

(12) STANDARD PATENT APPLICATION (11) Application No. AU 2021200460 A1
(19) AUSTRALIAN PATENT OFFICE

(54) Title
Self-Weighing Expandable Bag

(51) International Patent Classification(s)
A45C 15/00 (2006.01) **G01G 19/58** (2006.01)

(21) Application No: **2021200460** (22) Date of Filing: **2021.01.24**

(30) Priority Data

(31) Number	(32) Date	(33) Country
16/552,247	2019.08.27	US

(43) Publication Date: **2021.03.18**
(43) Publication Journal Date: **2021.03.18**

(71) Applicant(s)
Liviu David

(72) Inventor(s)
David, Liviu

(74) Agent / Attorney
Liviu David, 37 Finisterre Avenue, Whalan, NSW, 2770, AU

Self-Weighing Expandable Bag

ABSTRACT

A self-weighing expandable bag includes an inner receptacle that can slide vertically within an outer sleeve under the weight of bag contents. One or more springs, which may include coils and/or elastic fabric, connect the inner receptacle to the outer sleeve. One or more bag handles are attached to the sleeve. As the weight of the contents of the receptacle increases, the receptacle slides down within the sleeve and increasingly protrudes under the sleeve, expanding the vertical extent of the bag and revealing graphical markings underneath the sleeve and/or within a window defined in the sleeve.

2021200460 24 Jan 2021

Self-Weighing Expandable Bag

24 Jan 2021

2021200460

BACKGROUND

[0001] The invention relates to bags sized to be carried by humans, such as shopping bags.

[0002] Bag design takes into account both aesthetics and functionality, and various bag designs have been used for shopping, fashion, school, business use, or general-purpose carriage of items.

[0003] Some bag designs have incorporated a weighing device and/or markings in the bag itself in order to address problems posed by overly-heavy bags. For example, in US Patent No. 5,416,279, Tseng describes a receptacle weight indicator in which force-releasable elements are used in association with imprinted numeral values of weight to provide a visual indication of the weight of the contents of a receptacle. The weight indicator facilitates the allocation of expenses of garbage removal by weight. In US Patent No. 8,485,329, Roy et al. describe a luggage bag having a handle incorporating a scale for weighing the bag. The device allows airline passengers to reduce fees for excess baggage weights. In US Patent No. 8,716,610, Zyman Beer et al. describe an elastic handle integrated luggage scale. The scale allows addressing individual's concerns about the weight of the objects they are carrying, for example due to weight restrictions enforced at an airport. In US Patent Application Publication No. 2007/0056779, Laniado et al. describe a backpack having shoulder strap assemblies including weight-measuring devices. The device addresses the health problems that may be caused by overloaded backpacks, especially in children.

SUMMARY

[0004] According to one aspect, a bag sized to be carried by human comprises a receptacle configured to contain a load for transportation, and a sleeve comprising a handle, the sleeve at least partially laterally enclosing the receptacle so that the receptacle slides vertically inside of and with respect to the sleeve. The bag further comprises at least one spring attached to the sleeve and configured to support the receptacle, the spring controlling a distance by which the receptacle descends within the sleeve under a weight of the load, wherein an extent to which the receptacle descends within the sleeve when the bag is held by the handle is visually indicative of the weight of the load. The spring may include one or more coils and/or elastic fabric extending under the receptacle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] The foregoing aspects and advantages of the present invention will become better understood upon reading the following detailed description and upon reference to the drawings where:

[0006] Fig. 1-A shows isometric and side views of a self-weighting expandable bag including coil springs in a retracted (default, unloaded) configuration according to some embodiments of the present invention.

[0007] Fig. 1-B shows isometric and side views of the bag of Fig. 1-A in an expanded (loaded, weighed-down) configuration according to some embodiments of the present invention.

[0008] Fig. 2-A shows isometric and side views of a self-weighting expandable bag including an elastic fabric spring in a retracted (default, unloaded) configuration according to some embodiments of the present invention.

[0009] Fig. 2-B shows isometric and side views of the bag of Fig. 2-A in an expanded (loaded, weighed-down) configuration according to some embodiments of the present invention.

[0010] Fig. 3-A shows isometric and side views of a self-weighting expandable bag including top and bottom elastic fabric springs in a retracted (default, unloaded) configuration according to some embodiments of the present invention.

[0011] Fig. 3-B shows isometric and side views of the bag of Fig. 3-A in an expanded (loaded, weighed-down) configuration according to some embodiments of the present invention.

[0012] Fig. 4-A shows a side view of a bag including exemplary numerical markings on the side of the inner receptacle, revealed as the extent of the receptacle outside of the sleeve increases under the weight of receptacle contents according to some embodiments of the present invention.

[0013] Fig. 4-B shows a side view of a bag including exemplary numerical markings on the side of the inner receptacle, whose alignment to a reference sleeve marking changes under the weight of receptacle contents according to some embodiments of the present invention.

[0014] Fig. 5-A shows a side view of a bag including an exemplary sleeve having a display notch defined along a bottom edge of the sleeve to highlight a selected marking along the inner receptacle according to some embodiments of the present invention.

[0015] Fig. 5-B shows a side view of a bag including an exemplary sleeve having a display window positioned to highlight a selected marking along the inner receptacle according to some embodiments of the present invention.

[0016] Fig. 6 shows a side view of a bag having multiple textual markings on the side of the inner receptacle, one of which is revealed within a side window defined in the sleeve, according to some embodiments of the present invention.

[0017] Fig. 7 shows a side view of a bag having multiple graphical object markings on the side of the inner receptacle, one of which is revealed within a side window defined in the sleeve, according to some embodiments of the present invention.

[0018] Fig. 8 shows a side view of a bag having complementary graphical markings on the side of the receptacle and the sleeve, wherein the complementary markings combine to form a unified object, according to some embodiments of the present invention.

[0019] Fig. 9 shows a side view of another bag having complementary graphical markings on the side of the receptacle and the sleeve, wherein the complementary markings combine to form a unified object, according to some embodiments of the present invention.

[0020] Fig. 10 shows an exemplary expandable bag including a vertical motion restraint according to some embodiments of the present invention.

[0021] Fig. 11 shows side views of another self-weighting bag in a retracted and expanded state, wherein the sleeve protrudes laterally according to some embodiments of the present invention.

[0022] Fig. 12 shows an upper view of an exemplary expandable bag according to some embodiments of the present invention, the bag comprising a fastener usable to prevent the receptacle from sliding with respect to the sleeve.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0023] In the following description, it is understood that all recited connections between structures can be direct connections or indirect connections through intermediary structures. A set of elements includes one or more elements. Any recitation of an element is understood to refer to at least one

element. A plurality of elements includes at least two elements. A first element (e.g. data) derived from a second element encompasses a first element equal to the second element, as well as a first element generated by processing the second element and optionally other data. Making a determination or decision according to a parameter encompasses making the determination or decision according to the parameter and optionally according to other data. Unless otherwise specified, an indicator of some quantity/data may be the quantity/data itself, or an indicator different from the quantity/data itself.

[0024] The following description illustrates embodiments of the invention by way of example and not necessarily by way of limitation.

[0025] Fig. **1-A** shows isometric (left panel) and side (right panel) views of an exemplary self-weighting expandable bag **20** including coil springs in a retracted (default, unloaded) configuration **22**, while Fig. **1-B** shows bag **20** in an expanded (loaded, weighed-down) configuration **22'**, according to some embodiments of the present invention. Bag **20** may be a shopping bag, purse, tote bag, or other handbag sized to be carried by hand or on a shoulder by a human. In an alternative embodiment, bag **20** may be a backpack. Exemplary bag **20** comprises a flexible receptacle **30** configured (sized and shaped) to contain a load for transportation. The load may comprise for example groceries, books, clothing, personal effects, and other items. Alternative embodiments may be configured to carry liquids (e.g., water, soft drinks, etc.). Bag **20** further comprises a flexible sleeve **26**. Sleeve **26** laterally encloses receptacle **30** at least partially so that the receptacle slides vertically inside of and with respect to sleeve **26**. Sliding herein denotes a relative motion (rise and/or descent) along a longitudinal direction of sleeve **26** and does not encompass, for instance, receptacle **30** bulging out laterally or otherwise deforming under the weight of the load. Sleeve **26** further comprises one or more handles **34**. In some embodiments, handles **34** may be integrally formed with a body of sleeve **26** into a single monolithic unit. At least one handle **34** may be fashioned as a shoulder strap. Handles **34** may be attached to the body of sleeve **26** via stitching, riveting, gluing, thermal fusing, or other attachment method, and may be made from the same material(s) or different material(s) than the body of sleeve **26**. An artisan will appreciate that unlike the illustrated embodiment, in a backpack configuration handles **34** may be attached asymmetrically so that one end of each handle is attached higher on the sleeve than the other end. Also, in a backpack configuration, handles **34** may be attached closer together instead of opposite each other as shown in Figs. **1-A-B**.

[0026] Bag **20** further comprises at least one spring **32** attached to sleeve **26** and configured to support receptacle **30**. In the exemplary configuration of Figs. **1-A-B**, spring **32** comprises a plurality of metallic coils attached directly to receptacle **30** and sleeve **26**. Each metallic coil is itself a spring, and collectively the metallic coils form a spring elastically connecting receptacle **30** to sleeve **26**. Spring **32** controls a distance by which receptacle **30** descends within sleeve **26** under a weight of the load. The extent to which receptacle **30** protrudes beyond a bottom of the sleeve **26** is indicative of the weight of the load when the bag is held by the handle. In some embodiments, a bottom surface **36** of receptacle **30** may be generally flat (horizontal) when receptacle **30** is empty and/or loaded. In some embodiments, bottom surface **36** may be flexible and may become curved when receptacle **30** contains a load. In the illustrated embodiment, receptacle **30** and sleeve **26** have generally round, in particular circular or oval, matching transverse cross-sections.

[0027] Fig. **2-A** shows isometric and side views of another exemplary self-weighting expandable bag **120** including an elastic fabric spring in a retracted (default, unloaded) configuration, while Fig. **2-B** shows bag **120** in an expanded (loaded, weighed-down) configuration, according to some embodiments of the present invention. An outer sleeve **126** is connected to an inner receptacle **130** through a spring **132**. An exemplary single handle **134** is attached to opposite transverse sides of sleeve **126**. In the illustrated embodiment, sleeve **126**, receptacle **130** and spring **132** have generally angular, in particular rectangular, matching transverse cross-sections.

[0028] Exemplary spring **132** may be formed by a cylindrical, annular (ring-shaped), or prismatic band of elastic fabric, with the axis substantially aligned with the vertical/longitudinal direction of the bag. Spring **132** may stretch both radially and longitudinally, possibly with distinct specific stretch coefficients/elastic constants. In some embodiments, spring **132** may only stretch along the longitudinal direction. The elastic fabric forming spring **132** is attached to an upper rim of sleeve **126** along one (e.g., outer) edge of the fabric band, and attached to an upper rim of receptacle **130** along an opposite (e.g., inner) edge of the fabric band. Any suitable method of attachment may be used (e.g., stitching, gluing, thermal fusing, etc.). As receptacle **130** is weighted down by its contents, the elastic fabric of spring **132** stretches longitudinally and/or radially, allowing receptacle **130** to slide down within sleeve **126**, as shown in Fig. **2-B**. The maximum extent of spring **132** may be a multiple (e.g. 2-10x) of its resting/unstretched longitudinal extent.

[0029] Fig. 3-A shows isometric and side views of a self-weighting expandable bag 220 including top and bottom elastic fabric springs in a retracted (default, unloaded) configuration, while Fig. 3-B shows bag 220 in an expanded (loaded, weighed-down) configuration according to some embodiments of the present invention. A spring coupling an outer sleeve 226 to an inner receptacle 230 has two longitudinally-separated components: a top annular band of elastic fabric 232 and a bottom annular band of elastic fabric 238. The part of the spring formed by band 238 extends underneath receptacle 230 to support receptacle 230 from below. The top annular band 232 is attached to an upper rim of sleeve 226 along an outer edge of band 232, and attached to an upper rim of receptacle 230 along an inner edge of band 232. The bottom annular band 238 is attached to a lower rim of sleeve 226 along an outer edge of band 238, and attached to an outer rim of a bottom plate 236 along an inner edge of band 238. A single handle 234 is attached to opposite transverse sides of sleeve 226. As receptacle 230 is weighted down by its contents, the elastic fabric of the spring formed by bands 232, 238 stretches, expanding the annular width(s) of the bands, and allowing receptacle 230 to slide down within sleeve 226, as shown in Fig. 3-B. In some embodiments, a bottom strip having a non-annular shape may be used instead of bottom band 238, for example a rectangular shape extending over the entire bottom surface of the sleeve (i.e. extending over the entire area covered by band 238 and plate 236 shown in Figs. 3-A-B).

[0030] Fig. 4-A shows a side view of a bag 320 including exemplary numerical marking shown in configurations 340, 340' on the side of an inner receptacle 330, increasingly revealed as the extent of receptacle 330 outside of a sleeve 326 increases under the weight of receptacle contents, according to some embodiments of the present invention. As shown, the numerical markings may include consecutive integers (e.g. 1, 2, 3, 4, ...) or non-integers (e.g., 2.2, 2.5, or 1/4, 1/2, etc.), positioned in a vertical sequence with the lowest number in the lowest position. In some embodiments, markings are positioned on receptacle 330 so that they are completely covered by sleeve 326 when the bag is empty, and they are revealed only when the bag is suspended by the handles and a load is placed inside of receptacle 330, or when the load exceeds a pre-determined weight.

[0031] Fig. 4-B shows a side view of a bag 420 including exemplary numerical markings shown in configurations 440, 440', 440'' on the side of an inner receptacle 430 positioned within an outer sleeve 426, according to some embodiments of the present invention. An exemplary outer sleeve 426 has a transparent or semi-transparent surface having a reference marking 442 defined

thereon. The alignment of the numeral markings on the side of inner receptacle **430** to the reference sleeve marking **442** changes under the weight of receptacle contents.

[0032] Fig. **5-A** shows a side view of a bag **520** including an exemplary sleeve **526** having a display notch **550** defined along a bottom edge of sleeve **526** to reveal/highlight a selected marking along an inner receptacle **530** according to some embodiments of the present invention. The markings are shown in three consecutive configurations **540**, **540'**, **540''**, and are increasingly exposed as the weight held by inner receptacle **530** increases.

[0033] Fig. **5-B** shows a side view of a bag **620** including an exemplary sleeve **626** having a display side window (opening) **652** sized and positioned to reveal a selected marking **640** along an inner receptacle **630** according to some embodiments of the present invention. Sleeve **626** may include one or more additional markings/openings **652**, which may serve a decorative purpose and/or to reduce the weight of sleeve **626**.

[0034] Fig. **6** shows a side view of a bag **720** having multiple textual markings **740** on the side of an inner receptacle **730** slidably disposed within an outer sleeve **726** according to some embodiments of the present invention. Sleeve **726** includes a complementary textual marking **742** disposed thereon, as well as a side window/opening **750** sized to expose one of the inner receptacle markings **740**. A selected one of the receptacle markings **740** is revealed within window **750** at each of a plurality of heights of receptacle **730** relative to sleeve **726**, forming a corresponding selected overall message together with complementary textual marking **742**.

[0035] Fig. **7** shows a side view of a bag **820** having multiple graphical object markings **840** on the side of an inner receptacle **830** slidably disposed within an outer sleeve **826** according to some embodiments of the present invention. Sleeve **826** includes a side window/opening **850** sized to reveal a selected marking **840** at a time. Graphical object markings **840** display objects of increasing weights in a vertical sequence, with the lightest object placed in the lowest position: a feather, a fruit, and a weight in the illustrated example.

[0036] Other types of markings may be used to indicate an approximate weight of the load. In one example and with reference to Fig. **4**, a set of non-numeric symbols may be used instead of the illustrated numbers. For instance, a pre-determined count of identical icons (e.g., dots, stars, emoticons, etc.) may be placed on the receptacle, for instance at equal vertical separations. A

vertical distance between consecutive symbols may be chosen so exactly one symbol is revealed for each pre-determined weight increment (e.g., 1/2 pound). In such embodiments, a count of symbols visible on the receptacle when the bag is held by the handle(s) is indicative of an approximate weight of the bag's current load. In another example, the receptacle may have multiple parallel rows of identically shaped markings disposed thereon, wherein a size of the markings differs between rows. For instance, a bottom row may have the smallest markings, and the size of the markings may increase towards the rim of the receptacle. As the weight of the load increases, progressively larger markings are revealed, so a size of the markings visible on the receptacle when the bag is held by the handle(s) is an indicator of the weight of the bag's current load. In yet another example, the receptacle may have a heat map disposed thereon, for instance as a stack of horizontal stripes of different colors. As the weight of the load increases, stripes of different colors are revealed as the receptacle slides deeper within the sleeve (e.g., from blue on the bottom of the receptacle to green, to yellow, etc., higher up the side of the receptacle). In such embodiments, a color of a marking visible on the side of the receptacle when the bag is held by the handle(s) is indicative of a weight of the bag's current load.

[0037] In alternative embodiments, markings disposed on the receptacle as shown above may be used to indicate other properties of the load instead of weight. For instance, in a bag configured to carry liquids, a set of numerical markings as illustrated in Figs. **4-A-B** may indicate an approximate volume of a load of the receptacle, the volume expressed in some appropriate unit (e.g., liters, pints, gallons, cups, etc.).

[0038] In yet another exemplary embodiment of an expandable bag configured for grocery shopping, a set of numerical markings may indicate an approximate energy content (e.g., expressed in kilocalories) of a current load of the receptacle. In one such example, the receptacle may have multiple scales printed thereon, each scale comprising multiple numerical markings and corresponding to a distinct food type (e.g., milk, fruit, chocolate, meat, etc.). A position of each marking on the receptacle may be determined according to a specific energy content of the respective food type, so that for the same weight of the load, different numbers are revealed on each scale.

[0039] Fig. **8** shows a side view of a bag **920** having complementary graphical markings **952, 954** on the side of a receptacle **930** and corresponding sleeve **926** according to some embodiments of the

present invention. The complementary markings combine to form a unified object whose appearance depends on the vertical displacement of receptacle **930** within sleeve **926**. In the illustrated embodiment, the unified object is a stylized human face, and sliding receptacle **930** downward under an increasing weight of a load graphically depicts increasingly opening a mouth of the human face.

[0040] Fig. **9** shows a side view of another bag **1020** having complementary graphical markings **1052**, **1054** on the side of a receptacle **1030** and sleeve **1026** according to some embodiments of the present invention. Markings **1052**, **1054** combine to form a unified object. In the illustrated embodiment, the unified object is a woman wearing a dress. Vertically displacing receptacle **1030** within sleeve **1026** under an increasing weight of a load reveals an increasing extent of the woman's dress.

[0041] Suitable materials and/or dimensions for the various parts of a bag as described above may be chosen according to the desired application/use (e.g. shopping bag, handbag, lunchbag), desired size, and/or maximum weight of the carried load. Fabric, plastic, paper, natural leather, and metal may form suitable materials for one or more of the bag components described above. Although the above description indicated flexible materials, receptacle(s) **30**, **130**, and **230** and/or sleeve(s) **26**, **126**, and **226** may also be constructed out of semi-rigid or rigid materials (e.g., polycarbonate plastic, corrugated cardboard, plywood, sheet metal, etc.).

[0042] Exemplary spring(s) **32**, **132**, **232** may be constructed out of a variety of stretchable materials, for instance metal coils, plastic coils, natural or synthetic rubber bands, elastic braided cord, neoprene, stretchy yarn such as synthetic silk and polyether-polyurea copolymer yarn (e.g., Lycra®), various fabrics wherein the stretchable quality is a result of the yarn and/or the particular knitting technique, etc.

[0043] Suitable vertical dimensions for the sleeve and/or receptacle may be on the order of tens of cm, for example between 20 and 80 cm for each of the sleeve and receptacle. The minimum vertical overlap between sleeve and receptacle may be chosen to be on the order of cm to tens of cm, for example between 2 and 20 cm. A suitable spring constant for the sleeve-receptacle connection spring may be chosen according to a maximum anticipated weight of the load and corresponding desired vertical displacement according to the relationship $F=kx$, wherein F is the applied force (e.g., weight of load), x is the vertical displacement, and k is the spring constant.

[0044] In some embodiments, a fixed vertical motion restraint may be used to prevent further vertical motion of the receptacle relative to sleeve beyond a desired maximum, for example to prevent the receptacle from sliding outside of the sleeve in the presence of excess weight, or to prevent a spring connecting the receptacle to the sleeve from being overstretched and/or damaged. Such a fixed restraint may include one or more inelastic ropes or wires connecting the sleeve to the receptacle. Fig. 10 illustrates an exemplary expandable bag 1120 having a vertical motion restraint 60 according to some embodiments of the present invention. The illustrated restraint 60 comprises an inelastic wire attached with a set of rivets 62a to a sleeve 1126 and/or to a handle 1134, and with another set of rivets 62b to a mobile receptacle 1130. A length of restraint 60 may be chosen to prevent receptacle 1130 from descending within sleeve 1126 beyond a maximum distance H_{\max} , or from protruding past the bottom of sleeve 1126 by more than the maximum distance H_{\max} . In some embodiments, H_{\max} is correlated with a pre-determined weight of a load. For example, restraint 60 may prevent receptacle 1130 from descending beyond a position corresponding to a load of 5lbs placed within receptacle 1130.

[0045] Another exemplary fixed vertical motion restraint may include one or more blocking members sized/positioned to prevent further motion of the receptacle relative to the sleeve by engaging complementary structures (e.g. one or more outer-facing protrusions attached to or forming part of the receptacle and sized to fit within vertical channels defined within the sleeve, or inner-facing protrusion on the sleeve sized to fit within vertical channels defined within the receptacle, for constraining a vertical extent of relative motion between the receptacle and sleeve).

[0046] In another example illustrated in Fig. 11, an expandable bag 1220 includes a sleeve 1226 having a solid bottom which may be continuous with the rest of sleeve 1226 or constructed from another non-stretchable material (e.g., plywood, cardboard, etc.). In such embodiments, the bottom of the sleeve works like a fixed vertical motion restraint preventing a receptacle 1230 from descending further. A self-weighting feature may be implemented by having sleeve 1226 cut out to expose at least a part of receptacle 1230. In some embodiments as illustrated in Fig. 11, the cutout forms a lateral protrusion 70 in the sleeve. As a weight of a load increases, a spring connecting sleeve 1226 to receptacle 1230 may stretch as described above, controlling the distance by which receptacle 1230 descends within the confines of sleeve 1226. In some embodiments, the load's weight may be determined according to an amount by which receptacle 1230 extends downwards with respect to protrusion 70 of sleeve 1230. In the illustrated embodiment, in the left pane a

distance H_1 indicates a small weight or an empty bag. In contrast, in the right pane, a larger distance H_2 indicates a larger weight or a loaded bag. Complementary graphical markings may be added as shown to indicate the approximate weight of the load.

[0047] Fig. 12 shows an upper view of another exemplary expandable bag **1320** having a fixed vertical motion restraint, optionally preventing a receptacle **1330** from descending within a sleeve **1326**. Some embodiments comprise a two-part fastener, wherein a first part **70a** is attached to sleeve **1326**, while a second part **70b** is attached to receptacle **1330**. In the illustrated embodiment, the fastener comprises a zipper. A skilled artisan will appreciate that other two-part fasteners may be used instead, for instance buttons, snap fasteners, a clasp, a buckle, hook-and-eye fasteners, and hook-and-loop bands (e.g., Velcro®), among others. In the configuration illustrated in the left pane, parts **70a-b** are not coupled to each other (e.g., unzipped), which allows receptacle **1330** to slide with respect to sleeve **1326**. A user may optionally connect fastener parts **70a-b** together to produce the configuration shown in the right pane of Fig. 12, wherein receptacle **1330** is prevented from moving longitudinally with respect to sleeve **1326**.

[0048] It will be clear to one skilled in the art that the above embodiments may be altered in many ways without departing from the scope of the invention. Accordingly, the scope of the invention should be determined by the following claims and their legal equivalents.

Self-Weighing Expandable Bag
CLAIMS

1. A bag sized to be carried by a human, the bag comprising:
a receptacle configured to contain a load for transportation;
a sleeve comprising a handle, the sleeve at least partially laterally enclosing the receptacle so that the receptacle slides vertically inside of and with respect to the sleeve; and
at least one spring attached to the sleeve and configured to support the receptacle, the spring controlling a distance by which the receptacle descends within the sleeve under a weight of the load, wherein an extent to which the receptacle descends within the sleeve when the bag is held by the handle is visually indicative of the weight of the load.
2. The bag of claim 1, wherein another extent to which the receptacle protrudes beyond a bottom of the sleeve when the bag is held by the handle is indicative of the weight of the load.
3. The bag of claim 1, wherein the spring comprises a plurality of coils connecting the receptacle to the sleeve.
4. The bag of claim 1, wherein the spring is further attached to the receptacle.
5. The bag of claim 1, wherein the spring comprises an annular elastic fabric attached to the sleeve along an outer edge of the fabric and attached to the receptacle along an inner edge of the fabric.
6. The bag of claim 5, wherein the annular elastic fabric is attached to the receptacle along an upper rim of the receptacle.
7. The bag of claim 1, wherein the spring extends underneath the receptacle to support the receptacle from below.

8. The bag of claim 1, wherein a distance by which the receptacle slides vertically within the sleeve varies according to the weight of the load.
9. The bag of claim 1, wherein the receptacle comprises a marking positioned to be covered by the sleeve when the bag is held by the handle and the receptacle is empty, and to be revealed by the sleeve when the bag is held by the handle and the receptacle is not empty.
10. The bag of claim 9, wherein the marking comprises a rendering of a text indicative of the weight.
11. The bag of claim 10, wherein the text comprises a number.
12. The bag of claim 10, wherein the marking is positioned to be revealed by the sleeve only when the bag is suspended by the handle and the weight exceeds a predetermined value.
13. The bag of claim 10, wherein the sleeve comprises a window, and wherein the marking is positioned to be revealed through the window when the receptacle is not empty.
14. The bag of claim 10, wherein a proportion of the marking revealed by the sleeve when the bag is held by the handle is indicative of the weight.
15. The bag of claim 10, wherein the sleeve comprises another marking, the another marking positioned to align with the marking to form a composite marking indicative of the weight.
16. The bag of claim 1, wherein the receptacle comprises a plurality of markings, and wherein a count of markings revealed by the sleeve when the bag is held by the handle is indicative of the weight.

17. The bag of claim 1, wherein the receptacle comprises a plurality of markings, wherein at least two markings have distinct colors, and wherein a color of a marking revealed by the sleeve when the bag is held by the handle is indicative of the weight.

18. The bag of claim 1, wherein the sleeve is constructed from a material selected from a set consisting of a paper, a fabric, a natural leather, and an organic polymer.

19. The bag of claim 1, further comprising a vertical motion restraint attached to the sleeve and configured to prevent the receptacle from sliding longitudinally within the sleeve beyond a pre-determined maximal position.

20. The bag of claim 1, further comprising a two-part fastener, wherein a first part of the fastener is attached to the sleeve and second part of the fastener is attached to the receptacle, and wherein coupling the first part to the second part prevents the receptacle from sliding longitudinally with respect to the sleeve.

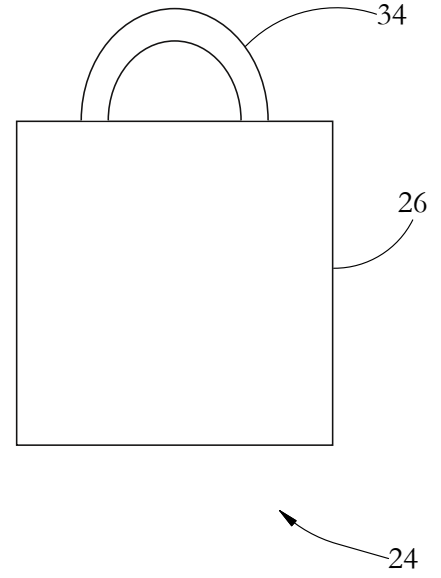
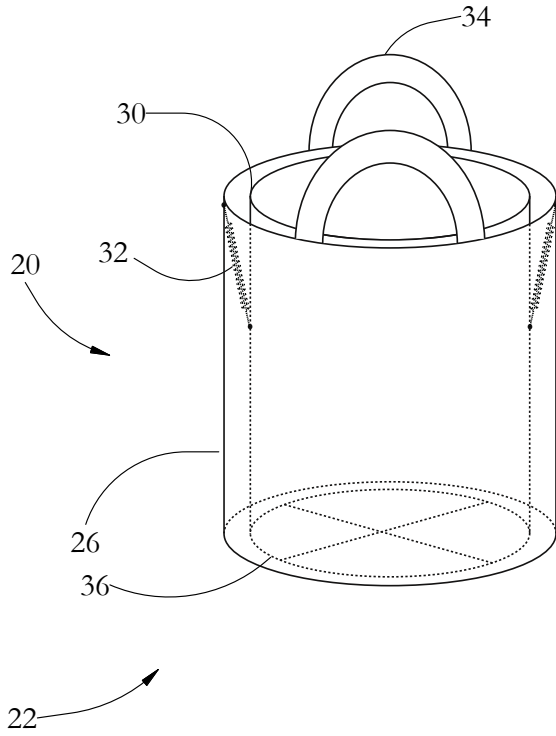


FIG. 1-A

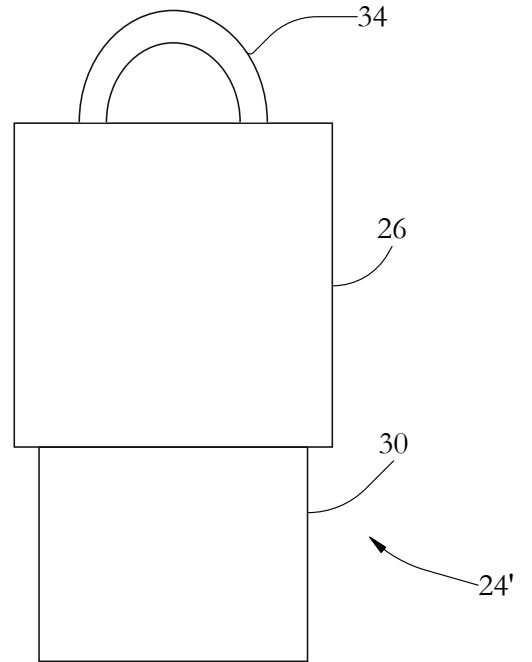
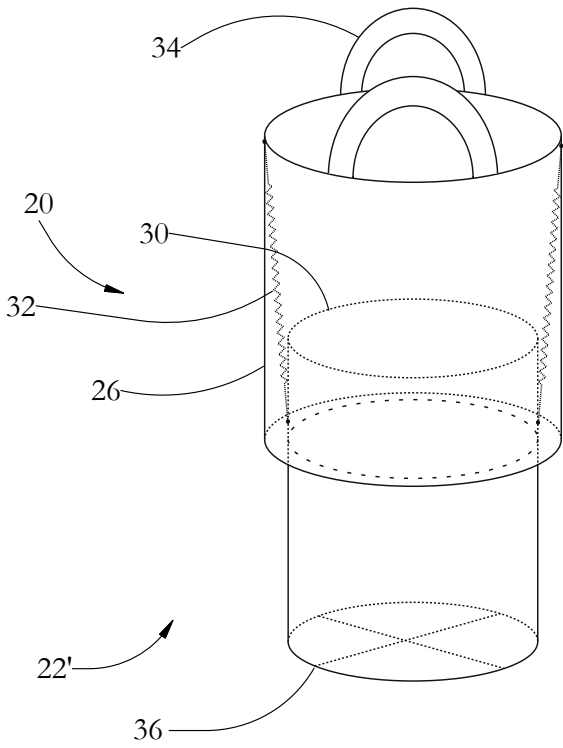


FIG. 1-B

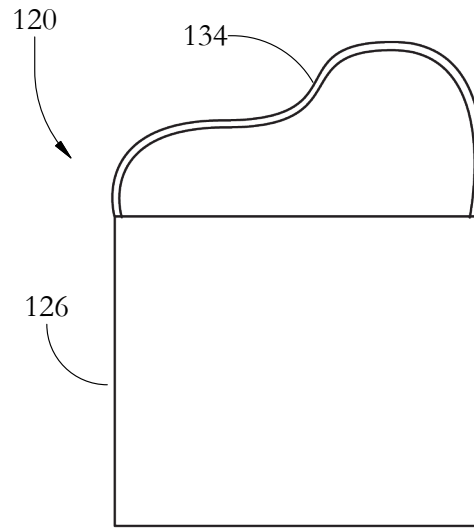
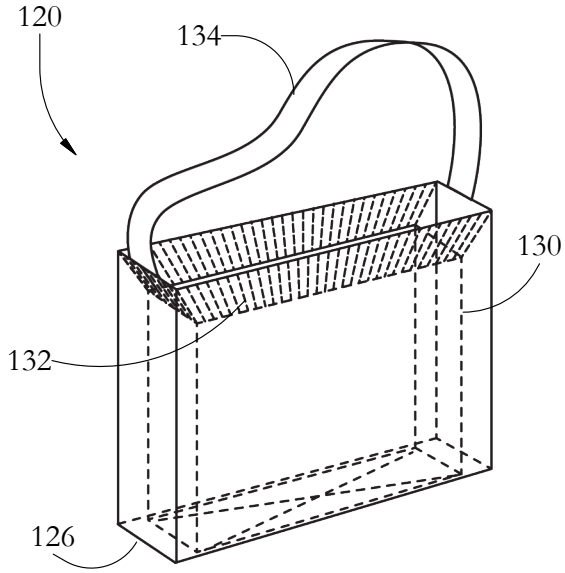


FIG. 2-A

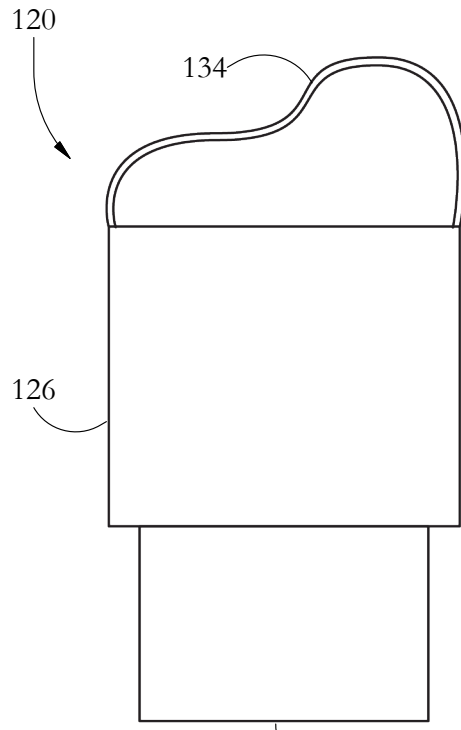
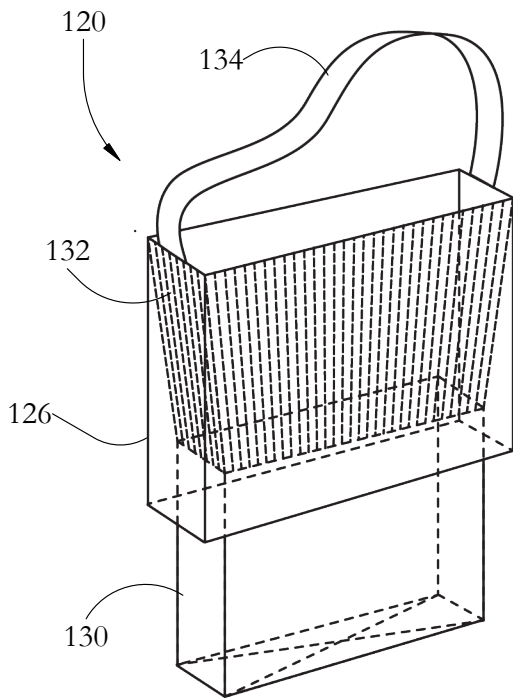


FIG. 2-B

130

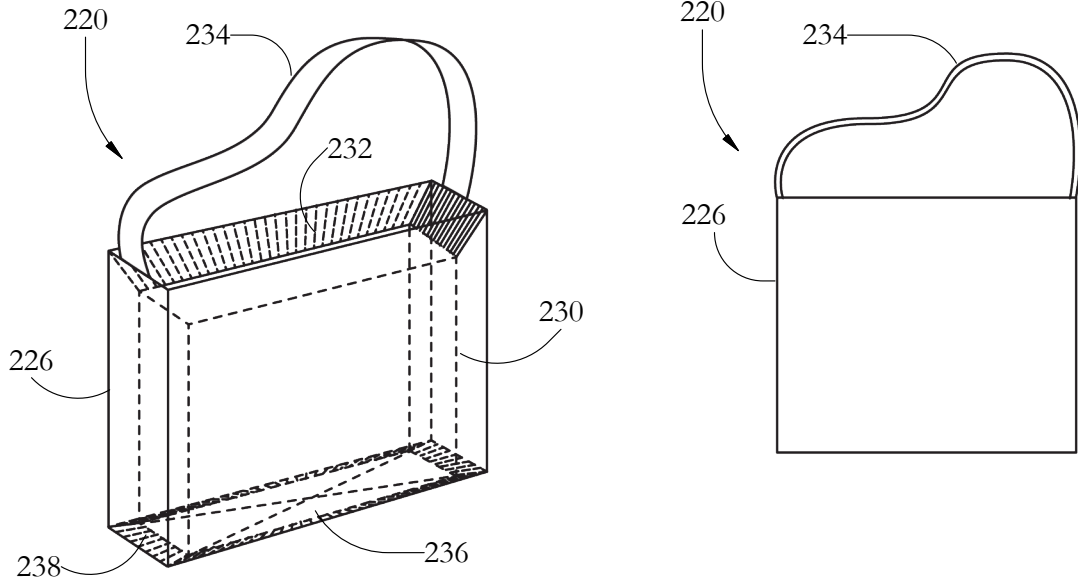


FIG. 3-A

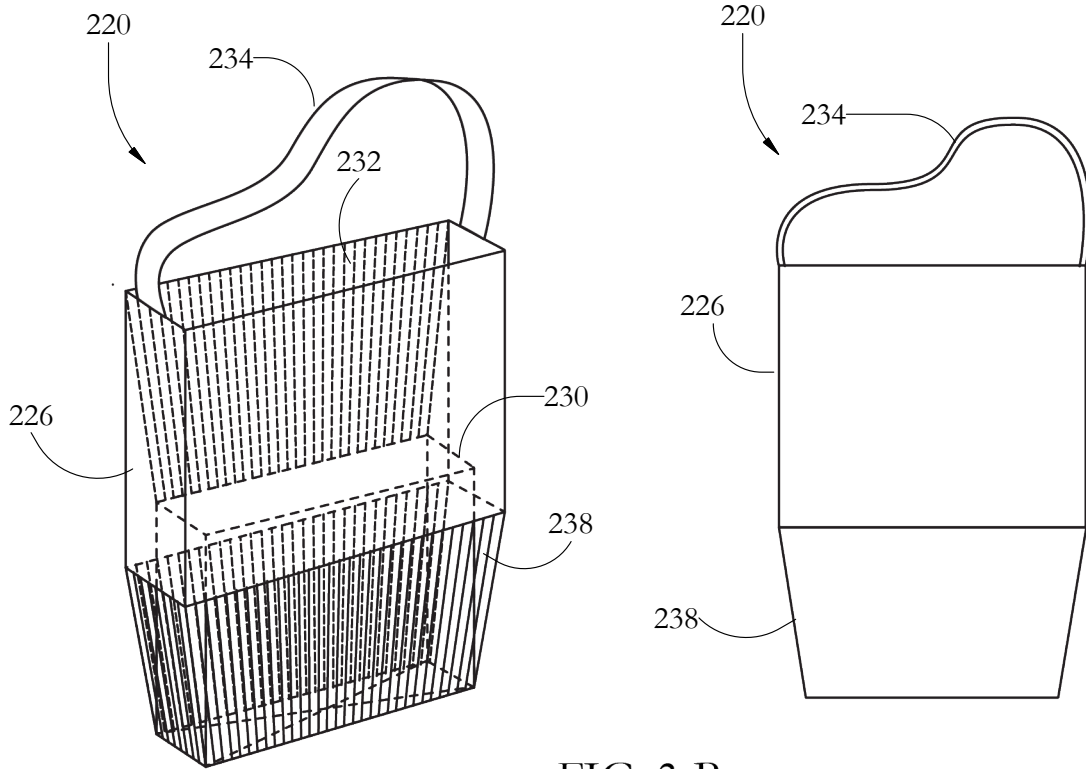


FIG. 3-B

4/9

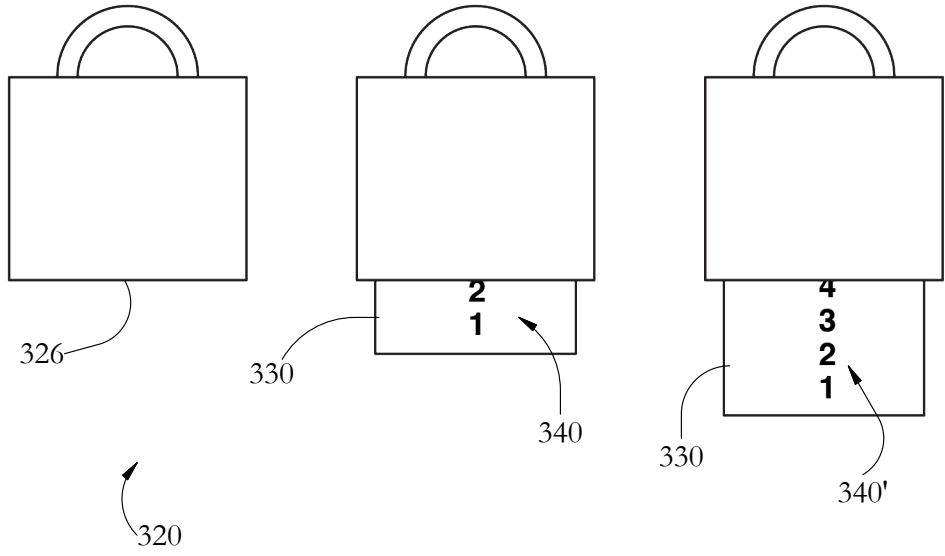


FIG. 4-A

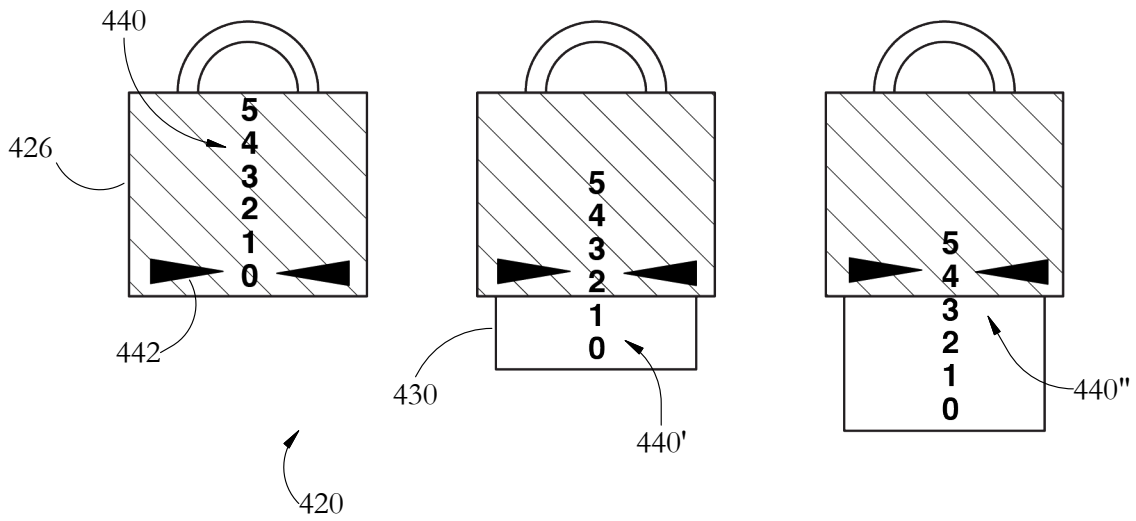


FIG. 4-B

5/9

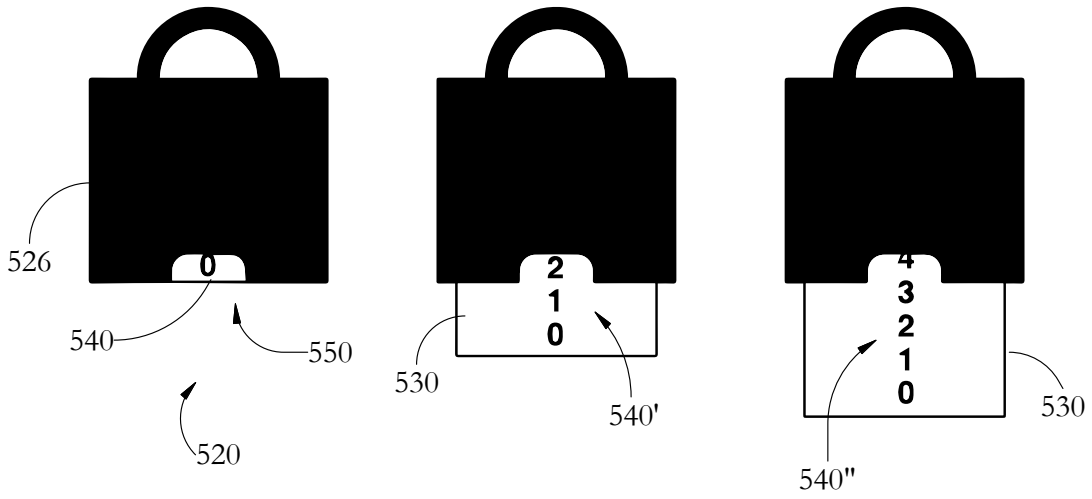


FIG. 5-A

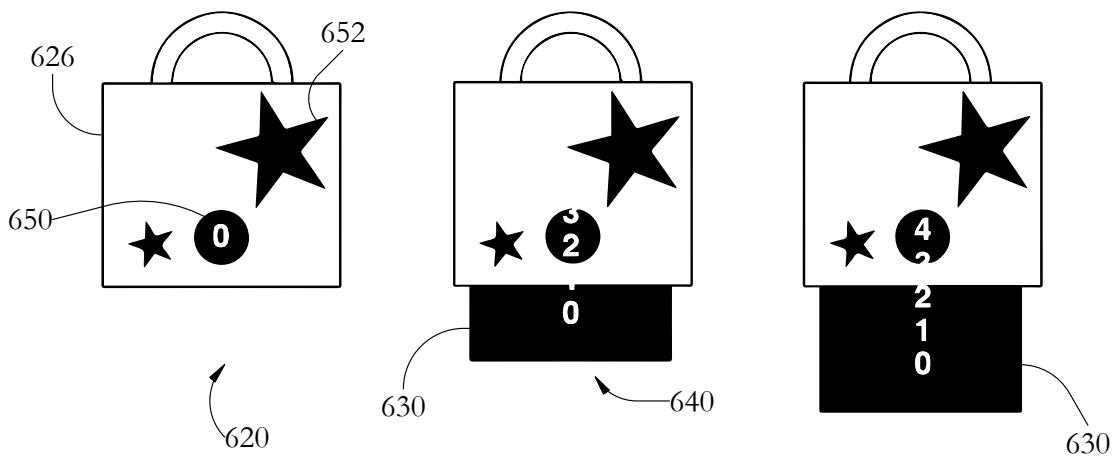


FIG. 5-B

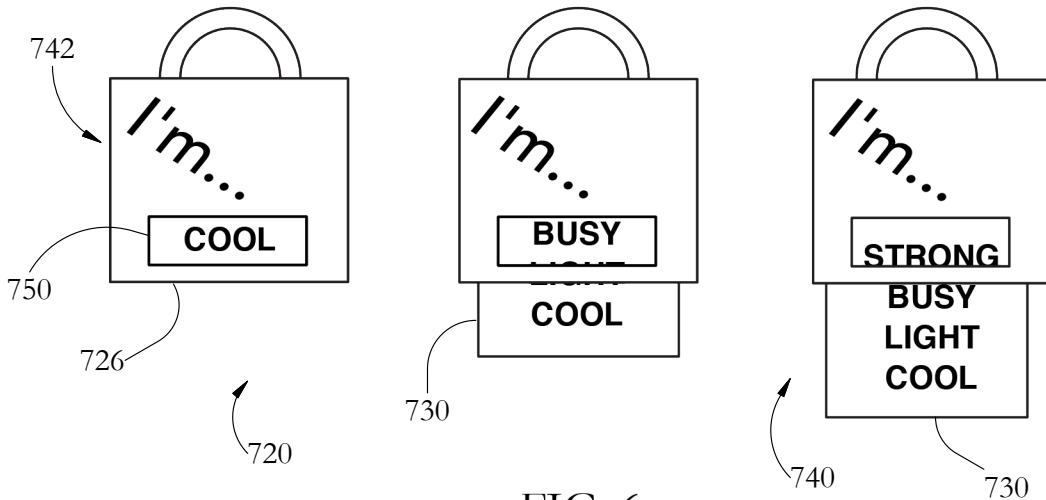


FIG. 6

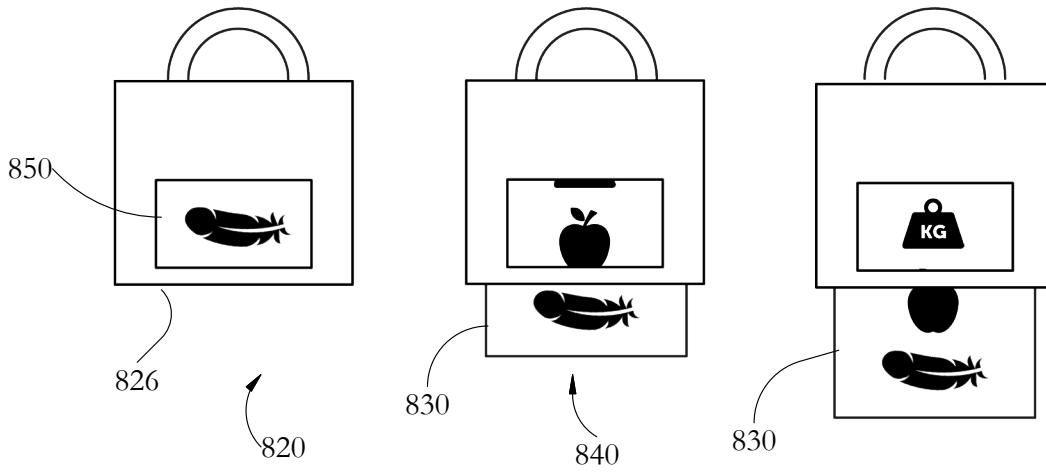


FIG. 7

7/9

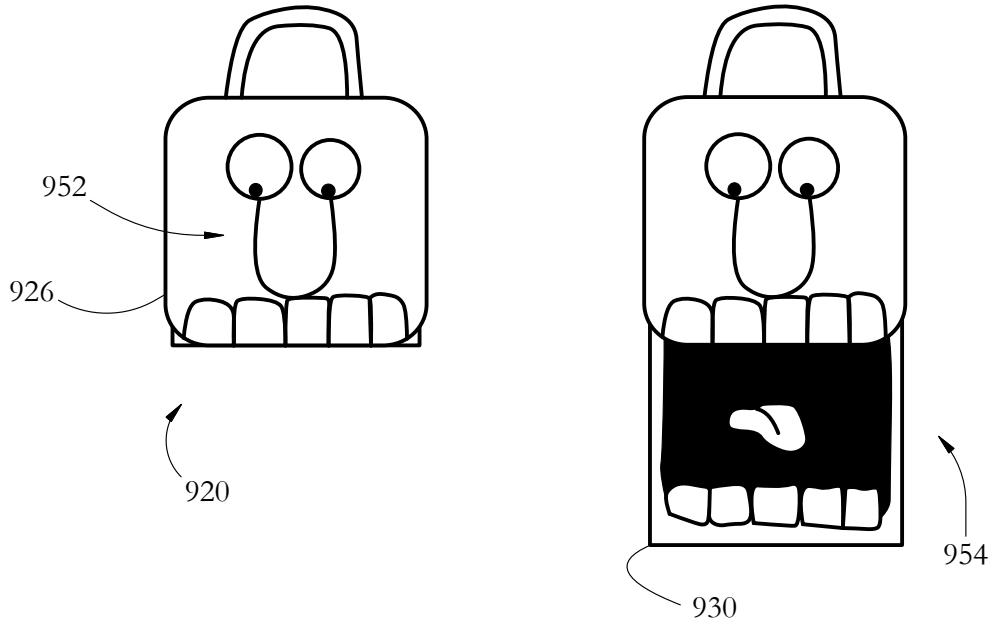


FIG. 8

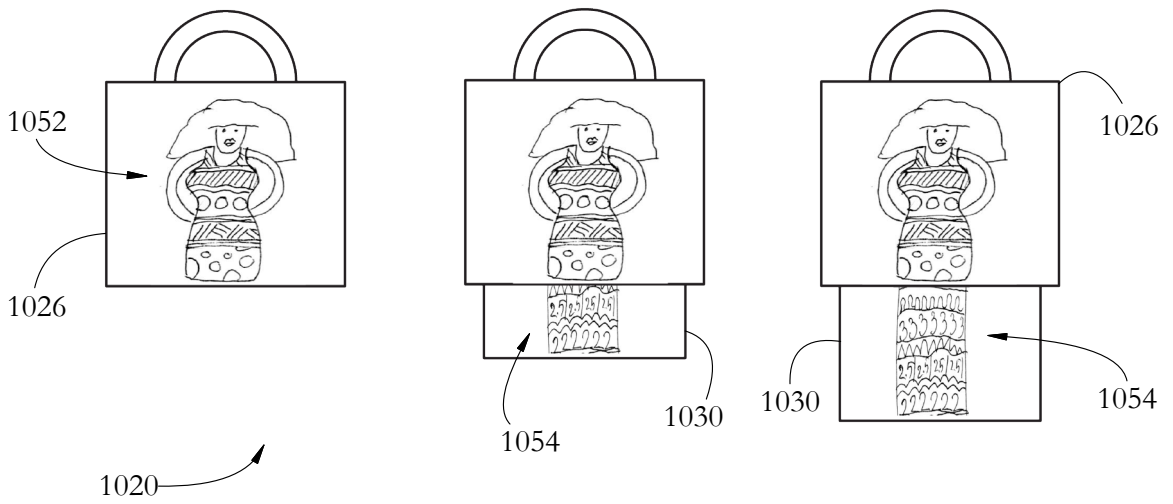


FIG. 9

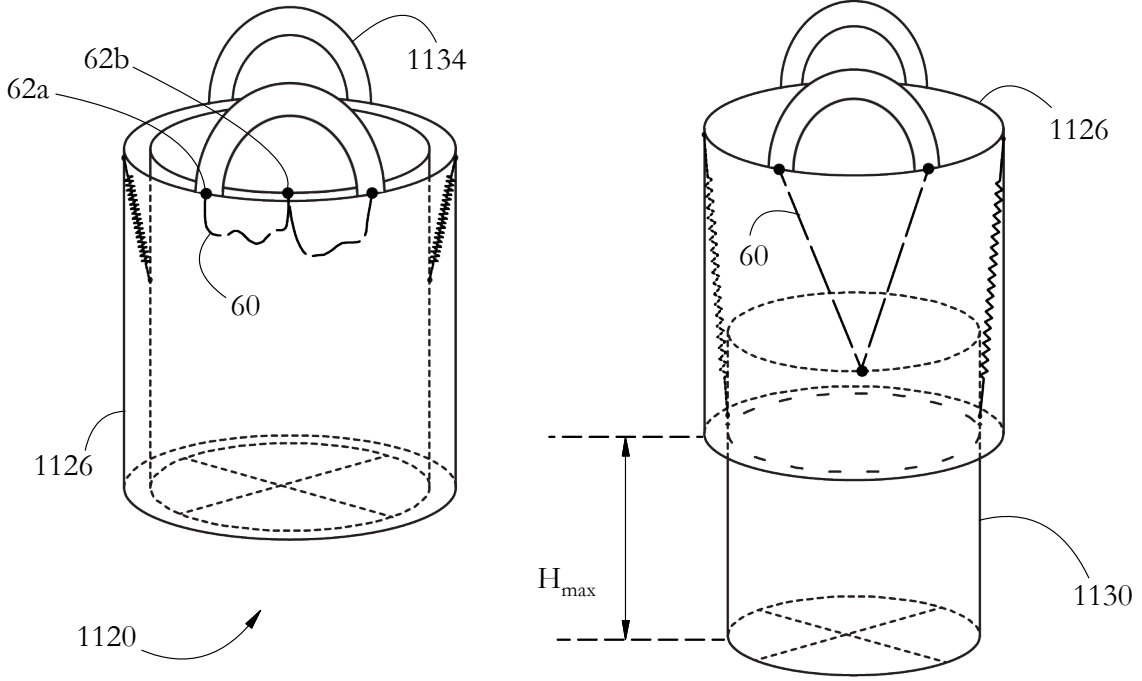


FIG. 10

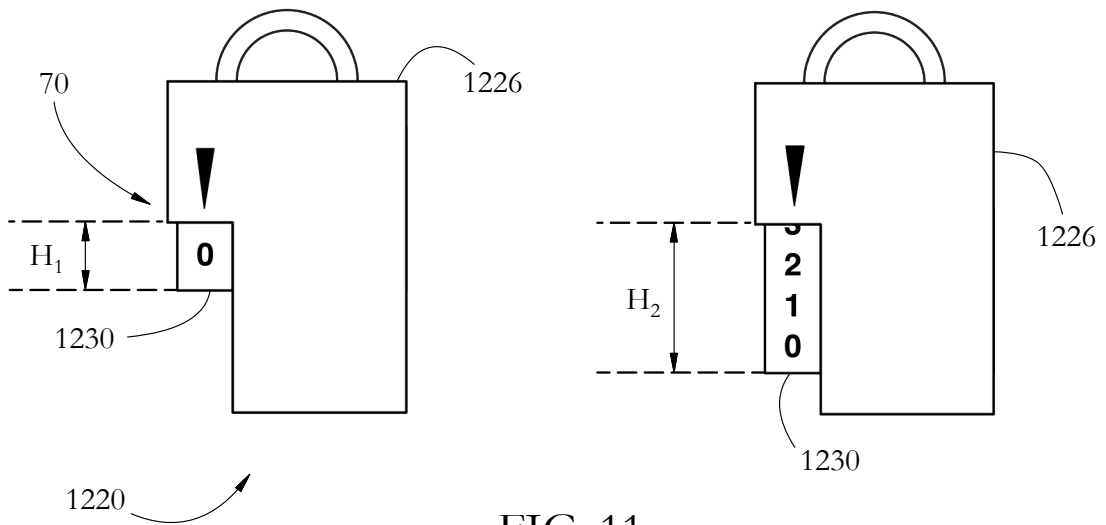


FIG. 11

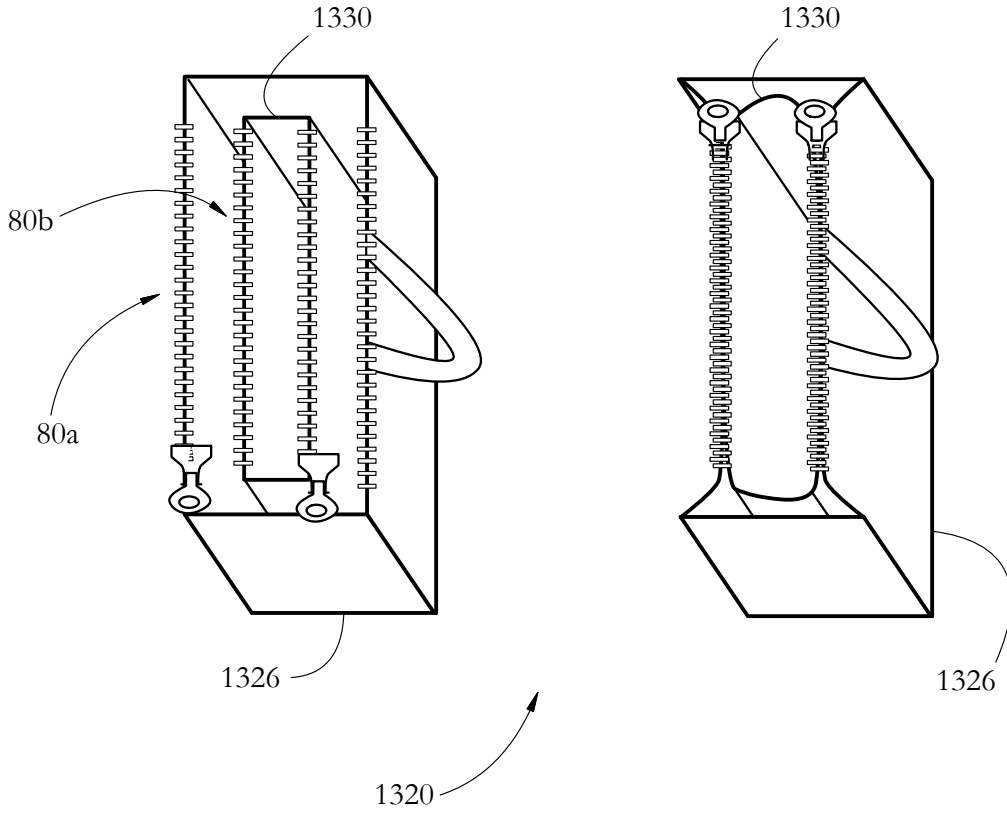


FIG. 12