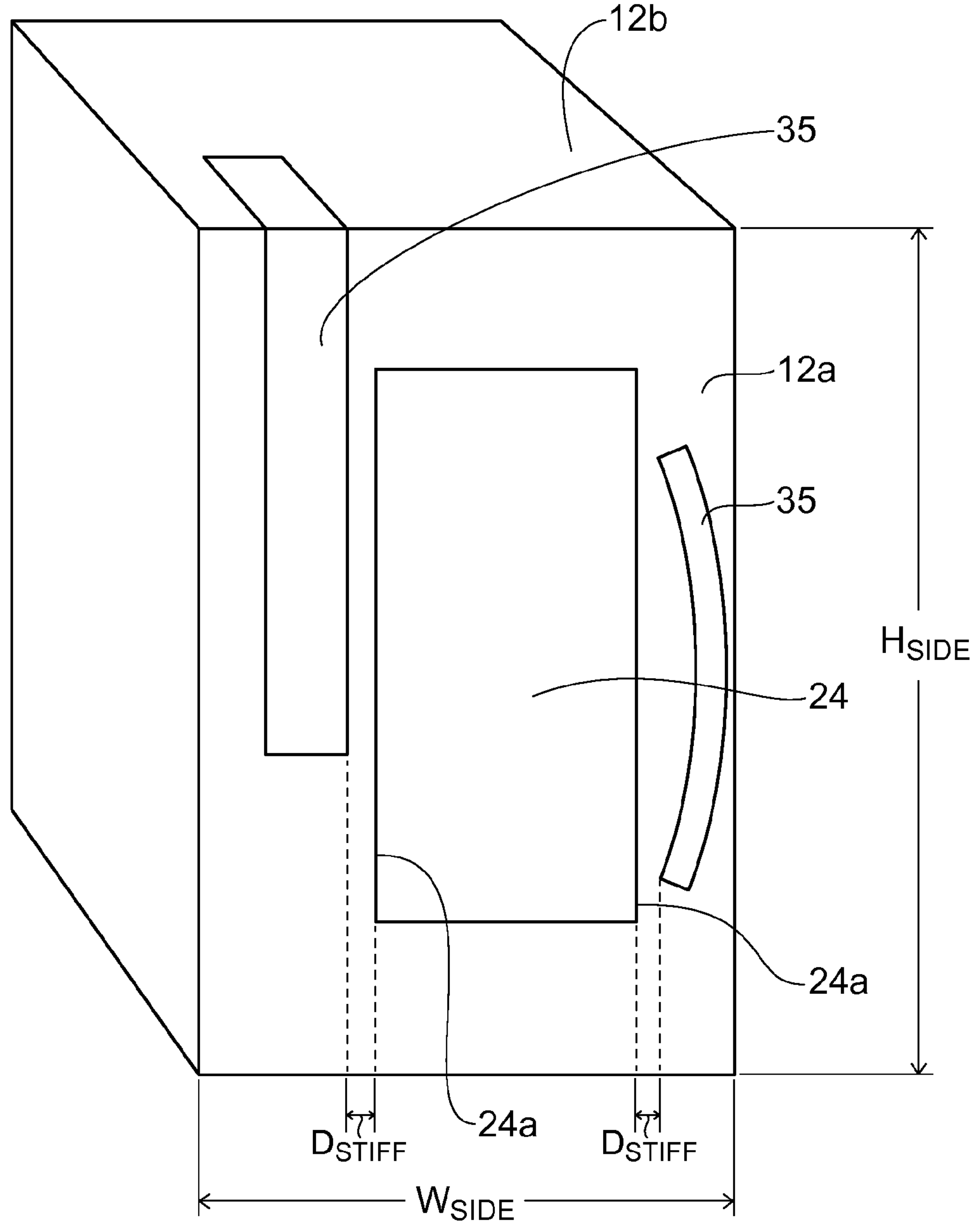


Fig. 9

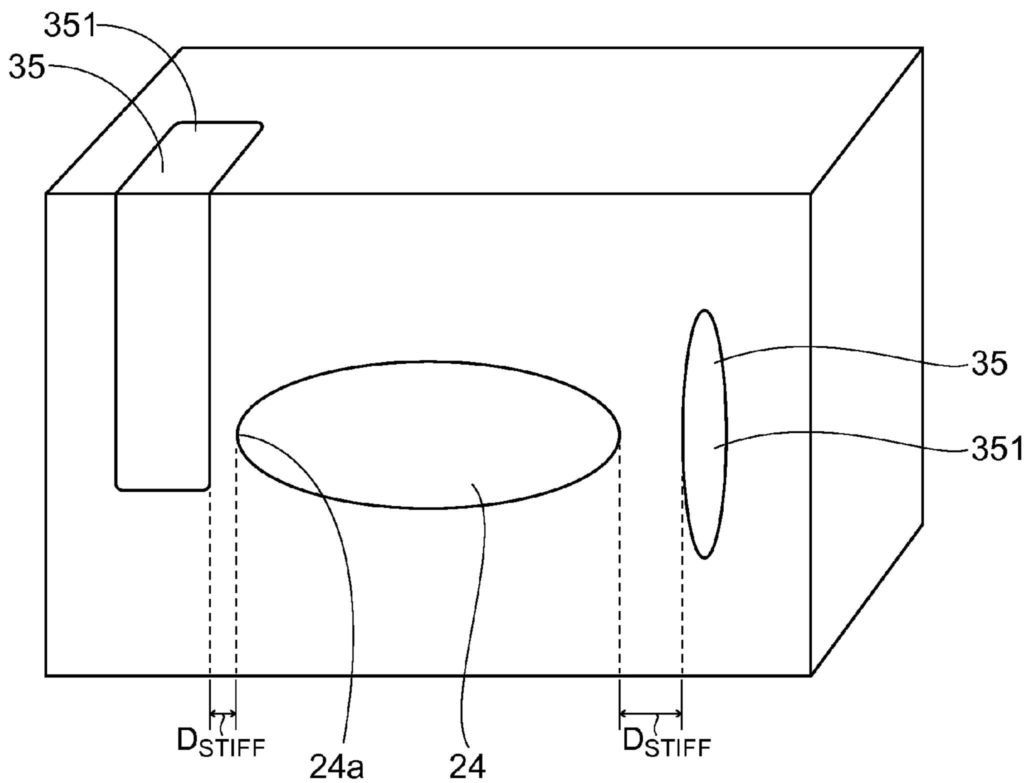


Fig. 9A

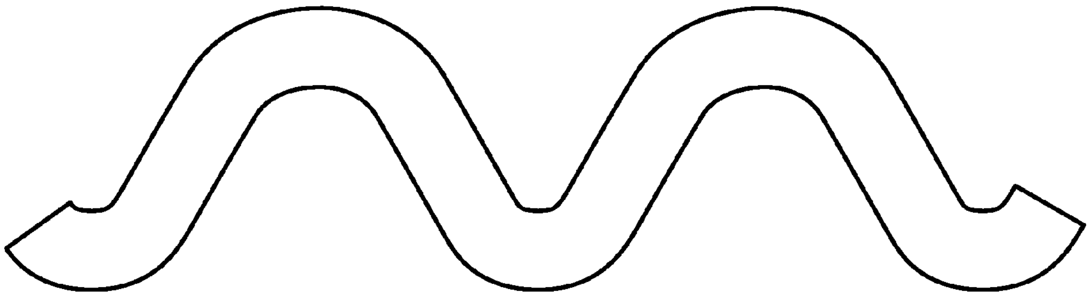


Fig. 9B

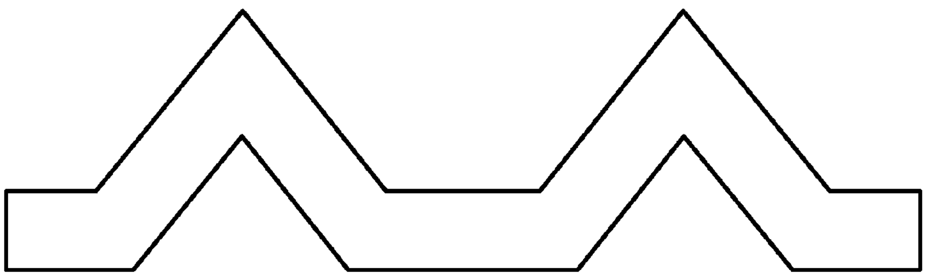


Fig. 9C

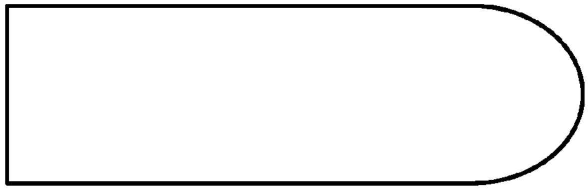


Fig. 9D

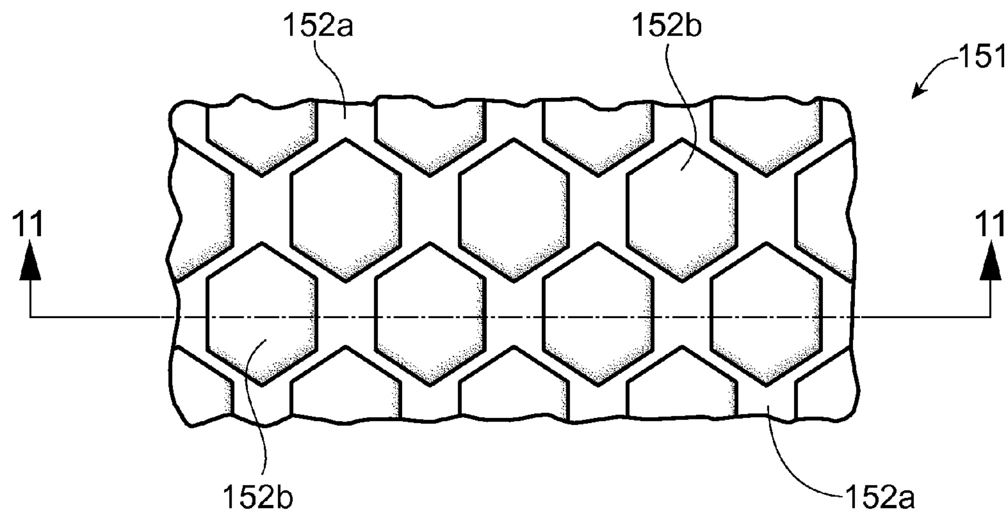


Fig. 10

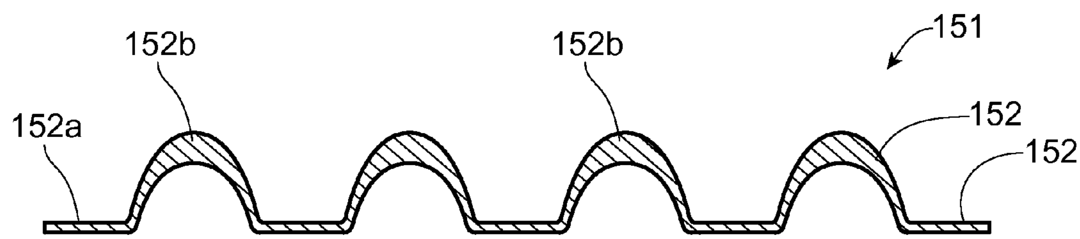


Fig. 11

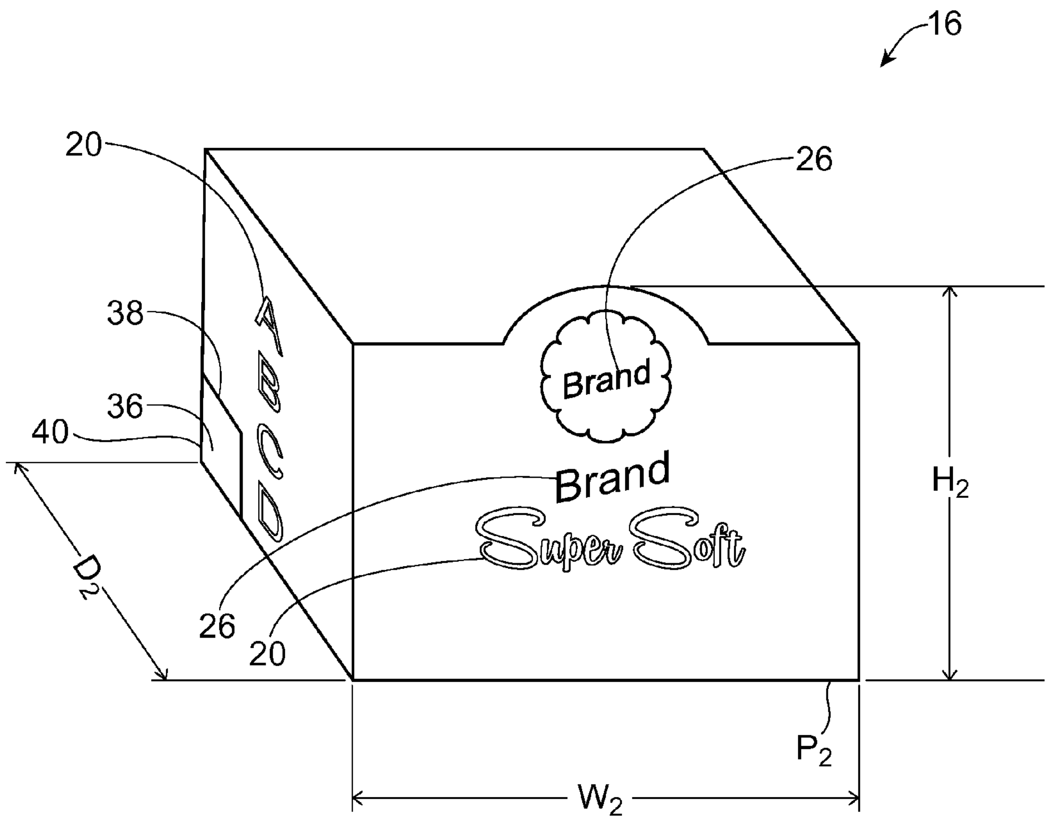


Fig. 12

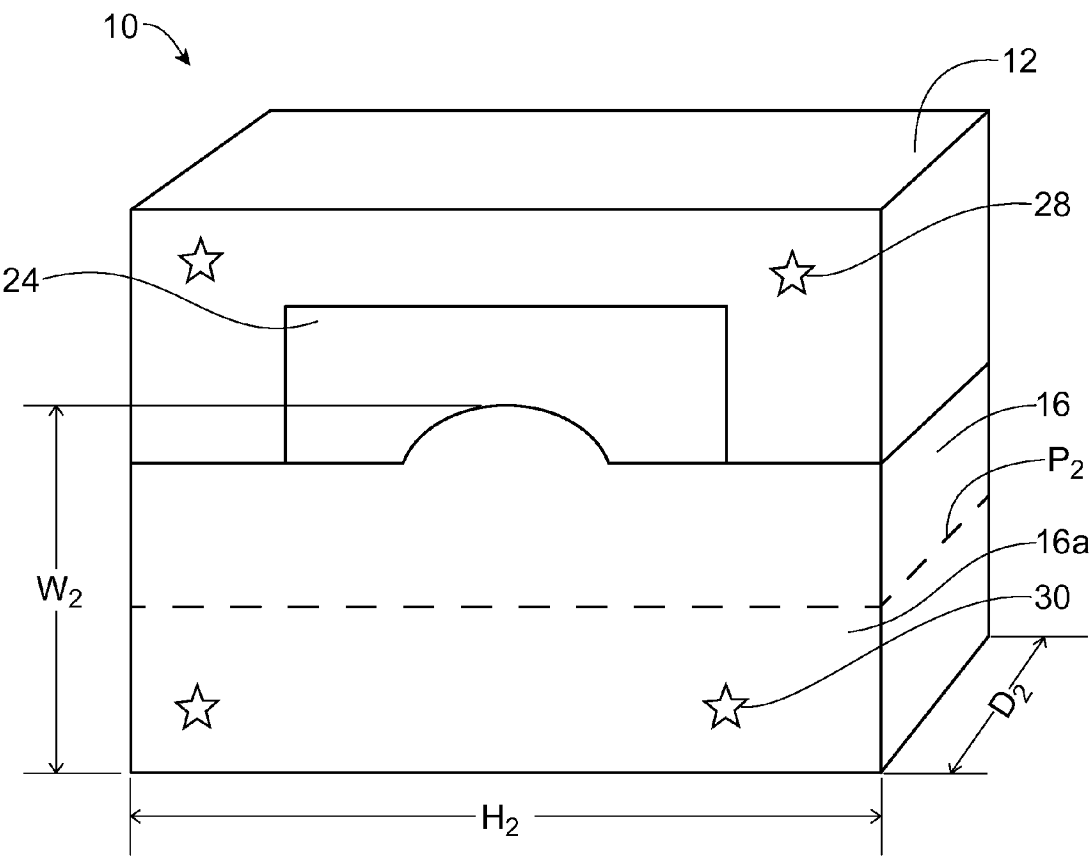


Fig. 13

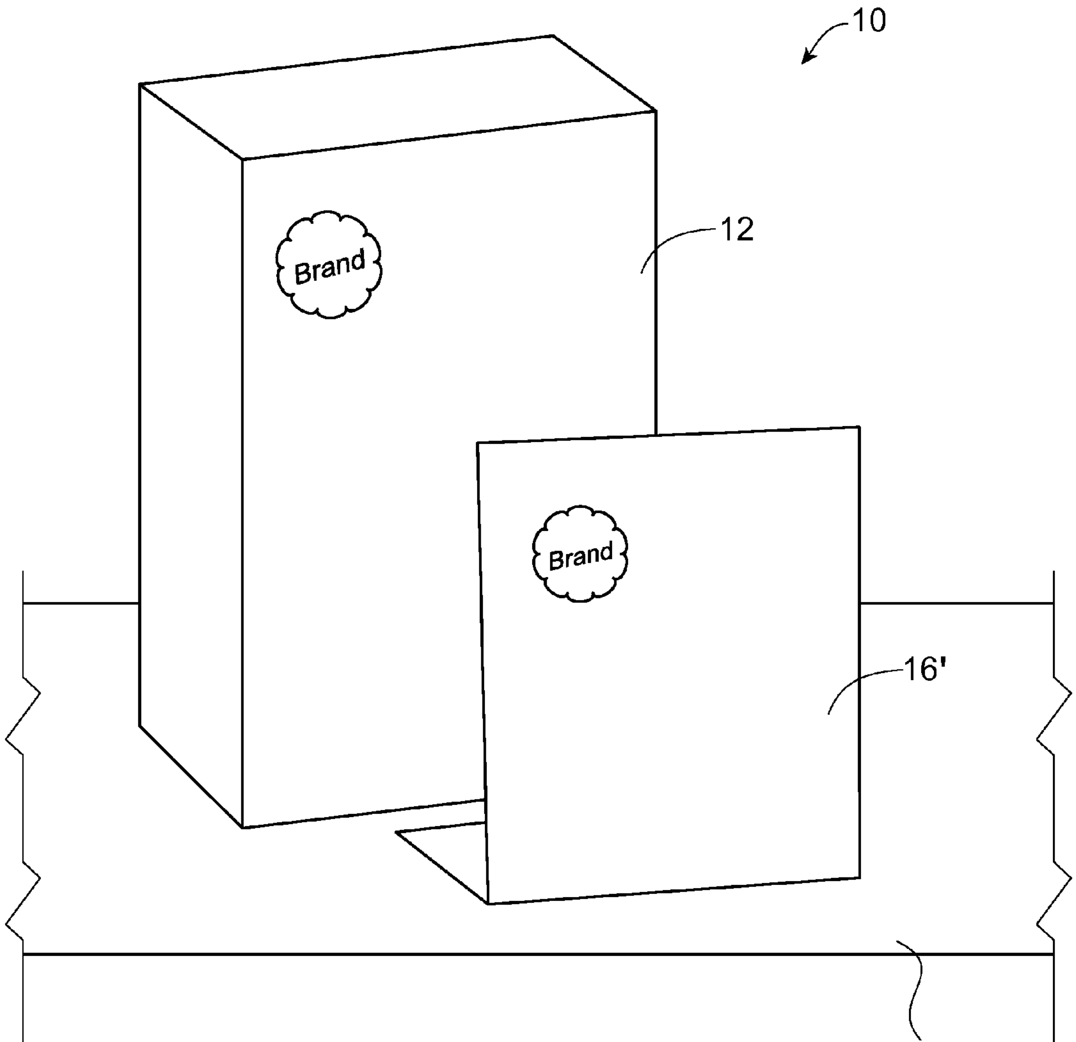


Fig. 14

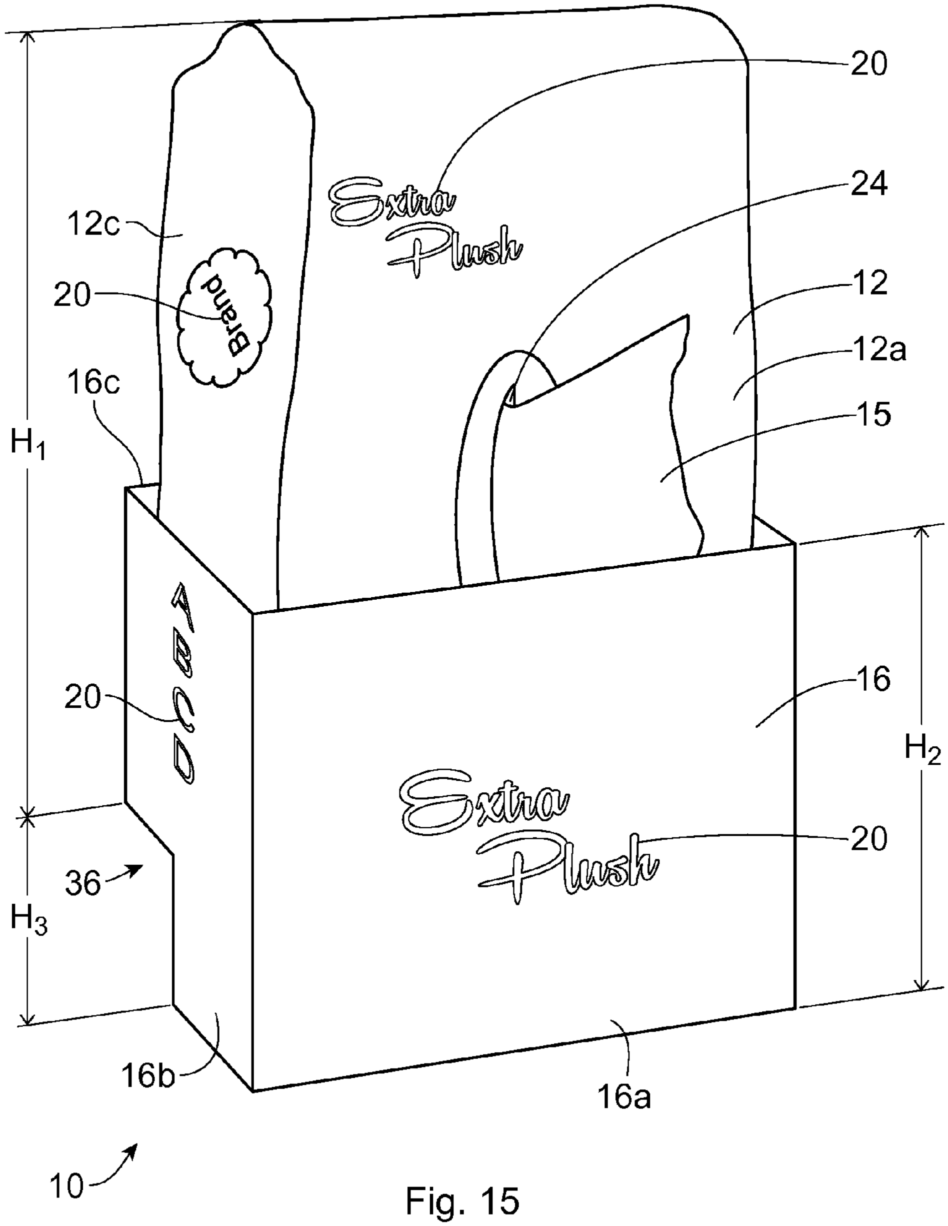

20
Extra
Plush
24
12c
12
20
Brand
12a
16c
15
H_1
A
B
20
C
D
16
H_2
Extra
Plush
20
36
H_3
16b
16a
10

Fig. 15

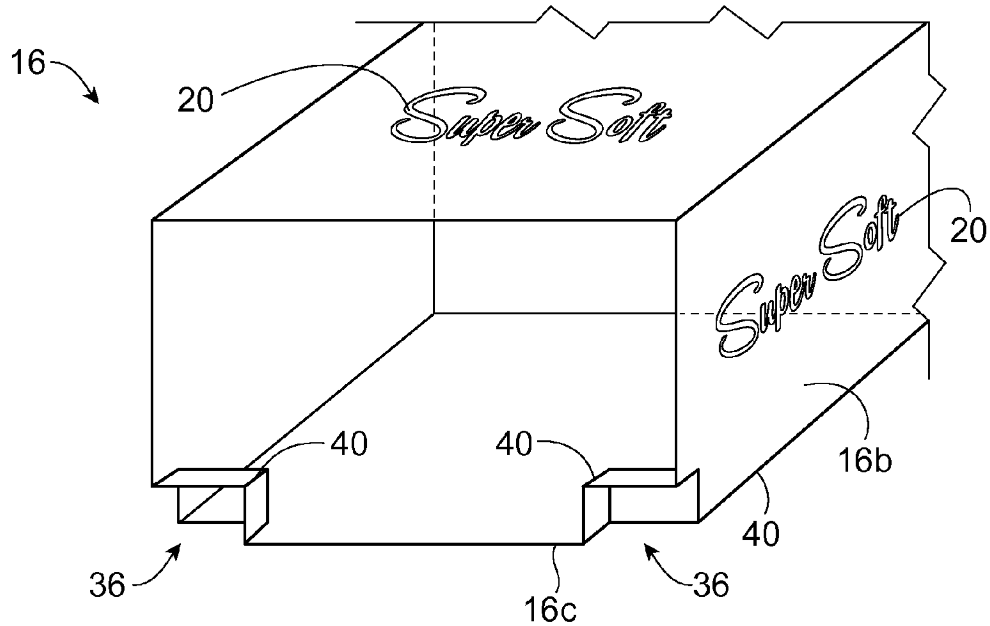

16
20
Super Soft
Super Soft
20
40
40
16b
40
36
36
16c

Fig. 16

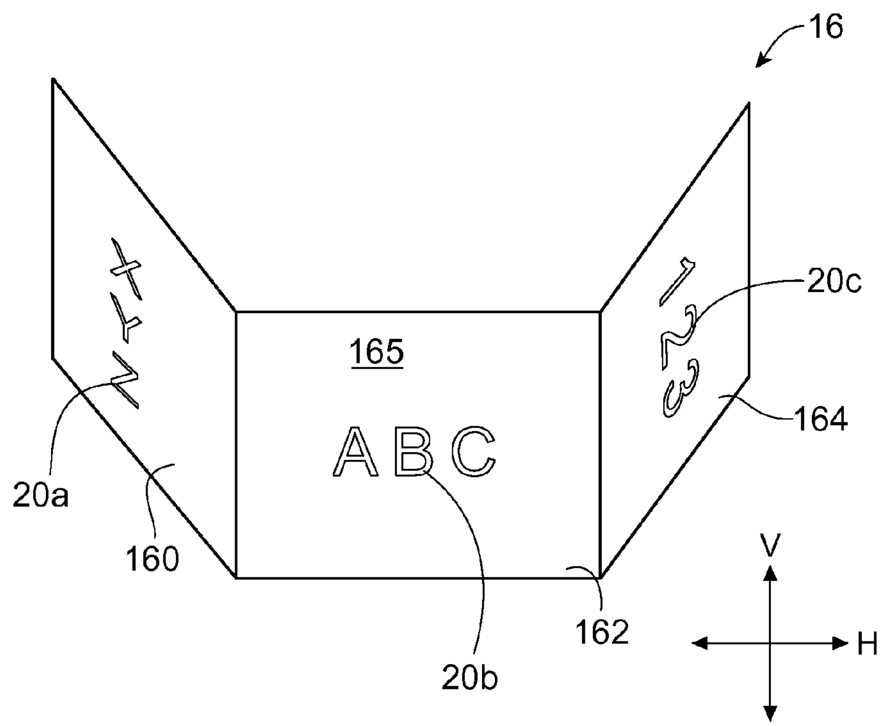

16
XYZ
123
20c
165
164
ABC
20a
160
V
H
162
20b

Fig. 17

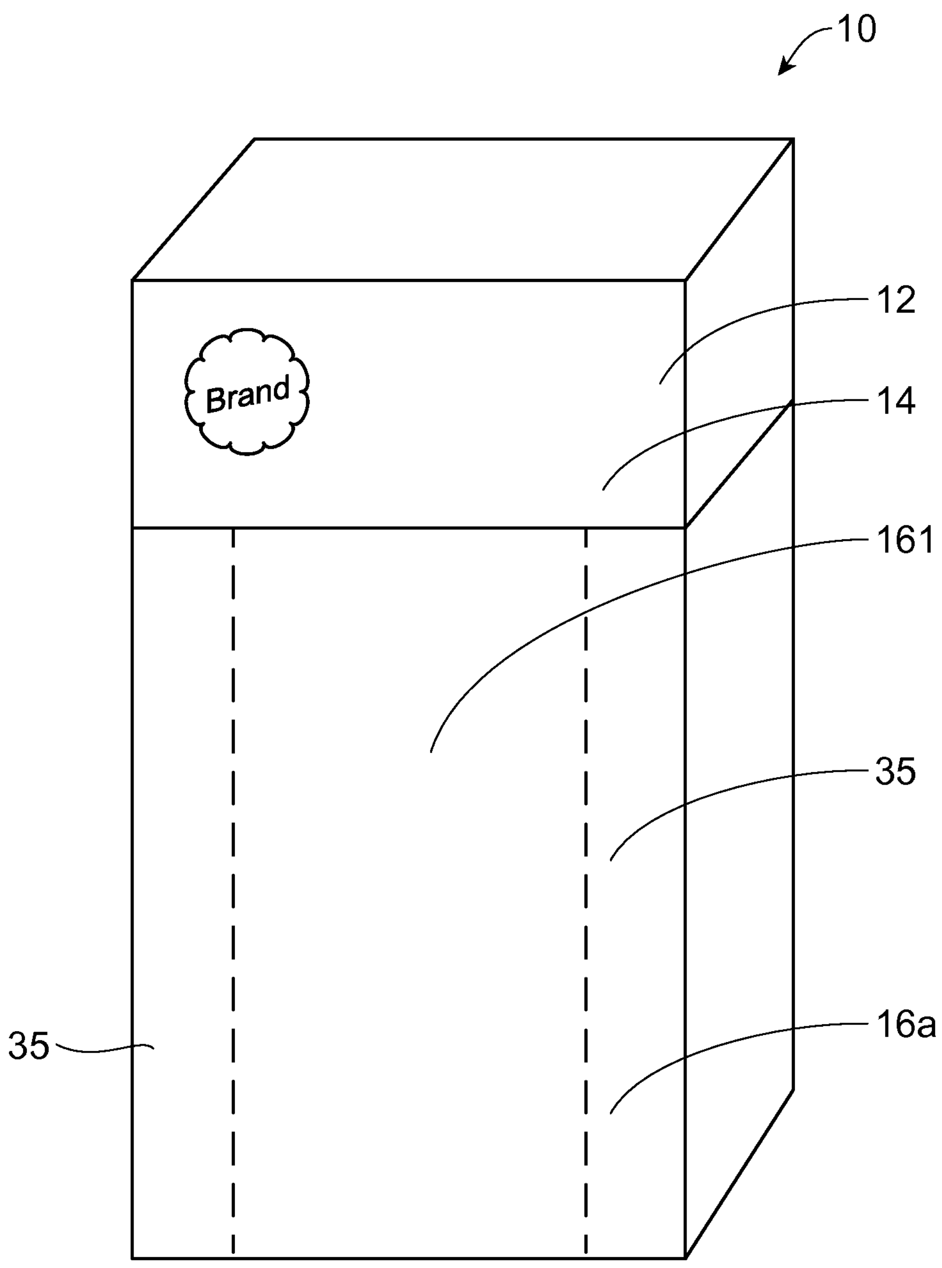


Fig. 18

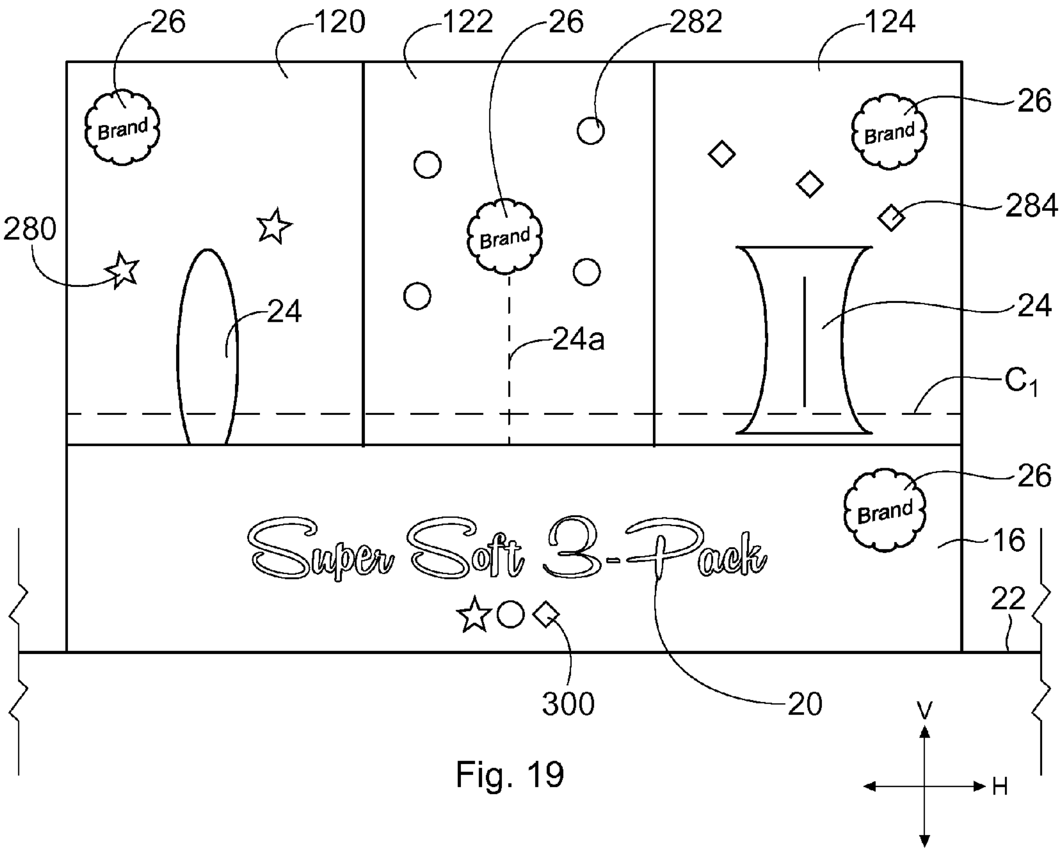

26
120
122
26
282
124
Brand
Brand
Brand
26
284
280
24
24
24a
C1
26
Brand
Super Soft 3-Pack
16
22
300
20
V
H

Fig. 19

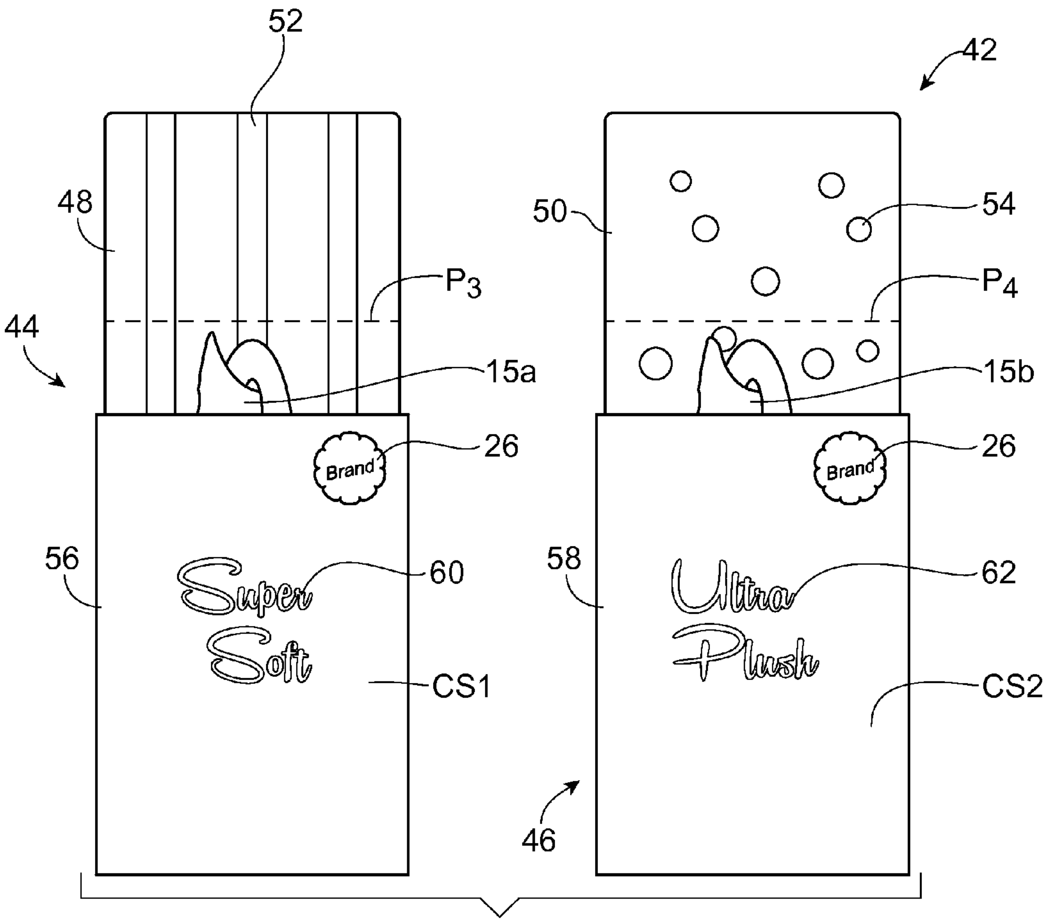

52
42
48
50
54
P_3
P_4
44
15a
15b
Brand
26
Brand
26
56
58
Super
Soft
60
Ultra
Plush
62
CS1
CS2
46

Fig. 20

DISPENSING SYSTEM FOR SANITARY TISSUE PRODUCTS

FIELD OF THE INVENTION

[0001] The present invention relates to packages for sanitary tissue products, in particular soft-sided packages for sanitary tissue products.

BACKGROUND OF THE INVENTION

[0002] Sanitary tissue products, such as facial tissue, are typically provided in paperboard cartons or similarly rigid containers. Such cartons have their drawbacks. For instance, consumers often desire a more flexible yet durable package and/or water resistant package, which would permit maintaining sanitary tissue products in more areas (e.g., bathrooms, cars, etc.). Further, manufacturers of sanitary tissue products desire a way to better communicate the properties of their products through the feel of their packaging.

[0003] Flexible containers have been developed for sanitary tissue products but still present undesired limitations. For instance, current flexible packages lack a premium feel and/or structural features that connotes to consumers high quality and/or tactile properties of the products contained within. Likewise, current flexible packages are often substantially opaque, precluding a consumer from viewing the contents, or substantially transparent providing no artistic features to connote characteristics about the package contents. In addition, current flexible packages often provide seals across their bottom side or in other undesirable areas, obstructing aesthetic designs and/or brand information. Similarly, aesthetic designs are obstructed by the amount of written information that must be provided at the point of sale.

[0004] Manufacturers are also faced with stability problems arising from flexible packaging. Flexible packaging lacks the rigidity of paperboard and therefore cannot stand as easily on store shelves, leading to a disorganized or chaotic appearance. In addition, the lack of rigidity may cause tears in a flexible package, especially in the dispensing opening, during shipping and display as consumers and store staff handle the products.

[0005] Therefore, there is a need to provide a flexible package that has textural, structural and artistic features that connote characteristics about the package contents and/or provides a more appealing texture than known packages. Moreover, there is a need to provide a flexible package that has optimal space for its aesthetic design and written information without obstruction of package seals. In addition, there is a need for added stability for flexible packages that result in better sales presentation, dispensing and/or protection during shipping and handling.

SUMMARY OF THE INVENTION

[0006] The present invention addresses one or more of the above problems by providing a dispensing system that connotes properties about its contents, optimizes space for aesthetic design and brand information and enhances stability. In an embodiment, a dispensing system comprising a soft-sided package and a rigid sleeve is provided. The soft-sided package has an outer wrap comprising a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or less. The soft-sided package further comprises a plurality of sanitary tissue products disposed within the outer wrap, a first height, H_1, and a first perimeter. The rigid sleeve substantially surrounds the first perimeter and comprises a material that is more rigid than the outer wrap and a second height, H_2, which is less than the first height, H_1. The sleeve also comprises indicia in a reading orientation. The package and sleeve are oriented on a substantially horizontal shelf such that the first and second heights, H_1 and H_2, have a vertical orientation and at least a portion of the sleeve is in contacting relationship with the shelf.

[0007] In another embodiment, a dispensing system comprising a plurality of soft-sided packages and a rigid sleeve is provided. Each soft-sided package comprises an outer wrap having a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or and a plurality of sanitary tissue products disposed within the outer wrap. The plurality of soft-sided packages collectively comprises a circumference, C_1, and at least one of the packages comprises a first height, H_1. The rigid sleeve substantially surrounds the circumference and comprises a material that is more rigid than the outer wrap. The sleeve may also comprise a sleeve dimension, which is oriented in the same direction as the first height, H_1, and may be less than the first height, H_1. In addition, the sleeve may comprise indicia in reading orientation. The plurality of soft-sided packages and the sleeve are oriented on a substantially horizontal shelf such that the first height, H_1, has a vertical orientation and at least a portion of the sleeve is in contacting relationship with the shelf.

[0008] In a further embodiment, an array of dispensing systems is provided. The array may include a first dispensing system having a first soft-sided package comprising a plurality of sanitary tissue products disposed within an outer wrap comprising a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or less, and a first perimeter. The array may also comprise a second dispensing system having a second soft-sided package comprising a plurality of sanitary tissue products disposed within an outer wrap comprising a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or less, and a second perimeter. The sanitary tissue products of the first soft-sided package are different than the sanitary tissue products of the second soft-sided package.

[0009] In yet another embodiment, a dispensing system comprising a soft-sided package and a sleeve substantially surrounding the soft-sided package is provided. The sleeve comprises an exterior surface having a first side, second side and third side. The first side may comprise a first indicia in a first reading orientation. The second side may comprise a second indicia in a second reading orientation and the third side may comprise a third indicia in a third reading orientation. The first reading orientation, second reading orientation and third reading orientation are differently oriented.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. **1** is a perspective view of a dispensing system in accordance with an embodiment of the present invention;

[0011] FIG. **2** is a perspective view of a dispensing system in accordance with another embodiment of the present invention;

[0012] FIG. **3** is schematic view of an outer wrap in accordance with an embodiment of the present invention;

[0013] FIG. **4** is a perspective view of a soft-sided package in accordance with one embodiment of the present invention;

[0014] FIG. **5** is a perspective view of a soft-sided package in accordance with another embodiment of the present invention;

[0015] FIG. **6** is a perspective view of a soft-sided package in accordance with another embodiment of the present invention;

[0016] FIG. **7** is an elevational view of package in accordance with one embodiment of the present invention;

[0017] FIG. **8** is a perspective view of a soft-sided package in accordance with another embodiment of the present invention;

[0018] FIG. **9** is a perspective view of a soft-sided package in accordance with yet another embodiment of the present invention;

[0019] FIG. **9**A is a perspective view of a soft-sided package in accordance with another embodiment of the present invention;

[0020] FIGS. **9**B-**9**D are schematic views of stiffeners in accordance with a nonlimiting examples of the present invention;

[0021] FIG. **10** is a schematic illustration of a plan view of a structured sanitary tissue product in accordance with an embodiment of the present invention;

[0022] FIG. **11** is a schematic cross-sectional illustration of the paper web of FIG. **10**;

[0023] FIG. **12** is a perspective view of a sleeve in accordance with an embodiment of the present invention;

[0024] FIG. **13** is a perspective view of a dispensing system in accordance with an embodiment of the present invention;

[0025] FIG. **14** is a exploded view of a dispensing system in accordance with another embodiment of the present invention;

[0026] FIG. **15** is a perspective view of a dispensing system in accordance with another embodiment of the present invention;

[0027] FIG. **16** is a perspective view of the bottom of a sleeve in accordance with one embodiment of the present invention;

[0028] FIG. **17** is a partial, schematic view of a sleeve in accordance with one embodiment of the present invention;

[0029] FIG. **18** is a perspective view of a dispensing system in accordance with one embodiment of the present invention;

[0030] FIG. **19** is an elevational view of a dispensing system in accordance with another embodiment of the present invention; and

[0031] FIG. **20** is an elevational view of an array in accordance with one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Definitions

[0032] "Brand information" as used herein means any descriptions, depictions, objects or other indicia relating to a brand (i.e., a single source identifier which identifies a product and/or service as exclusively coming from a single commercial source). Nonlimiting examples of a brand are PUFFS® facial tissue, CHARMIN® bath tissue, and BOUNTY® paper towels. PUFFS®, CHARMIN® and BOUNTY® are also trademarks. Nonlimiting examples of brand information are brand names, brand insignia (e.g., objects, words, colors, shapes or other indicia that can be used to distinguish, identify or represent the manufacturer, retailer, distributor or brand of a product, including but not limited to trademarks, logos, emblems, symbols, designs, figures, fonts, lettering, crests or similar identifying marks), slogans, history, mascots, endorsements, certifications, recommendations and claims regarding brand performance, quality, recognition or consumers' preferences for the brand.

[0033] "Sanitary tissue product" as used herein means one or more finished fibrous products, converted or not, that is useful as a wiping implement for post-urinary and post-bowel movement cleaning (e.g., toilet tissue and wet wipes), for otorhinolaryngological discharges (e.g., facial tissue), and multi-functional absorbent and cleaning uses (e.g., paper towels and shop towels). The sanitary tissue products can be embossed or not embossed, creped or uncreped, single or multi-ply.

[0034] A "structured sanitary tissue product" as used herein means a sanitary tissue product having one or more wet-formed (formed while the fibers are yet to be fully dried) textural elements, intentionally formed during the papermaking process. When a sanitary tissue product is laid substantially flat in an x-y plane, a textural element is a deformation in the product having a z-direction dimension extending above or below the plane of the sanitary tissue product. In this case, z-direction is orthogonal both the machine direction and cross machine direction, such that the machine direction, cross machine direction and z-direction form a Cartesian coordinate system. Through-air-drying (TAD) processes are known to make structured sanitary tissue products. Likewise, processes utilizing photo-curable resin patterned through-air-drying papermaking belts are known to make structured sanitary tissue products. A structured sanitary tissue product may have textural elements extending from about 180 microns to about 730 microns in the z-direction as measured from the non-deformed portion of the sanitary tissue product to the highest point of the textural element. Non-limiting examples of collection devices and/or fabric and/or belts suitable for imparting wet-formed textural elements to a sanitary tissue product include those fabrics and/or belts used in fabric creping and/or belt creping processes, for example as disclosed in U.S. Pat. Nos. 7,820,008 and 7,789,995, coarse through-air-drying fabrics as used in uncreped through-air-drying processes, and photo-curable resin patterned through-air-drying belts, for example as disclosed in U.S. Pat. No. 4,637,859. In addition, a structured sanitary tissue product may further comprise one or more dry-formed textures (i.e., formed after the fibers are dry) which typically occurs during converting processes such as embossing. The textural elements of a structure sanitary tissue product may be disposed in a pattern, or they may be disposed randomly. The textual elements may be uniform or nonuniform.

[0035] Conventional wet pressed sanitary tissue products do not have wet-formed textural elements intentionally formed during the papermaking process.

[0036] The sanitary tissue product (whether structured or not) may be segmented into individual segments of sanitary tissue products having discrete lengths. An individual segment of sanitary tissue products can then be folded upon itself and subsequently stacked and/or interleaved with the remaining individual segments. Such stacked and/or interleaved sanitary tissue products can then be inserted into appropriate packaging consistent with the present disclosure. Packages for containing and dispensing stacked and/or interleaved sheet materials disposed inside can generally be divided into two principal types. The first type enables stacked and interfolded sheets to "pop-up" to dispense through an opening in the top wall of the package. Such pop-up dispensers provide partial withdrawal of the next successive tissue upon pulling sheets out one at a time from the package. The second type of package facilitates dispensing of a stack of sheets that are generally not interfolded by providing an opening in at least one of the package walls to enable a user to reach into the package and remove one or more of the sheets at a time. This latter type of package is commonly known as a "reach-in" package.

[0037] Alternatively, a sanitary tissue product may be convolutely wound upon itself about a core or without a core to form a sanitary tissue product roll. Lines of perforation can be provided within the length of the wound product to facilitate separation of adjacent portions of the convolutely wound sanitary tissue product.

[0038] The sanitary tissue products of the present invention may comprise additives such as softening agents, temporary wet strength agents, permanent wet strength agents, bulk softening agents, lotions, silicones, wetting agents, latexes, especially surface-pattern-applied latexes, dry strength agents such as carboxymethylcellulose and starch, and other types of additives suitable for inclusion in and/or on sanitary tissue products.

[0039] The sanitary tissue products of the present invention may exhibit a basis weight from about 5 g/m^2 to about 120 g/m^2, or from about 10 g/m^2 to about 75 g/m^2, or from about 10 g/m^2 to about 50 g/m^2. In another embodiment, the sanitary tissue products of the present invention may exhibit a basis weight of about 15 g/m^2 (9.2 lbs/3000 ft^2) to about 120 g/m^2 (73.8 lbs/3000 ft^2) and/or from about 15 g/m^2 (9.2 lbs/3000 ft^2) to about 110 g/m^2 (67.7 lbs/3000 ft^2) and/or from about 20 g/m^2 (12.3 lbs/3000 ft^2) to about 100 g/m^2 (61.5 lbs/3000 ft^2) and/or from about 30 (18.5 lbs/3000 ft^2) to 90 g/m^2 (55.4 lbs/3000 ft^2). In yet another embodiment, the sanitary tissue products of the present invention may exhibit a basis weight between about 40 g/m^2 (24.6 lbs/3000 ft^2) to about 120 g/m^2 (73.8 lbs/3000 ft^2) and/or from about 50 g/m^2 (30.8 lbs/3000 ft^2) to about 110 g/m^2 (67.7 lbs/3000 ft^2) and/or from about 55 g/m^2 (33.8 lbs/3000 ft^2) to about 105 g/m^2 (64.6 lbs/3000 ft^2) and/or from about 60 g/m^2 (36.9 lbs/3000 ft^2) to 100 g/m^2 (61.5 lbs/3000 ft^2).

[0040] "Structured wrap material" as used herein means wrap material for use in forming an outer wrap and having one or more textural elements formed during the manufacturing of the material (e.g., during the making of the material from fibers, plastics, chemicals or other base components or during converting of the material to a finished outer wrap). When the material is laid substantially flat in an x-y plane, a textural element is a deformation in the material having a z-direction dimension extending above or below the plane of the material. In this case, z-direction is orthogonal both the machine direction and cross machine direction, such that the machine direction, cross machine direction and z-direction form a Cartesian coordinate system. The textural elements may comprise embossments or microembossments. The textural elements may be disposed in a pattern, or they may be disposed randomly. The textual elements may be uniform or nonuniform. The structured wrap material may be a film material. In an embodiment, the structured wrap material is a microembossed film that can have a soft feel.

[0041] "Reading orientation" as used herein means any angle at which a letter, word, or symbol is positioned with respect to a reader such that it is in its intended orientation to be read or interpreted by a consumer when the product is viewed by the consumer in a given position. Thus, for example, in FIG. **2**, the words "Brand Super Soft" are at a reading orientation for a reader viewing the indicia **20** while the height dimensions, H_1 and H_2, of the dispensing system **10** are perpendicular to the horizontal shelf **22**. Likewise, the letters "ABCD", although oriented differently, are still in a reading orientation for a reader viewing the indicia **20** while the dispensing system **10** is in the same position. The reading orientation of "ABCD" in this case is preferable when positioning a plurality of dispensing systems **10** side-by-side such that the side with "ABCD" is facing the reader. As explained in detail below, FIG. **17** shows multiple reading orientations for indicia **20** provided on the same sleeve **16**. In an embodiment where indicia such as a trademark or brand name is in a curved orientation, a reading orientation can be such that at a midpoint of the curved word or symbol, an imaginary tangent line bisects the word or symbol in the traditional (i.e., straight) reading orientation.

[0042] "Machine Direction," MD, as used herein is the direction of manufacture for a sanitary tissue product. The machine direction can be the direction in which sanitary tissue product progresses during its manufacture, such that the MD is parallel to a length direction of material.

[0043] "Cross Machine Direction," CD as used herein is the direction substantially perpendicular to the machine direction.

[0044] "Film" is intended to include any flexible polymeric materials, including foils, polymer sheets, co-extrusions, laminates, and combinations thereof. Film may be fabricated from a polymer that does not have adhesive characteristics, which may be made from homogeneous resins or blends thereof. The properties of a selected film can include, though are not restricted to, combinations or degrees of being: porous, non-porous, microporous, gas or liquid permeable, non-permeable, hydrophilic, hydrophobic, hydroscopic, oleophilic, oleophobic, high critical surface tension, low critical surface tension, surface pre-textured, elastically yieldable, plastically yieldable, electrically conductive, and electrically non-conductive. Such materials can be homogeneous or composition combinations.

[0045] Film may be made from homogeneous resins or blends thereof. Single or multiple layers within the film structure are contemplated, whether co-extruded, extrusion-coated, laminated or combined by other known means. Useful resins include, but are not limited to, polyethylene (PE), polypropylene (PP), polyethylene terephthalate (PET), polyvinyl chloride (PVC), polyvinylidene chloride (PVDC), latex structures, nylon, etc.

[0046] Polyolefins tend to be lower in cost and relatively easy to form but are not necessary to practice the invention. High density polyethylene (HDPE) may be used fabricate the film. Other suitable materials to fabricate the film from include, but are not limited to, aluminum foil, coated (waxed, etc.) and uncoated paper, coated and uncoated wovens, scrims, meshes, nonwovens, and perforated or porous films, and combinations thereof.

Overview

[0047] The present invention comprises a dispensing system **10**. As shown in FIG. **1**, the dispensing system **10** comprises a soft-sided package **12**, made of an outer wrap **14** and having a plurality of sanitary tissue products **15** housed within it. The dispensing system **10** may optionally comprise a relatively rigid sleeve **16** that substantially and circumferentially surrounds a portion of the soft-sided package **12**, as shown in FIG. **2**. The sleeve **16** is made of a material **18** that has a rigidity greater than the rigidity of the outer wrap **14**. The soft-sided package **12** can have indicia **20** displayed, such as printed brand information **26** as well as other design elements **28**. The sleeve **16** provides additional space for indicia **20** and design elements **30** as well as stability for the displaying and handling the soft-sided package **12**. In one embodiment, the soft-sided package **12** and sleeve **16** are oriented vertically on a horizontal shelf **22** and at least a portion of the sleeve **16** is in contacting relationship with the shelf **22**. Other features and benefits of the dispensing system shown in FIGS. **1** and **2** are discussed in more detail below.

The Soft-Sided Package

[0048] Turning to FIG. **3**, the soft-sided package **12** of the present invention comprises an outer wrap **14**, which can formed into a substantially parallelepiped structure or other suitable shape for housing a plurality of sanitary tissue products **15**. In an embodiment, the outer wrap **14** may comprise a film. In another embodiment, the outer wrap **14** may comprise a structured wrap material **141**, such as material having an embossment **142** and/or a microembossment **143**. In one nonlimiting example, the outer wrap **14** may have a basis weight of about 32 gsm to about 72 gsm, or about 40 gsm to about 60 gsm, or about 50 gsm according to the Wrap Basis Weight Test Method herein. In another nonlimiting example, the outer wrap **14** may have a caliper (i.e., wrap thickness, t_{wrap}) at 95 gsi of force of greater than about 40 µm, or greater than about 50 µm, or from about 70 µm to about 110 µm, or from about 71 µm to about 91 µm. In yet another nonlimiting example, the outer wrap **14** may have a caliper (i.e., a wrap thickness, t_{wrap}) at 300 gsi of force (i.e., at a compression pressure of 300 gsi) of about 1.5 mils or greater, or about 2 mils or greater, or from about 2 mils to about 4.3 mils, or from about 2.5 mils to about 4 mils, or about 4 mils or less, or about 2.75 mils in accordance with the Paper Stack Compressibility Test Method herein. In a further embodiment, the outer wrap **14** may comprise a wrap bending modulus of about 1800 MPa or less, or about 1500 MPa or less or about 1000 MPa or less, or about 800 MPa or less, or about 500 MPa to about 1000 MPa, or about 600 MPa to about 800 MPa, with each range relating to the bending modulus at a thickness, t_{wrap}, measured under a compression pressure of 300 gsi in accordance with the Plate Stiffness Test Method herein. The wrap bending modulus is a measure of a material's resistance to being deformed. In other words, the lower the wrap bending modulus value, the more flexible the material is. It is believed that the bending modulus values disclosed herein provide the benefit of indicating to an end user the properties of sanitary tissue products **15** contained within the package **12** (e.g., soft and flexible). Likewise, the wrap bending modulus values within the scope of the present invention may provide a more flexible package that can withstand shipping and handling.

[0049] In yet another nonlimiting example, the 1% MD secant modulus of the outer wrap **14** may be about 170,000 kPa or less, or 150,000 kPa or less, or about 110,000 kPa or less. The 1% CD secant modulus of the outer wrap **14** may be about 240,000 kPa or less, or about 200,000 kPa or less, or about 150,000 kPa or less, or about 111,000 kPa or less. The MD and/or CD secant modulus are believed to be a good indicator of an outer wrap's flexibility. Surprisingly, an outer wrap **14** in accordance with the present invention may present a low 1% MD secant modulus and/or low 1% CD secant modulus despite having a relatively high caliper (i.e., a caliper greater than that of typical polyethylene wraps used for sanitary tissue product packaging) as shown in Table 1. In an embodiment, the 1% MD secant modulus to caliper ratio (i.e., 1% MD secant modulus divided by caliper) is about 5 MPa/µm or less, or about 3 MPa/µm or less. In another embodiment, the 1% CD secant modulus to caliper ratio (i.e., 1% CD secant modulus divided by caliper) is about 7 MPa/µm or less, or about 5 MPa/µm or less, or about 3 MPa/µm or less. In other words, the outer wrap **14** is flexible yet thicker than polyethylene wraps typically used on sanitary tissue product packaging and thinner than heavy duty wrap materials, providing a premium feel for the end user without jeopardizing flexibility or integrity. In short, the properties of the outer wrap **14** of the present invention fall within a sweet spot so to speak. The MD secant modulus and CD secant modulus values may be determined using ASTM D-882. In one nonlimiting example, the outer wrap **14** may be embossed or microembossed.

[0050] One suitable outer wrap **14** for use in the present invention is CLOPAY MICROFLEX®, available from Clopay Plastic Products Company, Inc. Tables 1-4 illustrate the differences in properties of the outer wrap **14** of present invention versus other packaging materials.

TABLE 1

	Units						
ID	gsm Wrap BW (gsm) per one sheet	mils t_{wrap} @300 gsi per one sheet	g/cm^3 Wrap Density for t_{wrap} @300 gsi	cm^3/g Wrap Bulk for t_{wrap} @300 gsi	N*mm Wrap Plate Stiffness	# # sheets used in plate stiffness test	MPa Wrap Bending Modulus for t_{wrap} @ 300 gsi
KLEENEX ® hard box package material	396	21.10	0.739	1.35	408	1	31763
ANGEL SOFT ® soft-sided package material	100	4.40	0.898	1.11	27.5	5	1886
Outer wrap of present invention	51.8	2.75	0.741	1.35	2.53	5	710

TABLE 2

	Basis Weight gsm	Caliper @95 gsi mils	Caliper @95 gsi Microns	Density (BW/ Caliper) g/cm^3
CLOPAY DH-215 MICROFLEX ® 50-gsm PE - within the scope of the present invention	50	2.8	71.0	.71

TABLE 2-continued

	Basis Weight gsm	Caliper @95 gsi mils	Caliper @95 gsi Microns	Density (BW/ Caliper) g/cm^3
CLOPAY DH-215 MICROFLEX ® 72-gsm PE - within the scope of the present invention	72	3.6	91.4	.78
BOUNTY ®Napkins PE	56	1.5	38.1	1.47
CHARMIN ® 4 Regular Roll PE	25	1.0	25.4	.98
CHARMIN ® 1-roll Inner Wrap PE	15	0.6	15.2	.98
BOUNTY ® 6 Roll Duratowel ® PE	36	1.5	38.1	.94
PUFFS To Go ® Wrapper PE	40	1.3	31.8	1.26

TABLE 3

	Caliper @ 95 gsi microns	1% MD Secant Modulus kPa	1% MD Secant Modulus/ Caliper MPa/μm
CLOPAY DH-215 MICROFLEX ® 50-gsm PE - within the scope of the present invention	71.0	91121	1.3
CLOPAY DH-215 MICROFLEX ® 72-gsm PE - within the scope of the present invention	91.4	106779	1.2
BOUNTY ® Napkins PE	38.1	490000	12.9
CHARMIN ® 4 Regular Roll PE	25.4	441000	17.4
CHARMIN ® 1-roll Inner Wrap PE	15.2	827000	54.3
BOUNTY ® 6 Roll Duratowel ® PE	38.1	283000	7.4
PUFFS To Go ® Wrapper PE	31.8	172000	5.4

TABLE 4

	Caliper @95 gsi microns	1% CD Secant Modulus kPa	1% CD Secant Modulus/ Caliper MPa/μm
CLOPAY DH-215 MICROFLEX ® 50-gsm PE - within the scope of the present invention	71.0	91886	1.3
CLOPAY DH-215 MICROFLEX ® 72-gsm PE - within the scope of the present invention	91.4	110095	1.2
BOUNTY ® Napkins PE	38.1	662000	17.4
CHARMIN ® 4 Regular Roll PE	25.4	531000	20.9
CHARMIN ® 1-roll Inner Wrap PE	15.2	986000	64.7
BOUNTY ® 6 Roll Duratowel ® PE	38.1	365000	9.6
PUFFS To Go ® Wrapper PE	31.8	241000	7.6

[0051] The outer wrap **14** may be formed into the soft-sided package **12** by any suitable method. One suitable method of forming the package **12** of the present invention is to use an asymmetrically funnel-shaped forming shoulder to guide the wrap material for forming a tube-like envelope in such a way that the longitudinally running edges of the film align with one longitudinal corner of the respective stack of products. Such a process is disclosed in U.S. Pat. No. 8,464,502 to Spiekers et al.

[0052] In an embodiment, the soft-sided package **12** can be described generally as being parallelepiped-shaped, having a generally rectangular cross-section as shown in FIG. **1**. In another nonlimiting example, the package **12** may not be parallelepiped. For example, the package **12** may have rounded or partially round corners as shown in FIG. **4** such as those formed by elongated gusset seals **34**.

[0053] The soft-sided package may have three main dimensions of width, depth, and height, as shown in FIG. **4**. Because, as discussed later, the sleeve **16** also has width, depth and height dimensions, the dispensing system **10** dimensions are described herein as being "first" and "second" with respect to the package **12** and sleeve **16**, respectively. Further, because the package **12** is soft-sided and closed on both ends, it is recognized that the dimensions are variable within a range, depending on the size of the package, how much sanitary tissue product **15** is inside, and other variables as is known in the art of tissue product packaging. For this reason, the dimensions may be measured under compression pressure as detailed in the Package Compressibility Test Method. In the present disclosure, the longest dimension of either the soft-sided package **12** or the sleeve **16** is referred to as the "height" dimension because in one embodiment it is envisioned that the dispensing system **10** be shelved with the longest dimension being vertically oriented, as shown for example in FIGS. **1-2**, and **4**. That is, in such embodiment, the two shorter dimensions, width and depth are in a plane parallel to a shelf **22** or other resting surface when the dispensing system **10** is practiced. However, it should be understood that this naming convention does not limit the scope of the present invention. That is, other orientations are envisioned. For example, in another embodiment, the dispensing system **10** may be positioned such that the height and depth are in a plane parallel to the resting surface when the dispensing system **10** is practiced as shown in FIG. **5**. Likewise, the dispensing system **10** may be placed such that the width and height dimensions are in a plane parallel to the shelf **22** or other resting surface when the dispensing system **10** is practiced (not shown).

[0054] As shown in FIGS. **4** and **5**, the package **12** comprises a first width, W_1, a first depth, D_1, and a first height, H_1. The first height, H_1, first depth, D_1, and first W_1 can be viewed on a Cartesian coordinate system such that they are mutually orthogonal. The package **12** also comprises a first perimeter, P_1. In one nonlimiting example, illustrated in FIG. **4**, the first perimeter, P**1**, equates generally to $2(W_1+D_1)$, again recognizing that W_1 and D_1 can be variable because of the soft sided nature of soft-sided package **12**. In another nonlimiting example, illustrated in FIG. **5**, the first perimeter, P**1**, may generally equate to $2(H_1+D_1)$ again recognizing that H_1 and D_1 can be variable because of the soft sided nature of soft-sided package **12**.

[0055] In one nonlimiting example, the first height, H_1, may be about 15 cm or greater, or from about 15 cm to about 25 cm, from about 20 cm to about 23 cm at about 100 grams of force per square inch (i.e., a compression pressure of 100 gsi) in accordance with the Package Compressibility Test

Method herein. In another nonlimiting example, the first height, H_1, is greater than the longest dimension of the unfolded sanitary tissue product **15** contained within the package **12** at about 100 grams of force per square inch in accordance with the Package Compressibility Test Method herein. In yet another nonlimiting example, the dimensions of the package **12** may be equivalent to so-called pocket packs where, for example, the longest dimension may be about 10 cm or less, or about 8 cm or less, or less than the longest dimension of an unfolded sanitary tissue product **15** contained within the package **12** at about 100 grams of force per square inch in accordance with the Package Compressibility Test Method herein.

[0056] In an embodiment, the package **12** may be placed on a horizontal surface, such as a shelf **22** that would be present in a store or in a consumer's home or workplace. The package **12** may be placed such that the first height, H_1, is perpendicular to the horizontal shelf **22** when package **12** is in its in-use orientation, causing the first height, H_1, to be vertically oriented. Alternatively, the package **12** may be placed on the shelf **22** such that the first depth, D_1, or the width, W_1, is perpendicular to the shelf **22** when package **12** is in an alternative in-use orientation, causing the first depth, D_1, or the first width, W_1, respectively to be vertically oriented.

[0057] As shown in FIG. **6**, the soft-sided package **12** may contain a plurality of sanitary tissue products **15**. The package **12** comprises a dispensing opening **24**. The dispensing opening **24** may be any suitable shape or size to facilitate removal of the sanitary tissue products **15**. The dispensing opening **24** may comprise a line of weakness **24***a* (as shown in FIG. **2**) such as a perforation or slit. The dispensing opening **24** may be at least partially resealable. In another embodiment, the dispensing opening **24** may be partially or completely removable as shown in FIG. **6**. The dispensing opening **24** may be disposed on a first side **12***a* of the package **12**. In one nonlimiting example, as illustrated in FIG. **7**, the dispensing opening **24** may comprise an opening area, A_{disp}, which equates to the dispensing opening's width, W_{disp}, multiplied by its height, H_{disp}. The opening area, A_{disp}, may be about 70% of the surface area of the first side **12***a*, A_{side}, (i.e., $W_{side} \times H_{side}$) or greater, or about 70-99%, or about 75-90%, of the surface area of the first side **12***a*, A_{side}. In such nonlimiting example, dispensing may be made easier by reduced frictional contact between the outer wrap **14** and the sanitary tissue product **15** during dispensing. In other words, there is more room for the sanitary tissue product **15** to exit and less constraints from the package **12**.

[0058] FIG. **8** illustrates an embodiment where the package **12** comprises brand information **26**. In another embodiment, the package **12** comprises a first design **28** (also shown in FIG. **8**). The first design **28** may comprise printing and/or embossments, shapes, patterns, indicia and/or the like.

[0059] As shown in FIG. **8**, the soft-sided package **12** may comprise areas of printing **14***b*, areas void of printing **14***a*, and combinations thereof. In one embodiment, the package **12** is translucent. In another embodiment, windows **14***c* into the interior of the package **12** are provided. Windows and/or translucency permit a consumer to at least partially see the product inside soft-sided package **12**. Translucency, such as haziness, may connote softness.

[0060] The package **12** may further comprise a corner seal **32**. The corner seal **32** may be provided using the apparatus and process defined in U.S. Pat. No. 8,464,502 to Spiekers et. al. In addition, the package **12** may comprise one or more gusset seals **34**. The corner seal **32** is relatively inconspicuous and precludes the need to seal the package in an obtrusive manner, such as by sealing a seam in the middle of a side of the package **12**, which interferes with indicia **20**, including brand information **26**, and generally detracts from the aesthetic appearance of package **12**. Utilizing a corner seal **32** permits the use of more of the package **12** surface for printing **14***b*, design **28** and/or brand information **26**. In an embodiment, the corner seal **32** joins a first side **12***a* and the second side **12***b* of the package, wherein the second side **12***b* is adjacent to the first side **12***a*. The skilled person will recognize that the sides **12***a*, **12***b* may already be joined as a function of being part of one piece of wrap **14**. However, the seal **32** may still be formed, further joining or associating the two sides **12***a*, **12***b* (e.g., overlapping them). In one nonlimiting example, the corner seal **32** joins the first and second sides **12***a*, **12***b* at about a 90° angle, or about 75-95°. In an embodiment, the corner seal **32** is comprised of a sufficient amount of wrap **14** to act as a foot **33** as shown in FIG. **8**. In other words, a sufficient portion of the outer wrap **14** extends beyond the seal **32** to create a ledge so to speak. The foot **33** (or ledge) may provide additional stability to the package **12** when it is placed on a shelf **22** or similar resting surface.

[0061] In addition, the soft-sided package **12** may comprise a package bulk of about 7 cm^3/g or greater according to the Package Compressibility Test Method herein, where the volume of the package **12** is based on its dimensions under a compression pressure of 100 gsi. In another embodiment, the package **12** may comprise a package bulk of about 8 cm^3/g or greater, or about 9 cm^3/g or greater or about 10 cm^3/g or greater according to the Package Compressibility Test Method, where the volume of the package **12** is based on its dimensions under a compression pressure of 100 gsi. In such embodiments, the package **12** may approximate the bulk of a hard-sided package (e.g., paperboard package) while providing the tactile benefits that a hard sided package cannot provide. For example, package bulk in a soft-sided package **12** provides an indication of softness and fluffiness while the same bulk in a hard-sided package does not give the same indication. The effect is analogous to a pillow versus a cardboard box. In one nonlimiting example, package bulk is increased by the addition of a structured sanitary tissue product **151**.

[0062] In another embodiment, the soft-sided package **12** of the present invention may exhibit a density of about 0.0150 g/cm^3 or less, or 0.0125 g/cm^3 or less, 0.0120 g/cm^3 or less or 0.0100 g/cm^3 or less, where the volume of the package **12** is based on its dimensions under a compression pressure of 100 gsi. Table 5 shows various properties of the soft-sided package **12** of the present invention versus properties of other packages. The packages in Table 5 each contain a plurality of sanitary tissue products **15**.

TABLE 5

ID	cm mils Pkg Depth @100 gsi	cm mils Pkg Width @100 gsi	cm mils Pkg Height @100 gsi	g Pkg Weight	g/cm^3 Pkg Density	cm^3/g Pkg Bulk
	Units					
KLEENEX ® hard box containing KLEENEX ® Regular facial tissues (160 count)	8.67 3415	12.17 4791	22.67 8926	290.10	0.121	8.25
ANGEL SOFT ® soft-sided package containing ANGEL SOFT ® facial tissues (165 count)	6.40 2519	10.80 4252	21.72 8552	229.86	0.153	6.53
Invention - Soft-sided package of present invention containing PUFFS Basic ® facial tissues (132 count)	8.06 3173	10.82 4259	21.36 8410	178.47	0.096	10.43
Invention - Soft-sided package of present invention containing KLEENEX ® Regular tissues (132 count)	6.86 2700	11.77 4634	21.01 8274	218.22	0.129	7.77
Invention - Soft-sided package of present invention containing KLEENEX ® Regular facial tissues (160 count)	7.12 2803	11.77 4636	21.25 8365	243.28	0.137	7.32

[0063] In another embodiment, the package **12** may have a package depth compressibility of about 210 mils/log(gsi) or greater, or about 280 mils/log(gsi) or greater, or about 380 mils/log(gsi), or about 400 mils/log(gsi) or greater, or about 500 mils/log(gsi) in accordance with the Package Compressibility Test Method herein. The package depth compressibility values within the scope of the present invention provide a stronger indication of softness and flexibility, which is significant to indicate the properties of sanitary tissue products **15** to the end users.

[0064] Table 6 shows various compressibility values that for products within the scope of the present invention as well as products outside the scope of the present invention.

TABLE 6

ID	mils Pkg Depth near-zero load thickness b(c) 1250	mils/log(gsi) Pkg Depth Compressibility- m(c) 1250	log(gsi) Pkg Depth CompMod- b/m(c) 1250	mils/log(gsi) Pkg Depth Recoverability- m(r) 1250
	Units			
KLEENEX ® hard box containing KLEENEX ® Regular facial tissues (160 count)	3719	165.3	22.50	148.4
ANGEL SOFT ® soft-sided package containing ANGEL SOFT ® facial tissues (165 count)	2896	205.2	14.11	156.2
Invention - Soft-sided package of present invention containing PUFFS Basic ® facial tissues (132 count)	4126	526.0	7.91	432.8
Invention - Soft-sided package of present invention containing KLEENEX ® Regular Tissues (132 count)	3392	376.9	9.02	314.6
Invention - Soft-sided package of present invention containing KLEENEX ® Regular Tissues (160 count)	3332	286.4	11.66	251.3

[0065] In yet another embodiment, the package **12** may comprise a stiffener **35**, as shown in FIGS. **9**-**9**D. The stiffener **35** of the present disclosure is believed to provide more uniform deflation (i.e., shrinkage) as package contents are removed. In addition, the stiffener **35** of the present invention provides more uniform resistance for the outer edges of sanitary tissue products **15** during dispensing. This is especially important for large dispensing openings **24** in order to prevent dispensing of more than the desired number of products **15**, moving the package **12** as the sanitary tissue product **15** is being pulled and/or having the remaining products **15** fall over after one or more products **15** have been dispensed. In addition, a stiffener **35** may provide enough resistance to allow an end-user to use only one hand to pull the sanitary tissue product **15** while avoiding the above-noted issues.

[0066] In an embodiment, the stiffener **35** comprises a material **351** that is more rigid than the outer wrap **14**. Nonlimiting examples of suitable material **351** include paper, cut-resistant flexible material, polymeric films (that are more rigid than the outer wrap **14**), stiffened fabrics and combinations thereof. In one nonlimiting example, the stiffener **35** comprises paper, such as paperboard or cardboard. In another nonlimiting example, the stiffener **35** comprises a layered film.

[0067] The stiffener **35** may be fixedly associated with the outer wrap **14**. By way of nonlimiting examples, the stiffener **35** may be associated with the outer wrap **14** by adhesive and/or mechanical attachment (such as staples). In one embodiment, the stiffener **35** may be associated with the outer wrap **14** on the first side **12***a* of the package **12**. In an embodiment, the stiffener **35** is a stiffened or thickened portion of the sleeve **16** as discussed below. In an alternative embodiment, the stiffener **35** is not integral with the sleeve **16**. In one nonlimiting example, the stiffener **35** is disposed inside the package **12**. In an alternative nonlimiting example, the stiffener **35** is disposed on the outside of the package **12**. In yet another nonlimiting example, at least two stiffeners **35** are associated with the outer wrap **14**. In such example, the stiffeners **35** can both be disposed on the outside of the package **12** or on the inside of the package **12**, or one **35** may be disposed on the outside while the other **35** is disposed on the inside of the package **12**.

[0068] The stiffener **35** may be a strip, or other suitable shape, joined substantially parallel to an edge **24***b* of the dispensing opening **24**. The stiffener **35** may be located adjacent to the dispensing opening **24**. In an embodiment, the stiffener **35** is spaced a distance, D_{stiff}, from an edge **24***b* of the dispensing opening **24**, as measured between the closest points on the edge **24***b* and stiffener **35** (i.e., D_{stiff} is the shortest distance between the dispensing opening **24** and the stiffener **35**). D_{stiff} may be about 2.5 cm or less, or 2 cm or less, or about 1 cm or less or about 0.5 cm or less, or about 0 mm.

[0069] The stiffener **35** can be generally in a strip form and comprise a width, W_{stiff}, and a height, H_{stiff}, which directionally correspond with the width and height dimensions of the package **12** and the first side **12***a* as shown in FIG. **9**. In one nonlimiting example, W_{stiff} is less than the W_{side} (i.e., the width of the first side **12***a*). In another nonlimiting example, W_{stiff} is greater than W_{side}, such that the stiffener **35** may extend beyond the first side **12***a* and, if desired be folded, creating a portion of the depth, D_1, on one or more sides of the package **12** as shown in FIG. **9**A. In yet another nonlimiting example, H_{stiff} may be less than H_{side} (i.e., the height of the first side **12***a*). Alternatively, H_{stiff} may be greater than H_{side} such that the stiffener **35** may extend beyond the first side **12***a* and if desired be folded, creating a portion of the depth, D_1, on one or more sides of the package **12** as shown in FIG. **9**. In another nonlimiting example, H_{stiff} and H_{side} are substantially the same and/or W_{stiff} and W_{side} are substantially the same.

[0070] The stiffener **35** may comprise any shape and/or size suitable for providing resistance during dispensing and/or more uniform shrinkage of the package **12**. In one nonlimiting example, the stiffener **35** is substantially rectangular and in strip form as shown in FIG. **9**. In another nonlimiting example, the stiffener **35** is substantially oval as shown in FIG. **9**A. Other nonlimiting examples of suitable shapes are illustrated in FIGS. **9**-**9**D. Where more than one stiffener **35** is used, any combination of shapes and sizes may be used. In one embodiment, where more than one stiffener **35** is used, the stiffeners **35** comprise the same shape and/or the same size.

The Sanitary Tissue Products

[0071] In an embodiment, the package **12** comprises a sanitary tissue product **15** or a plurality of sanitary tissue products **15**. Nonlimiting examples of sanitary tissue products **15** include facial tissue, bath tissue and paper towels.

[0072] In an embodiment, the sanitary tissue product **15** comprises a structured sanitary tissue product **151** as shown in FIGS. **10** and **11**. The structured sanitary tissue product **151** comprises textural elements **152** that are wet-formed. In an embodiment, the wet-formed textural elements **152** are produced in a papermaking method utilizing Through-Air-Dried (TAD) technology. Such methods are well developed in the art. TAD paper can have more structure imparted during the papermaking process (as opposed to post-making converting processes such as embossing) than conventional wet press paper.

[0073] In another embodiment, the structured sanitary tissue product **151** comprises textural elements **152** that are made in a papermaking process and wet-formed on a textured belt such as a photo-curable resin patterned through-air-drying belt, as taught in commonly assigned U.S. Pat. No. 4,528,239, issued Jul. 9, 1985 to Trokhan, for example. The textural elements **152** may include relatively high density regions **152***a*, sometimes referred to as knuckles, and relatively low density regions **152***b*, sometimes referred to as domes or pillows.

[0074] In another nonlimiting example, the structured sanitary tissue product **151** also comprises an embossment (not shown). In yet another nonlimiting example, the package **12** comprises a plurality of sanitary tissue products **15**. The plurality of sanitary tissue products **15** may comprise a structured sanitary tissue product **151** and/or a non-structured sanitary tissue product (not shown).

[0075] The sanitary tissue product **15**, or a plurality of sanitary tissue products **15**, may be disposed within the outer wrap **14**. The plurality of sanitary tissue products **15** may be stacked or rolled. The plurality of sanitary tissue products **15** may be interfolded.

[0076] In one embodiment, the plurality of sanitary tissue products **15** has a paper stack compressibility of about 12 mils/log(gsi) or greater, or about 16 mils/log(gsi) or greater, or about 7 mils/log(gsi) to about 20 mils/log(gsi) in accordance with the Paper Stack Compressibility Test Method disclosed herein. In a further embodiment, a sanitary tissue product **15** may comprise a paper thickness, t_{paper}, of about 11 mils or greater, or from about 8 mils to about 12 mils or about every 0.1 interval in between 8 mils and 12 mils, or about 12 mils, each value being obtained at a compression pressure of about 25 gsi and in accordance with the Paper Stack Compressibility Test Method. In still further embodiment, a sanitary tissue product **15** may comprise a paper thickness, t_{paper}, of about 9 mils or greater, or from about 5 mils to about 10 mils, or about every 0.1 interval in between 5 mils and 10 mils, or about 9 mils, or about 10 mils, each value being obtained at a compression pressure of 100 gsi and in accordance with the Paper Stack Compressibility Test Method. In another nonlimiting example, the sanitary tissue product **15** may comprise a thickness, t_{paper}, at a compression pressure of 95 gsi of about 5 mils to about 45 mils, or about 5.5 mils to about 7.5 mils, or about 13 mils to about 23 mils, or about 16 mils to about 28 mils, or about 20 mils to about 40 mils, or any 0.1 interval in between 5 and 40 mils.

[0077] In yet another embodiment, the sanitary tissue product **15** may comprise a paper bulk of about 6 cm^3/g or greater, or about 7 cm^3/g or greater, or about 8 cm^3/g or greater or about 9 cm^3/g or greater, or from about 6 cm^3/g to about 11 cm^3/g, or from about 7 cm^3/g to about 10 cm^3/g at a compression pressure of 25 gsi in accordance with the Paper Stack Compressibility Test Method herein. The sanitary tissue product **15** may comprise a paper bulk of about 6 cm^3/g or greater, or about 7 cm^3/g or greater, or about 8 cm^3/g or greater, or from about 5 cm^3/g to about 9 cm^3/g, or from about 6 cm^3/g to about 8.5 cm^3/g at a compression pressure of 100 gsi in accordance with the Paper Stack Compressibility Test Method herein.

[0078] In a further embodiment, the sanitary tissue product **15** may comprise a paper bending modulus of about 9 MPa or less, or about 8 MPa or less, or about 3 MPa or less, or about 2 MPa for a paper thickness, t_{paper}, taken at a compression pressure of 25 gsi. The sanitary tissue product **15** may comprise a paper bending modulus of about 13 MPa or less, or about 10 MPa or less, or about 6 MPa or less, or about 5 MPa or less for a paper thickness, t_{paper}, taken at a compression pressure of 100 gsi.

[0079] Tables 7-8 illustrate various characteristics of sanitary tissue products **15** that may be used within the scope of the present invention.

TABLE 7

ID	Units						
	gsm Paper BW	mils/log(gsi) Paper Stack Comp. - m(c) 1250	log(gsi) Paper Stack Comp. Modulus - b/m(c) 1250	mils t_{paper} per uu @25 gsi	mils t_{paper} per uu @100 gsi	mils t_{paper} per uu @300 gsi	mils Paper Avg. Recovered Thickness per uu 10-1250
KLEENEX ® Regular facial tissue #1	33.04	11.24	5.73	9.73	8.21	7.24	6.88
ANGEL SOFT ® facial tissue	28.63	7.50	6.59	7.76	6.82	6.15	5.87
PUFFS Basic ® facial tissue	29.65	16.06	5.02	11.59	9.72	8.10	9.93
KLEENEX ® Regular facial tissue #2	32.64	10.90	5.76	9.49	8.06	7.10	7.38

TABLE 8

ID	Units					
	cm^3/g Paper Bulk @25 gsi	cm^3/g Paper Bulk @100 gsi	N*mm Paper Plate Stiffness (5 sht)	# # sheets used in plate stiffness test	MPa Paper Bending Modulus (wrt t@25 gsi)	MPa Paper Bending Modulus (wrt t@100 gsi)
KLEENEX ® Regular facial tissue #1	7.48	6.31	0.600	5	3.82	6.35
ANGEL SOFT ® facial tissue	6.88	6.05	0.700	5	8.79	12.93
PUFFS Basic ® facial tissue	9.93	8.32	0.630	5	2.37	4.02
KLEENEX ® Regular facial tissue #2	7.38	6.27	0.755	5	5.17	8.45

[0080] In an embodiment, the package **12** may comprise a specific relationship between the outer wrap **14** and the sanitary tissue product **15** contained within the package **12**. In one nonlimiting example, the package **12** may comprise a paper stack compressibility to wrap thickness ratio of about 2/log (gsi) or greater, or about 4/log(gsi) or greater, or about 5/log (gsi) or greater, where the paper stack compressibility is determined in accordance with the Stack Compressibility Test Method and the wrap thickness is measured at a compression pressure of 300 gsi. It is believed that a more compressible stack of sanitary tissue products **15** coupled with a thinner wrap **14** will better connote to an end user, through touch of the package **12**, that the enclosed sanitary tissue product **15** has desirable properties, such as softness, squeezability, flexibility and retained structural integrity.

[0081] In an additional embodiment, the package **12** has a wrap thickness to paper thickness ratio of less than about 0.7, or about 0.6 or less, or about 0.5 or less, or about 0.35 or less, where both the wrap thickness, t_{wrap}, and sanitary tissue product thickness, t_{paper}, are measured at a compression pressure of 300 gsi. It is believed that the disclosed ratio (i.e., a thick tissue product **15** with a thin wrap **14**) provides the end user with good perspective of the thickness of the enclosed sanitary tissue products **15** through examining the outer wrap **14** and package **12** visually and by touch.

[0082] In a further embodiment, the outer wrap **14** is a structured outer wrap **141** and a sanitary tissue product **15** enclosed in the package **12** is a structured sanitary tissue product **151**. It is believed that by using a structured outer wrap material **141**, the end user is better informed, through touch of the package **12**, the expected feel of the enclosed structured sanitary tissue product **151**. In one nonlimiting example, the structured sanitary tissue product **151** comprises wet-formed textural elements **152** formed in a TAD papermaking process. In still another nonlimiting example, the structured outer wrap **141** may be microembossed and/or embossed.

[0083] Table 9 illustrates relational attributes of the outer wrap **14** and sanitary tissue products **15** within the scope of the present invention.

TABLE 9

ID	mils/log(gsi) Paper Stack Comp.-m(c) 1250	Wrap Thickness (t_{wrap}) @300 gsi - 1 sheet	mils mils Paper Thickness (t_{paper}) per uu @ 300gsi	/log(gsi) Paper Stack Comp. to Wrap Thickness (t_{wrap})	none t_{wrap} to t_{paper}
KLEENEX ® hard box package material &/or KLEENEX ® Regular facial tissues	11.24	21.10	7.24	0.532	2.92
ANGEL SOFT ® soft-sided package material and/or ANGEL SOFT ® facial tissues	7.50	4.40	6.15	1.70	0.716
Outer wrap of present invention & PUFFS Basic ® facial tissues	16.06	2.75	8.10	5.83	0.340
Outer wrap of present invention & KLEENEX Regular ® facial tissues	10.90	2.75	7.10	3.96	0.387

The Sleeve

[0084] In one embodiment, the dispensing system **10** includes a sleeve **16**. The sleeve **16** may comprise a relatively rigid material **18**, meaning the material **18** is more rigid than the outer wrap **14** from which the soft-sided package **12** is formed and is generally rigid enough to be self-supporting when configured as described herein. Suitable materials **18** include but are not limited to paper, cut-resistant flexible material, polymeric films (that are more rigid than the outer wrap **14**, or layered to form a material that is more rigid than the outer wrap **14**), stiffened fabrics and combinations thereof. In one nonlimiting example, the sleeve **16** comprises paper, such as paperboard or cardboard. In another embodiment, the sleeve **16** is open on two opposing ends. Said differently, the sleeve **16** is topless and bottomless. In another embodiment, the sleeve **16** is not open on two opposing ends (i.e., it comprises a top and/or a bottom).

[0085] As can be seen in FIG. **12**, the sleeve **16** (like the soft-sided package **12**) may be configured to have a generally rectangular cross section and has a second width, W_2, a second depth, D_2, a second height, H_2, and a second perimeter, P_2. In one nonlimiting example, the second perimeter, P_2 is substantially equal to $2(W_2+D_2)$ as shown in FIG. **12**. In another nonlimiting example, the second perimeter, P_2, is substantially equal to $2(H_2+D_2)$ as shown in FIG. **13**. In an embodiment, the sleeve **16** generally circumferentially surrounds the soft-sided package **12**. In one nonlimiting example, the second perimeter, P_2, is substantially equal to or slightly less than the first perimeter, P_1, such that an interior surface of the sleeve **16** is in contacting relationship with the exterior surface of the soft-sided package **12**. The sleeve **16** can be in frictionally stable contact such that it does not slide off of soft-sided package **12** under slight forces such as the force of gravity when soft-sided package **12** is held. The sleeve **16** can be attached with adhesive, tape or other suitable means of adhesion. Alternatively, the second perimeter, P_2 may be greater than the first perimeter, P_1, such that the sleeve **16** fits loosely, or somewhat loosely, about the package **12**.

[0086] In yet another embodiment shown in FIG. **14**, the sleeve **16** can comprise a single panel **16'** associated with one or more sides of the soft-sided package **12**. FIG. **14** illustrates the sleeve **16** and the package **12** separated for illustrative purposes. However, the single panel **16'** may be associated with the package **12** by any suitable means, including for example, staples and/or adhesive. The sleeve panel **16'** may be associated with a side of the package **12*a*** such that the package is more stable on a horizontal surface. In one nonlimiting example, the sleeve's panel **16'** is attached to a first side **12*a*** of the package and folded such that the a portion of the panel **16'** is associated with a second side **12*b*** of the package **12**, where the second side **12*b*** is adjacent to the first side **12*a*** and the second side **12*b*** can be placed on a horizontal shelf **22**. The panel **16'** may be attached to the first side **12*a*** or the second side **12*b*** or both sides **12*a***, **12*b***. Where attached, the panel **16'** may be attached by any suitable means, including but not limited to tape, adhesive or staples.

[0087] The sleeve's **16** dimensions may be measured by measuring a peak length along that dimension, or a minimum length along that dimension or said dimension may be the average and/or constant length along that dimension. For example, the second height, H_2, may be a peak height located anywhere on the sleeve **16** as shown in FIG. **12**. FIG. **13** shows the same principle with respect to the width, W_2. In another example, the second height, H_2, can be a minimum height located anywhere on the sleeve **16**. In one nonlimiting example, the second height, H_2, second width, W_2 and/or second depth, D_2 is located in the center of one or more sides of the sleeve **16**. In another nonlimiting example, the second height, H_2, may be the average and/or constant height of the sleeve **16** as shown in FIG. **15**. The same principle applies to the width and depth dimensions (W_2 and D_2).

[0088] The second height, H_2, may be less than the first height, H_1. In one nonlimiting example, the second height, H_2, is at least 30% of the first height, H_1, or between 20% and 80% of the first height, H_1. The second height, H_2, second width, W_2, and second depth, D_2, may be viewed on a Cartesian coordinate system such that they are mutually orthogonal. In an intended use, the sleeve **16** may be placed on a horizontal surface, such as a substantially horizontal shelf **22** that would be present in a store or in a consumer's home or workplace. The sleeve **16** may be placed such that the second height, H_2, is perpendicular to the horizontal shelf **22**, causing the second height, H_2, to be vertically oriented, and the second width W_2 and second depth, D_2 to lay in a plane parallel the plane of the shelf **22** (see FIG. **2**). Alternatively, the sleeve **16** may be placed on the shelf **22** such that the second depth, D_2, or the width, W_2, is perpendicular to the shelf **22** when sleeve **16** is in an alternative in-use orientation, causing the second depth, D_2, or the second width, W_2, respectively to be vertically oriented (see FIG. **13**). In one embodiment, the second depth, D_2, may be less than the first depth, D_1. In another embodiment, the second width, W_2, may be less than the first width, W_1.

[0089] In a further embodiment, the sleeve **16** substantially surrounds the soft-sided package **12** and both the first height, H_1, and the second height, H_2, are vertically oriented on the shelf **22** (as shown in FIG. **2** for example). At least a portion of the sleeve **16** may be in contacting relationship with the substantially horizontal shelf **22**. In another embodiment, at least a portion of the package **12** may be in contacting relationship with the shelf **22**. Having both the first height, H_1, and the second height, H_2, be vertically oriented allows the soft-sided package **12** to be presented to consumers in a generally vertical relationship (on its end, so to speak) in a stable fashion. Alternatively, the dispensing system **10** may be oriented such that both the first height, H_1, and the second height, H_2, are horizontally oriented on the shelf **22** (as shown in FIG. **13**). In such nonlimiting example, P_2 and P_1 may equate to the sums of the respective height and depth dimensions as shown in FIG. **13**. In any orientation, the sleeve **16** helps prevent the package **12** from falling.

[0090] In yet another nonlimiting example, the sleeve **16** substantially surrounds the perimeter, P_1, of the soft-sided package **12** and each dimension of the package (D_1, W_1, H_1) is oriented with the respective dimension of the sleeve **16** (D_2, W_2, H_2) when package **12** and sleeve **16** are in their in-use orientation. In other words, for example, if D_1 is horizontally oriented, then D_2 is horizontally oriented.

[0091] In one embodiment, the sleeve **16** exhibits the second height, H_2, on a main panel **16*a***, as shown in FIGS. **2** and **12**. In a further embodiment, depicted in FIG. **15** for example, the sleeve **16** substantially surrounds the perimeter, P1, of the package **12** such that the main panel **16*a*** aligns with a side **12*a*** of the package **12** having the dispensing opening **24**. The sleeve **16**, in particular the second height, H_2, may be sufficient to cover a portion of the dispensing opening **24**. In one nonlimiting example, the sleeve **16**, at the point at which it exhibits the second height, H_2, may be sufficient to cover the entire dispensing opening **24**. Likewise, as in FIG. **13**, one or both of the other dimensions of the sleeve **16** (D_2 and/or W_2) may be sufficient to cover a portion or all of the dispensing opening **24**. Covering the dispensing opening **24** prevents damage of the opening **24**, particularly where the dispensing opening **24** is formed from or otherwise incorporates a line of weakness **24*a***.

[0092] Returning to FIG. **12**, the sleeve **16** may also comprise indicia **20** in a reading orientation as defined above. For example, the term "Brand" shown in FIG. **12**, which is representative of a manufacturer's brand information **26** is oriented such that when the sleeve **16** is shelved with height H_2 being perpendicular to the shelf **22**, the indicia **20** of the brand information **26** is "upside up," so to speak and is in reading orientation. Indicia **20** may be present on one or more sides of the sleeve **16**. As explained in more detail below, indicia **20** may be oriented differently on each side of the sleeve **16**. Indicia **20** on the sleeve may be the same as or different from indicia **20** on the package **12**.

[0093] In addition, the sleeve **16** may comprise a second design **30**, as shown in FIG. **13** for example. The second design **30** may complement the first design **28** located on the package **12**. For instance, the designs **28**, **30** may have similar or corresponding shapes, colors, patterns, indicia or the like. Alternatively, the designs **28**, **30** may coordinate visually without having similar shapes, colors, patterns or indicia. In one nonlimiting example, the design **28** of the package is a different color and/or pattern from the design **30** of the sleeve **16**, but both designs **28**, **30** are aesthetically coordinated.

[0094] In a further embodiment, the sleeve **16** comprises a fold-in stabilizer **36** as depicted in FIGS. **12**, **15** and **16**. In one nonlimiting example, the sleeve **16** comprises at least two fold-in stabilizers **36**. The fold-in stabilizer **36** may be formed from a lateral cut **38** spanning across two sides **16***b*, **16***c* at a corner of the sleeve **16** and being perpendicular to the second height, H_2. The cut **38** may intersect a fold line **40** present between the two sides **16***b*, **16***c* of the sleeve **16**. The portion of the sleeve **16** below the cut is folded inwards, creating the fold-in stabilizer **36**. When engaged (i.e., folded in), the fold-in stabilizer **36** may provide a platform on which the package **12** may sit. The cut **38** may be a third height, H_3, sufficient to provide stability to the package **12** and/or prevent the package **12** from touching a shelf **22** or similar surface once the fold-in stabilizer **36** is engaged. In another nonlimiting example, the sleeve **16** comprises two fold-in stabilizers **36** on adjacent edges of the sleeve **16** (not shown). One of skill in the art will recognize that lateral cut **38** may be made with respect to the width or depth dimensions as opposed to the height dimension if so desired.

[0095] Turning to FIG. **17**, the sleeve **16** may comprise an exterior surface **165**, having multiple sides. One or more sides may comprise indicia **20**. Each side may be externally facing such that each is viewable when the sleeve **16** is placed around a package **12**. In one nonlimiting example, a first indicia **20***a* is provided on a first side **160**, a second indicia **20***b* is provided on a second side **162** and a third indicia **20***c* is provided on a third side **164** of the sleeve **16**. The indicia **20***a*, **20***b*, **20***c* on each side **160**, **162**, and **164** are each provided in reading orientation. The indicia **20***a*, **20***b* and **20***c* may be the same or different, or partially the same or partially different. In an embodiment, the indicia **20***a*, **20***b*, **20***c* are oriented differently relative to one another. In one nonlimiting example, the first indicia **20***a* is generally aligned along a vertical axis with individual characters "upside up" as depicted in FIG. **17**, which renders it in a reading orientation when the sleeve **16** is set on a shelf **22** as depicted in FIG. **2**. The second indicia **20***b* is generally aligned along a horizontal axis and substantially perpendicular to the first indicia **20***a* with respect to the axis of alignment of the characters, but again the characters are "upside up" and therefore in a reading orientation when the sleeve **16** is set on a shelf **22** as depicted in FIG. **2** The third indicia **20***c* is generally aligned along a vertical axis, being substantially perpendicular to the second indicia **20***b* with respect to the axis and having each character substantially perpendicular to the orientation of the characters in the first indicia **20***a*, and is not in a reading orientation when the sleeve **16** is set on a shelf **22** as depicted in FIG. **2**. In other words, the indicia **20***a*, **20***b*, **20***c* on each sleeve side **160**, **162**, **164** differs from another side with respect to the axis on which the characters are aligned and/or with respect to the orientation of the individual characters within the indicia **20***a*, **20***b*, **20***c*. One of skill in the art will recognize that the orientation may vary in ways other than perpendicularly. Indeed, the axes of alignment of the different indicia **20***a*, **20***b*, **20***c* or the individual characters of each different indicia **20***a*, **20***b*, **20***c* may be oriented at any angle relative to one other suitable for practice of the present invention. The indicia **20***a*, **20***b*, **20***c* may not be in reading orientation simultaneously. Said differently, for example, the sleeve **16** may be provided in one position for the second indicia **20***b* to be in reading orientation and provided in another position for the third indicia **20***c* to be in reading orientation. However, the multiple orientations provide for flexibility in display designs and ease in product recognition. Although described with respect to the sleeve **16**, the package **12** may include indicia **20** present on different sides of the package **12***a*, **12***b*, **12***c* and having different reading orientations as contemplated in this paragraph. The indicia on each side **12***a*, **12***b*, **12***c* of the package **12** may be the same or may be different. A nonlimiting example is shown in FIG. **1**. Where both the sleeve **16** and the package **12** comprise indicia **20**, the indicia on aligned sides may be in the same reading orientation or differently oriented. For example in FIG. **15**, the indicia **20** on the front side of the package **12***a* and the indicia **20** on the front side of the sleeve **16***a* are oriented in substantially the same manner and thus have the same reading orientation, while the reading orientations of the indicia **20** on the left side of the sleeve **16***b* and the left side of the package **12***c* are not oriented the same and do not have the same reading orientation.

[0096] In still another embodiment, shown in FIG. **18**, the sleeve **16** comprises one or more stiffeners **35**. The stiffener **35** may be associated with the outer wrap **14** as discussed above. In one nonlimiting example, the stiffener **35** is disposed on the main panel **16***a* of the sleeve **16**. In an embodiment, the sleeve **16** comprises a removable portion **161**. Removal of the removable portion **161** may be facilitated by a line of weakness, such as perforations, or any other suitable means. The removable portion **161** may be adjacent to the stiffener **35**, such that when the removable portion **161** is removed, the stiffener **35** remains associated with the outer wrap **14**. In one nonlimiting example, the removable portion **161** covers at least a portion of the dispensing opening **24**. One or more removable portions **161** may be employed.

Other Configurations

[0097] In one embodiment depicted in FIG. **19**, the dispensing system **10** may comprise a plurality of soft-sided packages **120**, **122**, **124**. The soft-sided packages **120**, **122**, **124** may have any of the features described in detail above. By way of nonlimiting example, each of the packages **120**, **122**, **124** may be made of outer wrap **14** and have a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or less or about 3 MPa/μm or less. Each package **120**, **122**, **124** may also comprise a plurality of sanitary tissue products **15** and/or a corner seal **32**. The sanitary tissues **15** in one package **120** may be the same or different from the sanitary tissue products **15** in other packages **122**, **124**. At least one of the packages **12** may have a first height, H_1, which may be the longest dimension of that package **12**.

[0098] The packages **120**, **122**, **124** may be placed side-by-side and or front-to-back such that their height, width and depth dimensions are respectively oriented in the same direction (i.e., depth of package **1** is oriented in the same manner as the depth of package **2**, height of package **1** is oriented in the same manner as the height of package **2**, etc.). When placed in close proximity or contacting relationship, the plurality of packages **120**, **122**, **124** collectively form a circumference, C_1, extending around perimeter of the collective packages **120**, **122**, **124**. In one nonlimiting example, the circumference, C_1, extends around the height and depth dimensions of the packages **120**, **122**, **124** (not shown). In another nonlimiting example, the circumference, C_1, extends around the width and the height dimensions of the packages **120**, **122**, **124** (not shown). In yet another nonlimiting example (as shown in FIG. **19**), the circumference, C_1, extends around the width and depth dimensions of the packages **120**, **122**, **124**. The packages **120**, **122**, **124** may each comprise a package design **280**, **282**, **284**. The package designs **280**, **282**, **284** may be the same or different, or partially the same or partially different.

[0099] In a further embodiment, a sleeve **16** substantially surrounds the circumference, C_1, and may be in contacting relationship with a substantially horizontal shelf **22**. The sleeve **16** may comprise any of the features described above. By way of nonlimiting example, the sleeve **16** may be made of a material **18** more rigid than the outer wrap **14** used to form the packages **120**, **122**, **124**, such as paperboard. Likewise, the sleeve **16** may have a second height, H_2, which may be less than the first height, H_1. In one nonlimiting example, the second height, H_2, is at least 30% of the first height, H_1. In one nonlimiting example, both the first height, H_1, and the second height, H_2, have a vertical orientation in their in-use orientation.

[0100] In a further embodiment, the second height, H_2, is the longest dimension of the sleeve **16**. In yet another embodiment, depicted in FIG. **19**, the longest dimension of the sleeve **16** may be oriented perpendicular to the longest dimension of one or more of the packages. In such case, for example, the first height, H_1, may have a vertical orientation in its in-use orientation, while the second height, H_2, may be in a plane parallel to the shelf **22**. The dispensing system **10** may be arranged such that the first height, H_1, is oriented in the same direction as any one of the sleeve's **16** dimensions (i.e., the second height, H_2, the second width, W_2, or the second depth, D_2) when the dispensing system **10** is in its in-use orientation. In a further embodiment, the first height, H_1, may be greater than the sleeve dimension (i.e., H_2, D_2 or W_2) that it is aligned with when the dispensing system **10** is in its in-use orientation. In one nonlimiting example, the sleeve dimension aligned with the first height, H_1, may be at least 30% of the first height, H_1. As above, the sleeve **16** may be placed such that it covers all or a portion of a dispensing opening **24** in one or more of the packages **120**, **122**, **124**. The sleeve **16** may also comprise one or more fold-in stabilizers **36** of the type described above and/or one or more stiffeners **35** as described above. Further, the sleeve **16** may comprise indicia **20** in reading orientation. The indicia **20** may comprise brand information **26**. Any of the packages **120**, **122**, **124** and/or the sleeve **16** may be provided with indicia **20** on one or more of their respective sides and said indicia **20** may be differently oriented. The sleeve **16** may also comprise a sleeve design **300**. The sleeve design **300** may complement one or more of the package designs **280**, **282**, **284**. For instance, one or more of the package designs **280**, **282**, **284** and the sleeve design **300** may have similar or corresponding shapes, colors, patterns, indicia or the like. Alternatively, the designs **280**, **282**, **284**, **300** may coordinate visually without having similar shapes, colors, patterns or indicia. In one nonlimiting example, one or more of the package designs **280**, **282**, **284** is a different color and/or pattern from the sleeve design **300** but the designs **280**, **282** and/or **284** and **300** are aesthetically coordinated.

Array

[0101] In a further embodiment, an array **42** of dispensing systems **10** is provided. As shown in FIG. **20**, the array **42** may comprise a first dispensing system **44** and a second dispensing system **46**. The first dispensing system **44** may comprise a first soft-sided package **48** having any of the features described above. The second dispensing system **46** may comprise a second soft-sided package **50** having any of the features described above. Each package **48**, **50** may comprise a plurality of sanitary tissue products **15**. The sanitary tissue products **15***a* in the first soft-sided package **48** may be the same or different from the sanitary tissue products **15***b* in the second soft-sided package **50**.

[0102] In one embodiment, the first soft-sided package **48** comprises a first package design **52**. In a further embodiment, the second soft-sided package **50** comprises a second package design **54**. The first package design **52** may be the same or different, or partially the same or partially different, from the second design **54**. In one nonlimiting example, the first package design **52** and the second package design **54** complement each other. For instance, the designs **52**, **54** may have similar or corresponding shapes, colors, patterns, indicia or the like. Alternatively, the designs **52**, **54** may coordinate visually without having similar shapes, colors, patterns or indicia. In one nonlimiting example, the designs **52**, **54** are different colors and/or patterns but both designs **52**, **54** are aesthetically coordinated.

[0103] In another embodiment, the array **42** optionally includes a first sleeve **56**. The first sleeve **56** substantially surrounds the first soft-sided package **48** in the same way as described above with respect to sleeves **16** surrounding the perimeter, P_1, of a package **12**. Essentially, the first soft-sided package **48** has a first perimeter, P_3, which may be defined as the sum of the package's **48** width and depth dimensions. (One of skill in the art will recognize that the perimeter, P_3, alternatively could be defined as the sum of the package's **48** width and height dimensions or the sum of its depth and height dimensions). The first sleeve **56** substantially surrounds this first perimeter, P_3. The first sleeve **56** may comprise first indicia **60** in reading orientation. The first sleeve **56** may also comprise a first color scheme, CS**1**.

[0104] The array **42** may also be provided with a second sleeve **58** which substantially surrounds the perimeter, P_4 (referred to as the second perimeter), of the second soft-sided package **50**. The second sleeve **58** may comprise indicia **62** in reading orientation. The indicia **60** of the first sleeve **56** may be the same or different, or partially the same or partially different, as the indicia **62** on the second sleeve **58**. The second sleeve **58** may also comprise a second color scheme, CS**2**. The second color scheme, CS**2**, may be the same or different, or partially the same or partially different, from the first color scheme, CS**1**.

[0105] One or both sleeves **56**, **58** may comprise one or more fold-in stabilizers **36** and/or one or more stiffeners **35**.

Test Methods

[0106] Package Compressibility Test Method

[0107] Package thickness (measured in mils, 0.001 inch) is measured as a function of compression pressure (g/in^2) using a Thwing-Albert (14 W. Collings Ave., West Berlin, N.J.) Vantage Compression/Softness Tester (model 1750-2005 or similar), equipped with a 2500 g load cell (force accuracy is +/−0.25% when measuring value is between 10%-100% of load cell capacity, and 0.025% when measuring value is less than 10% of load cell capacity), a 1.128 inch diameter steel pressure foot (one square inch cross sectional area) which is aligned parallel to the steel anvil (2.5 inch diameter). The pressure foot and anvil surfaces must be clean and dust free, particularly when performing the steel-to-steel test. Thwing-Albert software (MAP) controls the motion and data acquisition of the instrument.

[0108] The instrument and software is set-up to acquire crosshead position and force data at a rate of 50 points/sec. The crosshead speed (which moves the pressure foot) for testing samples is set to 1.0 inches/min (the steel-to-steel test speed is set to 0.05 inches/min). For testing the package with the top (i.e., the sheet releasing area) facing up, the crosshead position and force data are recorded between the load cell range of approximately 5 and 1500 grams during compression of this test. Since the foot area is one square inch, the force data recorded corresponds to pressure in units of g/in^2. The MAP software is programmed to the select 15 crosshead position values at specific pressure trap points of 10, 25, 50, 75, 100, 125, 150, 200, 300, 400, 500, 600, 750, 1000, and 1250 g/in^2 (i.e., recording the crosshead position of very next acquired data point after the each pressure point trap is surpassed).

[0109] For the other two dimensions of the package (i.e., width and height), the crosshead position and force data are recorded between the load cell range of approximately 5 and 305 grams during compression of this test, with the maximum compression force not exceeding 305 grams for these two dimensions.

[0110] Since the overall test system, including the load cell, is not perfectly rigid, a steel-to-steel test is performed (i.e., nothing in between the pressure foot and anvil) at least twice for each batch of testing, to obtain an average set of steel-to-steel crosshead positions at each of the 15 trap points. This steel-to-steel crosshead position data is subtracted from the corresponding crosshead position data at each trap point for each tested package sample, thereby resulting in the package thickness (mils) at each pressure trap point.

$$\mathrm{Pack}T(\mathrm{trap})=\mathrm{PackCP}(\mathrm{trap})-\mathrm{SteelCP}(\mathrm{trap})$$

[0111] Where:

[0112] trap=trap point pressure

[0113] PackT=Thickness of Package (at trap pressure)

[0114] PackCP=Crosshead position of Package in test (at trap pressure)

[0115] SteelCP=Crosshead position of steel-to-steel test (at trap pressure)

[0116] The package is placed on the anvil, with its sheet releasing area facing up (unopened), centered with respect to the pressure foot. Additional (duplicate) tests must be performed on a different, untested package.

[0117] From these one or more tests, an average crosshead position of the package at each trap pressure (i.e., PackCP (trap)) is calculated. Then, using the average steel-to-steel crosshead trap points (i.e., SteelCP(trap)), the average package thickness at each trap (i.e., PackT(trap)) is calculated (mils).

[0118] Package Compressibility is defined here as the absolute value of the linear slope of the package thickness (mils) as a function of the log(10) of the compression pressure (grams/in^2), by using the 15 trap points discussed previously, in a least squares regression. The units for Package Compressibility are mils/(log(g/in^2)), and is reported to the nearest 0.1 mils/(log(g/in^2)). Thickness (mils) at any compression pressure (trap) is calculated as described above, as PackT (trap), and reported to the nearest 0.1 mils.

[0119] Package Bulk is calculated by dividing the package volume (cm^3) by its mass (g). The weight of the package is measured using a top loading analytical balance with a resolution of ±0.01 g. The balance is protected from air drafts and other disturbances using a draft shield. Measure the mass of the package and record the result to the nearest 0.01 g. The package volume is calculated from the product of the package thickness of each of its three dimensions (height, depth, and length) at 100 gsi pressure, using the method described above (i.e., PackT(100)), converted to units of cm^3. Package Bulk is reported in units of cm^3/g to the nearest 0.01 cm^3/g.

[0120] For purposes of this test method, package refers to an outer package containing one or more sanitary tissue products. FIG. **4** illustrates an exemplary package and its dimensions as measured for the above-described test method.

[0121] Stack Compressibility Test Method

[0122] Stack thickness (measured in mils, 0.001 inch) is measured as a function of compression pressure (g/in^2) using a Thwing-Albert (14 W. Collings Ave., West Berlin, N.J.) Vantage Compression/Softness Tester (model 1750-2005 or similar), equipped with a 2500 g load cell (force accuracy is +/−0.25% when measuring value is between 10%-100% of load cell capacity, and 0.025% when measuring value is less than 10% of load cell capacity), a 1.128 inch diameter steel pressure foot (one square inch cross sectional area) which is aligned parallel to the steel anvil (2.5 inch diameter). The pressure foot and anvil surfaces must be clean and dust free, particularly when performing the steel-to-steel test. Thwing-Albert software (MAP) controls the motion and data acquisition of the instrument.

[0123] The instrument and software is set-up to acquire crosshead position and force data at a rate of 50 points/sec. The crosshead speed (which moves the pressure foot) for testing samples is set to 0.20 inches/min (the steel-to-steel test speed is set to 0.05 inches/min). Crosshead position and force data are recorded between the load cell range of approximately 5 and 1500 grams during compression of this test. Since the foot area is one square inch, the force data recorded corresponds to pressure in units of g/in^2. The MAP software is programmed to the select 15 crosshead position values at specific pressure trap points of 10, 25, 50, 75, 100, 125, 150, 200, 300, 400, 500, 600, 750, 1000, and 1250 g/in^2 (i.e., recording the crosshead position of very next acquired data point after the each pressure point trap is surpassed).

[0124] Since the overall test system, including the load cell, is not perfectly rigid, a steel-to-steel test is performed (i.e., nothing in between the pressure foot and anvil) at least twice for each batch of testing, to obtain an average set of steel-to-steel crosshead positions at each of the 15 trap points. This steel-to-steel crosshead position data is subtracted from the corresponding crosshead position data at each trap point for each tested stacked sample, thereby resulting in the stack thickness (mils) at each pressure trap point.

$$\mathrm{Stack}T(\mathrm{trap})=\mathrm{StackCP}(\mathrm{trap})-\mathrm{SteelCP}(\mathrm{trap})$$

[0125] Where:

[0126] trap=trap point pressure

[0127] StackT=Thickness of Stack (at trap pressure)

[0128] StackCP=Crosshead position of Stack in test (at trap pressure)

[0129] SteelCP=Crosshead position of steel-to-steel test (at trap pressure)

[0130] A stack of five (5) sheets of wrap material, or five usable units (uu) of paper, is prepared for testing as follows. If testing wrap material, cut five sheets of an area larger than at least 2 inches diameter, avoiding creases, folds, glued regions, and any other artifact not part of the unaltered wrap material. If testing paper, create a stack of five usable units by unfolding any folds present in each sheet, and aligning the edges to each other.

[0131] The 5 sheets (one usable unit thick each) of the same approximate dimensions, are placed one on top the other, with their MD aligned in the same direction, their outer face all pointing in the same direction, and their edges aligned +/−3 mm of each other. The portion of the stack where compression testing will take place is never to be physically touched, stretched, and/or strained (this includes never to 'smooth out' the surface with a hand or other apparatus prior to testing).

[0132] The 5 sheet stack is placed on the anvil, positioning it such that the pressure foot will contact the stack no closer than 5 mm from any edge. If testing paper, the foot must avoid contacting any fold creases, glue, and/or edge embossing when at all possible (for wrap material, the entire prepared stack itself already does not contain folds, glue, etc.). Additional (duplicate) tests can be performed on a different stack, or on the same stack (if adequate testing area is available), so long as the new testing location for the pressure foot is in a physically untouched spot separated by at least ¼inch from any other previous test.

[0133] From these one or more tests, an average crosshead position of the stack at each trap pressure (i.e., StackCP(trap)) is calculated. Then, using the average steel-to-steel crosshead trap points (i.e., SteelCP(trap)), the average stack thickness at each trap (i.e., StackT(trap)) is calculated (mils).

[0134] Stack Compressibility is defined here as the absolute value of the linear slope of the stack thickness (mils) as a function of the log(10) of the compression pressure (grams/in^2), by using the 15 trap points discussed previously, in a least squares regression. The units for Stack Compressibility are mils/(log(g/in^2)), and is reported to the nearest 0.1 mils/(log(g/in^2)). Thickness (mils) (i.e., Paper Thickness or Wrap Thickness) at any compression pressure (trap) is calculated as the StackT(trap) divided by the number of layers in the stack, and reported to the nearest 0.1 mils.

[0135] Wrap Density at a given compression pressure is calculated by dividing the Wrap Basis Weight by the thickness of the wrap at a desired compression pressure using the method described above (i.e., StackT(300) divided by the number of layers in the stack, if the thickness is taken at 300 gsi compression pressure). Wrap Density is reported in units of g/cm^3. Wrap Bulk at a given compression pressure is the inverse of Wrap Density at the given compression pressure and is reported in units of cm^3/g to the nearest 0.01 cm^3/g.

[0136] Paper Density at a given compression pressure is calculated by dividing the Paper Basis Weight by the thickness of the sanitary tissue product at a desired compression pressure using the method described above (i.e., StackT(25) divided by the number of layers in the stack, if the thickness is taken at 25 gsi compression pressure; or StackT(100) divided by the number of layers in the stack, if the thickness is taken at 100 gsi compression pressure; or StackT(300), divided by the number of layers in the stack, if the thickness is taken at 300 gsi compression pressure). Paper Density is reported in units of g/cm^3. Paper Bulk at a given compression pressure is the inverse of Paper Density at the given compression pressure and is reported in units of cm^3/g to the nearest 0.01 cm^3/g.

[0137] Plate Stiffness Test Method

[0138] As used herein, the "Plate Stiffness" test is a measure of stiffness of a flat sample as it is deformed downward into a hole beneath the sample. For the test, the sample is modeled as an infinite plate with thickness "t" that resides on a flat surface where it is centered over a hole with radius "R". A central force "F" applied to the tissue directly over the center of the hole deflects the tissue down into the hole by a distance "w". For a linear elastic material the deflection can be predicted by:

$$w = \frac{3F}{4\pi Et^3}(1-v)(3+v)R^2$$

where "E" is the effective linear elastic modulus, "v" is the Poisson's ratio, "R" is the radius of the hole, and "t" is the thickness of the tissue, taken as the caliper in millimeters measured on a stack of 1 to 5 tissues (or other test material) under a specified load (in grams force per square inch of area, gsi). Taking Poisson's ratio as 0.1 (the solution is not highly sensitive to this parameter, so the inaccuracy due to the assumed value is likely to be minor), the previous equation can be rewritten for "w" to estimate the effective modulus as a function of the flexibility test results:

$$E \approx \frac{3R^2}{4t^3}\frac{F}{w}$$

[0139] The test results are carried out using an MTS Alliance RT/1, Insight Renew, or similar model testing machine (MTS Systems Corp., Eden Prairie, Minn.), with a 50 Newton load cell, and data acquisition rate of at least 25 force points per second. As a stack of five tissue sheets or wrap material (created without any bending, pressing, or straining) at least 2.5-inches by 2.5 inches, but no more than 5.0 inches by 5.0 inches, oriented in the same direction, sits centered over a hole of radius 15.75 mm on a support plate, a blunt probe of 3.15 mm radius descends at a speed of 20 mm/min.

[0140] For typical tissue paper, sample preparation consists of removing five (5) usable units, and carefully forming a 5 sheet stack, and cutting the stack in square dimensions, unfolding any folds (common in facial tissue) and avoiding creases from such folds. For packaging wrap material, sample preparation consists of creating a 5 sheet stack by cutting five sheets of an area larger than at least 2 inches diameter (no larger than 5 inches by 5 inches square) avoiding creases, folds, glued regions, and any other artifact not part of the unaltered wrap material (which is typically found on side walls of the package/box).

[0141] Basis Weight Test Method for Outer Wrap Material

[0142] Basis weight of the package wrap material is measured on stacks of four squares using a top loading analytical balance with a resolution of ±0.001 g. The balance is protected from air drafts and other disturbances using a draft shield. Cut four squares of the wrap material using a precision cutting die (or other precision cutting device) to dimensions of 2.00 in ±0.01 in by 2.00 in ±0.01 in. Measure the mass of the sample stack and record the result to the nearest 0.001 g.

[0143] The Basis Weight is calculated in lbs/3000 ft^2 or g/m^2 as follows:

Basis Weight=(Mass of stack)/[(Area of 1 layer in stack)×(Number of layers)]

For example,

Basis Weight (lbs/3000 ft^2)=[[Mass of stack (g)/453.6 (g/lbs)]/[4 (in^2)/144 (in^2/ft^2)×4]]×3000

Or,

Basis Weight (g/m^2)=Mass of stack (g)/[25.806 (cm^2)/10,000 (cm^2/m^2)×4]

[0144] Report result to the nearest 0.1 lbs/3000 ft^2 or 0.1 g/m^2. Sample dimensions can be changed or varied using a similar precision cutter as mentioned above, so as at least 10 square inches of sample area is in the stack.

[0145] The dimensions and values disclosed herein are not to be understood as being strictly limited to the exact numerical values recited. Instead, unless otherwise specified, each such dimension is intended to mean both the recited value and a functionally equivalent range surrounding that value. For example, a dimension disclosed as "40 mm" is intended to mean "about 40 mm."

[0146] For every range cited, all 0.1 increments within the recited ranges are also specifically recited.

[0147] Every document cited herein, including any cross referenced or related patent or application and any patent application or patent to which this application claims priority or benefit thereof, is hereby incorporated herein by reference in its entirety unless expressly excluded or otherwise limited. The citation of any document is not an admission that it is prior art with respect to any invention disclosed or claimed herein or that it alone, or in any combination with any other reference or references, teaches, suggests or discloses any such invention. Further, to the extent that any meaning or definition of a term in this document conflicts with any meaning or definition of the same term in a document incorporated by reference, the meaning or definition assigned to that term in this document shall govern.

[0148] While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

What is claimed:

1. A dispensing system comprising:
- a soft-sided package comprising:
  - an outer wrap comprising a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or less,
  - a plurality of sanitary tissue products disposed within the outer wrap,
  - a first height, H_1, and a first perimeter;
- a rigid sleeve substantially surrounding the first perimeter, wherein the rigid sleeve comprises:
  - a material that has a rigidity greater than the rigidity of the outer wrap,
  - a second height, H_2, wherein the second height, H_2, is less than the first height, H_1, and
  - indicia in a reading orientation; and
- a substantially horizontal shelf, wherein the soft-sided package and the sleeve are oriented on the shelf such that the first height, H_1, and the second height, H_2, each have a vertical orientation and at least a portion of the sleeve is in contacting relationship with the shelf.

2. The dispensing system of claim **1** wherein the soft-sided package further comprises a corner seal.

3. The dispensing system of claim **1** wherein the sleeve comprises paper.

4. The dispensing system of claim **3** wherein the sleeve comprises paperboard.

5. The dispensing system of claim **1** wherein the second height, H_2, is at least 30% of the first height, H_1.

6. The dispensing system of claim **1** wherein the soft-sided package further comprises a dispensing opening and the sleeve covers at least a portion of the dispensing opening.

7. The dispensing system of claim **6** wherein sleeve covers the entire dispensing opening.

8. The dispensing system of claim **1** wherein the indicia comprises brand information.

9. The dispensing system of claim **1** wherein the soft-sided package has a first design and the sleeve has a second design and the first design complements the second design.

10. The dispensing system of claim **1** wherein the sleeve comprises a fold-in stabilizer.

11. A dispensing system comprising:
- a plurality of soft-sided packages, each soft-sided package comprising: an outer wrap, wherein the outer wrap has a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or less and a plurality of sanitary tissue products disposed within the outer wrap, wherein the plurality of soft-sided packages collectively comprise a circumference and at least one of the soft-sided packages comprises a first height, H_1;
- a rigid sleeve substantially surrounding the circumference, wherein the rigid sleeve comprises:
  - a material that has a rigidity greater than the rigidity of the outer wrap,
  - a sleeve dimension oriented in the same direction as the first height, H_1, and being less than the first height, H_1; and
  - indicia in a reading orientation; and
- a substantially horizontal shelf, wherein the plurality of soft-sided packages and the sleeve are oriented on the shelf such that the first height, H_1 has a vertical orientation and at least a portion of the sleeve is in contacting relationship with the shelf.

12. The dispensing system of claim **11** further comprising a corner seal.

13. The dispensing system of claim **11** wherein the sleeve comprises paper.

14. The dispensing system of claim **11** where the sleeve comprises a fold-in stabilizer.

15. The dispensing system of claim **11** wherein the sleeve dimension is at least 30% of the first height, H_1.

16. The dispensing system of claim **11** wherein the soft-sided package further comprises a dispensing opening and the sleeve covers at least a portion of the dispensing opening.

17. The dispensing system of claim **11** wherein the indicia comprises brand information.

18. The dispensing system of claim **11** wherein the at least one soft-sided package has a package design and the sleeve has a sleeve design and the package design complements the sleeve design.

19. An array of dispensing systems comprising a first dispensing system and a second dispensing system:
- the first dispensing system comprising a first soft-sided package having a plurality of first sanitary tissue products disposed within an outer wrap comprising a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or less, and a first perimeter;
- the second dispensing system comprising a second soft-sided package having a plurality of second sanitary tissue products disposed within an outer wrap comprising a 1% MD secant modulus to caliper ratio of about 5 MPa/μm or less, and a second perimeter;

wherein the first sanitary tissue products are different from the second sanitary tissue products.

20. The array of claim **19** wherein the first soft-sided package comprises a first package design and the second soft-sided package comprises a second package design wherein the first package design is different from the second package design.

21. The array of claim **19** wherein the first soft-sided package comprises a corner seal.

22. The array of claim **19** further comprising a first sleeve and a second sleeve, the first sleeve comprising a first indicia in reading orientation and substantially surrounding the first perimeter, and the second sleeve comprising a second indicia in reading orientation and substantially surrounding the second perimeter, wherein the first indicia and second indicia are different.

23. The array of claim **22** wherein the first sleeve comprises a first color scheme and the second sleeve comprises a second color scheme, wherein the first color scheme and the second color scheme are different.

24. The array of claim **22** wherein the first sleeve comprises a fold-in stabilizer.

25. The array of claim **22** wherein the second sleeve comprises a fold-in stabilizer.

26. A dispensing system comprising a soft-sided package having a first perimeter and a sleeve substantially surrounding first perimeter, wherein the sleeve comprises an exterior surface comprising a first side, a second side, and a third side, the first side comprising first indicia in a first reading orientation, the second side comprising second indicia in a second reading orientation and the third side comprising third indicia in a third reading orientation, wherein the first reading orientation, second reading orientation and third reading orientation are differently oriented.

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