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Description

This invention relates to an apparatus which is inserted in a soft bag, back-pack, or the like to either automatically or manually expand the bag to give an impression that the bag is filled for point of sale display.

For convenience of expression in this application, the term "soft bags" is used to describe all suitable devices, such as suitcases, tote bags, sports bags, back-packs, barrel bags and the like, of all sizes and types. These soft bags are presently manufactured throughout the world and transported from the manufacturer to the destination of sale in a flatly packed or nested state so as to take up minimal shipping space because the costs involved in shipping stuffed bags are prohibitive. Freight charges from the point of manufacture to the destination of the bags are usually based on the amount of space that the bags occupy. For example, twelve back-packs nested and shipped flat occupy the same amount of space (approximately $0.044m^3$ ($1ft^3$)) that is occupied by one stuffed back-pack.

Since most retailers prefer to display these soft bag in an expanded condition, a retailer often arranges for the bags to be stuffed and repacked at an ancillary stuffing facility located near the final destination or in some instances at the point of sale. The bags are removed from their original shipping cartons at the stuffing facility where the stuffing is done manually with such materials as crumpled paper, stiff cardboard pieces or inflated vinyl shapes. The original shipping cartons are then disposed of and replaced by larger cartons that will hold the fully stuffed bags.

Such ancillary stuffing takes time, space, and additional personnel, which increases costs, causes inconvenience and sometimes delays delivery of the product to the point of sale. Additionally, the original shipping cartons are not reusable or recyclable and, therefore, must be discarded often requiring cartage companies, which charge a fee for waste removal and disposal at dump sites. Moreover, additional costs for the new larger cartons and additional freight charges are incurred for shipping the new cartons containing the stuffed bags to the retailer after the stuffing process is completed. In addition, such ancillary stuffing may cause storage problems for the retailer since the stuffed bags take up much more space than unstuffed bags. Accordingly, the retailer may be inclined to order limited quantities of soft bags because of storage restrictions for fully expanded bags. Thus, there is a risk of a rapidly depleting inventory so that the retailer may be unable to reorder in time to fill the demand.

As a result of the problems associated with such ancillary stuffing of soft bags, some retailers have opted to display their bags while they are still flat and to incude a picture of the bag as it appears when it is expanded. This method, however, is also costly and precludes the consumer from viewing the actual expanded bag. Other retailers have contemplated having bags stuffed at the manufacturing point, but this is uneconomical because it requires more shipping space so that less bags can be shipped per container causing greatly increased shipping costs.

United States Patents 4,077,451; 4,141,399; and 4,142,564 in the name of Zoland and issued March 7, 1978; February 27, 1979; and March 6, 1979, respectively, show prior art attempts to provide an insertable apparatus that permits a soft bag to be retained in a flattened state until expansion is desired. However, the coil spring of United States Patents 4,077,451 and 4,141,399 presents safety concerns, particularly with respect to soft bags that are sold for use by children. In addition, use of the coil spring incurs the significant expense not only of the spring itself but of sufficiently heavyweight cards on either side of the spring to preclude the spring pushing through the sides of the soft bag. The expandable cardboard insert of United States Patent 4,142,564 requires the user to pull a string in order to effect expansion and is restricted to such manual operation. Moreover, the insert is a relatively complex and expensive structure.

In one aspect, the invention provides a bag expanding device in combination with a soft bag having a pair of opposed portions partially forming the bag;

means connecting between the portions and together with the portions defining a compartment expandable to a predetermined shape;

one or more of the means and the portions being soft and flexible so that the compartment may be readily collapsed into a substantially flattened state or expanded into a substantially stuffed state in which the portions are spaced apart from each other to substantially the full extent permitted by the predetermined shape of the expanded compartment;

the expanding device including a generally planar, rigid insert;

the generally planar, rigid insert being inserted inside the compartment adjacent to one of the portions;

characterised in that the expanding device also includes an expandable piece having a pair of sections foldably attached to each other with each of the sections having a free end spaced from and opposite the free end of the other section;

the sections of the expandable piece being foldable between a first substantially flat coplanar

position and a second position in which the sections are substantially parallel to each other;

and in that the expanding device further includes a resilient member attached directly to the sections adjacent to the opposite free ends;

the resilient member being in tension when the expandable piece is in the first substantially flat position; and

the expandable piece being inserted in the first substantially flat position between the generally planar, rigid insert and the other opposed portion; and the resilient member urging the sections from their substantially flat coplanar position to an intermediate position in which the sections are at an angle to each other and are restrained by the predetermined shape of the expanded compartment.

In another aspect, the invention provides a bag expanding device in combination with a soft bag having a pair of opposed portions partially forming the bag;

means connected between the portions and together with the portions defining a compartment expandable to a predetermined shape;

one or more of the means and the portions being soft and flexible so that the compartment may be readily collapsed into a substantially flattened state or expanded into a substantially stuffed state in which the portions are spaced apart from each other to substantially the full extent permitted by the predetermined shape of the expanded compartment;

the expanding device including a cord having opposed ends with one end of the cord being attached to the expanding device,

characterised in that the expanding device further includes an elongate member foldable along at least two lines transverse to the elongate direction of the member to form a first section, a second section and a third section in tandem;

the first and second sections being capable of overlapping at least a part of the third section;

the first and second sections further being capable of folding between a first substantially flat coplanar position and a second position in which the first and second sections are substantially parallel to each other while overlapping the third section;

the one end of the cord being attached to the first section;

the second section having an aperture through which the unattached end of the cord extends;

the member being inserted inside the compartment with the first and second sections overlapping at least a part of the third section in the first substantially coplanar position and with the third section adjacent to one of the portions; and

tension on the unattached end of the cord urging the first and second sections from their substantially flat coplanar position to an intermediate position forming a gable in which the first and second sections are at an angle to each other as well as to the third section and are restrained by the predetermined shape of the expanded compartment.

In still another aspect, the invention provides an expanding device in combination with and for insertion within a soft bag of the type having a collapsed condition and an expanded condition and having a first side and a generally opposite second side at least partially forming the soft bag;

a first rigid insert for bearing against the first side of said bag;

a second rigid insert for bearing against the second side of said bag; and

a rigid expander positioned between said inserts,

characterised in that

each of the inserts has a slot;

the expander has a pair of oppositely disposed tabs; and

an elastic means is attached to the expander for moving said inserts from a relatively flat position in which said expander and said inserts are positioned in a generally parallel relationship, to a bag-expanding position in which said expander is at an angle with respect to said first and second inserts to separate the first and the second inserts in order to expand said soft bag;

one of the tabs being held in engagement with one of the slots by the elastic means when the expander and the inserts are positioned in the generally parallel relationship; and

upon the elastic means automatically moving the expander to separate the inserts, each of the tabs fitting into a respective one of the slots to hold the inserts in a locked, separated state.

In an additional aspect, the invention provides a bag expanding device in combination with a soft bag having a pair of opposed portions partially forming the bag;

means connected between the portions and together with the portions defining a compartment expandable to a predetermined shape;

one or more of the means and the portions being soft and flexible so that the compartment may be readily collapsed into a substantially flattened state or expanded into a substantially stuffed state in which the portions are spaced apart from each other to substantially the full extent permitted by the predetermined shape of the expanded compartment;

the expanding device including a first generally planar, rigid insert and a second generally planar, rigid insert;

the expanding device additionally including a

generally planar rigid expanding piece positioned between the inserts in an initial, substantially parallel relationship;

characterised in that the expanding device further includes a resilient member attached between the expanding piece and one of the inserts;

the resilient member being in tension when the expanding piece and the inserts are in the substantially parallel relationship;

the expanding piece being inserted within the compartment with the first insert adjacent to the one portion and the second insert adjacent to the other portion in the initial, substantially parallel relationship and being retained in that initial, substantially parallel relationship by a compressive force; and

the resilient member automatically urging the expanding piece into a bag expanding position in which the expanding piece is at an angle to each of the inserts to the extent permitted by the predetermined shape of the expanded compartment upon removal of the compressive force.

In a further aspect, the invention provides a bag expanding device in combination with a soft bag having a pair of opposed portions partially forming the bag;

means interconnecting the portions and, together with the portions, defining a compartment expandable to a predetermined shape;

one or more of the means and the portions being soft and flexible so that the compartment may be readily collapsed into a substantially flattened state or expanded into a substantially stuffed state in which the portions are spaced apart from each other to substantially the full extent permitted by the predetermined shape of the expanded compartment;

characterised in that the expanding device includes an expandable piece having at least four sections;

each of the sections of the expandable piece being foldably attached to each of two adjacent ones of the sections for articulation relative to each other;

two or more adjacent ones of the sections forming a first set of sections;

two or more adjacent ones of the sections, not forming the first set of sections, forming a second set of sections;

the expandable piece being articulatable between an initial collapsed position in which the two or more adjacent ones of the sections forming the first set of sections are in a substantially flat coplanar position and at least partially overlap the two or more adjacent ones of the sections forming the second set of sections which are also in a substantially flat coplanar position and a fully expanded position in which sections of the first set are substantially parallel to each other and sections of the second set are substantially parallel to each other;

the expanding device further including a member attached to at least one of the sections;

the expandable piece being inserted into the compartment in the initial collapsed position between the opposed portions; and

tension on the member urging each set of two or more adjacent ones of the sections from its respective, substantially flat coplanar position to an intermediate position in which the sections of each set are at an angle to each other and are restrained by the predetermined shape of the expanded compartment.

In the accompanying drawings:

FIG. 1 is a bottom plan view of one embodiment of the invention, showing it in a flat position prior to insertion in a bag;

FIG. 2 is a top plan view of the embodiment of FIG. 1;

FIG. 3 is a perspective view of an exemplary soft bag as it appears after it is expanded by the inventive device;

FIG. 4 is a cross-sectional view of the bag of FIG. 3 in a collapsed state, showing the embodiment of FIG. 1 in a flat position inside the bag;

FIG. 5 is a cross-sectional view of the bag of FIG. 3 in an expanded state, showing the embodiment of FIG. 1 expanding the bag;

FIG. 6 is a top plan view of a second embodiment of the invention, shown in a flat unfolded position;

FIG. 7 is a bottom plan view of the embodiment of FIG. 6;

FIG. 8 is a side view of the embodiment of FIG. 6 illustrating the apparatus in a folded position with the resilient means stretched and under tension prior to insertion into an unexpanded bag;

FIG. 9 is a side view of the embodiment of FIG. 6 showing the apparatus in a bag-expanding position;

FIG. 10 is a perspective view of a back-pack with a pocket;

FIG. 11 is a cross-sectional view of the back-pack of FIG. 10 in a collapsed state, illustrating the embodiments of FIGS. 1 and 6, inserted in flat positions in the back-pack;

FIG. 12 is a cross-sectional view showing the embodiments of FIGS. 1 and 6, inserted into and expanding the two sections of the back-pack;

FIG. 13 is a plan view of a third embodiment of the invention, shown in an unfolded position;

FIG. 14 is a plan view of the embodiment of FIG. 13 showing it in a partially folded position;

FIG. 15 is a side view of the embodiment of FIG. 13 showing the relative movement of the parts and their relationship to one another just prior to the insertion into a bag;

FIG. 16 is a side view of the embodiment of FIG. 13 showing further movement of the parts and their relationship to one another when the apparatus is actuated into its position for expanding a bag;

FIG. 17 is a plan view of a fourth embodiment of the invention showing it in an unfolded position;

FIG. 18 is a plan view of the embodiment of FIG. 17 showing it in a flat folded position for insertion into a bag prior to expansion;

FIG. 19 is a side view of the embodiment of FIG. 17 showing it in a relatively flat, folded position similar to FIG. 18;

FIG. 20 is a side view of the embodiment of FIG. 17 showing movement of the parts and their relationship to one another when the apparatus is actuated into its position for expanding a bag;

FIG. 21 is an exploded perspective view of a fifth embodiment of the invention, employing automatic expanding means;

FIG. 22 is a side view of the embodiment of FIG. 21 in a flattened condition prior to insertion into a soft bag;

FIG. 23 is a side view of the embodiment of FIG. 21 showing the apparatus in a expanded and locked condition;

FIG. 24 is a perspective view of the embodiment of FIG. 21 showing the apparatus in an expanded and locked position;

FIG. 29 is a sectional view of a seventh embodiment of the invention in a collapsed, substantially flattened state;

FIG. 30 is a top plan view showing the expanding device in an initial, substantially flat overlapping coplanar position prior to insertion into the soft bag;

FIG. 31 is a sectional view of the same combination as is shown in FIG. 29 except that the expanding device has been urged to an expanded position until restrained by the predetermined shape of the expanded bag compartment;

FIG. 32 is a sectional view of an eighth embodiment of the invention in a collapsed, substantially flattened state;

FIG. 33 is a top plan view of the expanding device in an initial, substantially flat overlapping coplanar position prior to insertion into the soft bag;

FIG. 34 is a top plan view of a generally rigid insert for use in combination with the expandable device shown in FIG. 33;

FIG. 35 is a sectional view of the same combination shown in FIG. 32 but with the expanding device urged to an expanded position and restrained by the predetermined shape of the expanded bag compartment;

FIG. 36 is perspective view of a ninth embodiment of the invention showing a soft bag expanded into a substantially stuffed state in which it has a generally cylindrical predetermined shape;

FIG. 37 is a perspective view of the embodiment shown in FIG. 36 with the soft bag collapsed into a substantially flattened state;

FIG. 38 is a sectional view taken generally along line 38-38 of FIG. 37;

FIG. 39 is a sectional view taken substantially along line 39-39 of FIG. 36;

FIG. 40 is a sectional view taken generally along line 40-40 of FIG. 39;

FIG. 41 is a top plan view of an expandable piece as an unfolded, unarticulated blank;

FIG. 42 is a top plan view of the expandable piece illustrated in FIG. 41 after it has been folded and articulated into the initial collapsed position in which two two adjacent sections that form a first set are in a substantially flat coplanar position and overlap the two sections forming a second set which are also in a substantially flat coplanar position;

FIG. 43 is a top plan view of the generally rigid insert illustrated in FIGS. 38, 39 and 40 in a substantially planar position as an unarticulated blank; and

FIG. 44 is a perspective view of a tenth embodiment of the invention showing an expanding device outside of the soft bag with the expandable piece in an intermediate position.

Referring to FIGS. 1-5, expander apparatus 10 comprises a generally flat member 12 and an attached resilient member 18. The flat member can be constructed of cardboard, corrugated board or of other suitable material by die cutting or other suitable manufacturing process. A foldline 22 is provided which divides member 12 into two preferably equal sections 14, 16 and permits member 12 to be folded along the line 22, which acts like a hinge, as shown for example in FIG. 5. The resilient member, which can be a rubber band or other elastic means, is attached to the first member by insertion into slots 24, 24 and 25, 25 and loops around tabs 26, 28 (FIGS. 1 and 2). When the member 12 is flat, the resilient member 18 is stretched and under tension. The memory of the member 18 causes it to urge the two sections 14, 16 of first member 12 towards one another. Thus, to keep the member 12 from folding along line 22, it is necessary to exert a force against member 12 by applying a weight or some other external force. When the apparatus 10 is inserted into a soft bag 20, as shown in FIG. 5, and the external compres-

sive force is removed from the bag, resilient member 18 causes sections 14, 16 to rotate about foldline or hinge 22 and move towards one another to form a gabled position. This in turn pushes cardboard inserts 23 apart and forces the sides 21 of bag 20 outwardly so that the bag expands. Cardboard inserts 23 are inserted into bag 20 on opposite sides of member 12 (see FIG. 4) so that inserts 23 are parallel to member 12. When the bag is expanded, as shown, e.g., in FIG. 5, inserts 23 aid the bag 20 to expand uniformly.

Inserts 23 may be shaped and dimensioned to the bag in which they are to be used. This will normally give the best appearance to the bag when it is expanded. The inserts may also be provided in predetermined stock sizes as a matter of convenience and economy. The inserts can be eliminated in certain applications, such as small bags, or where the irregularities in the shape of the bags caused by the absence of the inserts is of no concern to the retailer.

During shipment from the manufacturer to a customer, soft bag 20 may be placed flat in a shipping container with other bags for shipment to retailers. The container normally will be completely filled with bags to maximize shipping space so if the bags contain the apparatus of this invention, the apparatus will be in a compressed state, as depicted in FIG. 4. When the bags are removed from the container for display at the point of sale, the external compressive force will be relieved and sections 14,16 of apparatus 10 will move towards one another, pushing the walls of the bag outwardly, as shown in FIG. 5, giving the bag a filled appearance. To increase the speed of expansion the bag may be opened slightly to allow air to enter into the bag.

FIGS. 6-9 show a second embodiment or expander 11, including a generally flat member 30 comprising three sections 32, 34 and 36 and a resilient member 38. Sections 32, 34 and 36 are formed by folding member 30 along foldlines 42, 44. Slots 46, 48 are provided in member 30 for receiving and retaining member 38, as shown in FIGS. 6 and 7. To prepare embodiment 11 for use in the bag, member 30 is folded about foldline 42, as shown in FIG. 8. In this position resilient member 38 is stretched. So long as external compressive pressure is applied to embodiment 11, it will be retained in the manner shown in FIG. 8. When the compressive pressure is released, sections 34 and 36 will be folded about hinge or foldline 44 and pulled together by resilient member 38 to form a gable, as shown in FIG. 9.

Member 30 includes a slot 50 located on section 32. Slot or keeper 50 receives tab 52 located on section 36 and secures sections 34, 36 in the gabled position shown in FIG. 9. This acts as a locking means and affords greater stability to the structure. The locking means prevents retrograde movement upon application of compressive forces. Should it be desired to collapse the structure, tab 52 can be lifted from 50 and compressive forces applied to flatten the sections. As in the first embodiment, cardboard, corrugated board, or other suitable material may be used for member 30, and rubber bands or other suitable elastic means, for member 38.

FIG. 10 shows a back-pack 40 with two separate compartments 54, 56. FIG. 11 shows embodiments 10 and 11 as they would appear in a flattened configuration in compartments 56 and 54, respectively. A single cardboard insert 58 is added to compartment 54, and a single insert 60 is added to compartment 56 of bag 40. As in the other embodiments, these inserts assist in uniform expansion of bag 40. Because of the three-section configuration of embodiment 11, only one additional insert is necessary. Also, as can be seen in FIG. 11, only one insert is necessary for compartment 56 because section 32 of embodiment 11 accomplishes the function of an insert for that compartment, as well as compartment 54.

FIGS. 13-16 show a third embodiment 13 of the invention. Apparatus 13 has a generally flat member 62 comprising four sections 64, 66, 68 and 70 and an actuator member 72, which can be a string, tape, or other suitable device. Actuator member 72 need not be elastic, but should be long enough, so that when apparatus 13 is inserted into a bag, member 72 will extend out from the mouth of the bag.

The four sections 64, 66, 68, 70 are formed by foldlines 74, 76 and 78, and are adapted to fold over onto section 64 (see, e.g., FIGS. 15 and 16). Section 66 is secured to section 64 at point 88 by an adhesive, adhesive tape, or other suitable fastenings means (FIG. 15). Section 64 includes a plurality of slots 90, 92, 94, which are adapted to receive tab 82 of section 70. Tab 82 includes slots 84 which retain member 72 at one end.

The remainder of member 72 is threaded through opening 86 in section 68 and terminates in a pull 89. As shown in FIG. 16, member 72 is manually pulled to cause sections 68, 70 to move towards one another, while sections 64 and 66 remain in a flat position. As a result of the movement of section 68, 70, the sides of the bag into which apparatus 13 is inserted are pushed outwardly to expand the bag in which the apparatus is inserted. The arrows in FIG. 16 show the inward and upward movement of sections 68, 70 of apparatus 13 as member 72 is pulled in the direction of the arrow. As section 70 slides over section 64, tab 82 of section 70 engages the first of the plurality of slots 90, 92, 94 of section 64. Continued

pulling of member 72 will move tab 82 out of first slot 90 and into second slot 92. Further pulling of member 72 will cause tab 82 to move out of second slot 92 and into third slot 94. Insertion of tab 82 into any one of slots 90, 92, 94 will secure section 70 and stabilize the apparatus 13. By providing a plurality of slots, the height of the gable may be varied, making the apparatus adjustable for bags having different sized gussets. Thus, if greater expansion is desired in the bag, tab 82 can be inserted into the slot 94; if lesser expansion is needed, slot 90 may be employed. Moreover, as with expander 11, the locking means prevents retrograde movement upon application of compressive forces, and the structure can be collapsed by lifting tab 82 out of any one of the slots and flattening the structure with compressive forces.

Member 62 of apparatus 13 may be formed from a single pieces of material or from two pieces of material. Thus, instead of having foldline 74, apparatus 13 could be formed by securing two separate pieces together by adhesive 88 or another fastening means to form a hinge.

As noted earlier, actuating member 72 is designed to extend through the mouth and outside of the bag containing apparatus 13. In this application, the bag need only be opened enough to allow member 72 to protrude from the bag. While a pull or handle 89 is provided to facilitate manual manipulation, it is not essential. As an alternative to using actuating member 72, sections 68 and 70 are connected together with a resilient member, which is attached adjacent the ends of the sections and urges the sections toward one another in a manner similar to the first embodiment described earlier. Instructions for operating the apparatus 13 or other information may be imprinted on the pull 89.

FIGS. 17-20 show a fourth embodiment 15 of the invention. Apparatus 15 is similar to apparatus 13, but does not have sections that are secured to each other by adhesive means. Apparatus 15 has a flat elongated member 91 comprising three sections 112, 114, 116 arranged in tandem and an actuator member 98. As in the other embodiments, member 91 may be constructed of corrugated board, cardboard or other suitable material. Member 98 may be a string, tape, plastic wire, or the like, and can be designed to extend outside of the soft bag containing apparatus 15. Sections 112, 114, 116 are formed by foldlines 99, 100 located on member 91. Sections 114 and 116 are adapted to fold about foldline 99 and over onto section 112, as shown in FIGS. 18 and 19. Actuator member 98, which can be designed to extend outside of the bag containing apparatus 15 in the same manner as is described for apparatus 13, is secured to section 116 in slot 102 and extends through an opening 104 in section 114. A tab 106 is provided in section 116 for engaging slot 108 of section 112. As an alternative to using actuator member 98, sections 114 and 116 are connected together with a resilient member, which is attached adjacent the ends of the sections and urges the sections toward one another in a manner similar to the first embodiment described earlier.

FIGS. 18 and 19 show apparatus 15 as it appears generally flat for insertion into a bag. As shown in FIG. 20, pulling actuator member 98 in the direction of the arrow causes section 116 to move over section 112 and towards section 114. This forms a gable that pushes the sides of a bag outwardly and expands the bag. Tab 106 of section 116 engages opening 108 of section 112 and is securely retained, affording stability to apparatus 15. This structure may be collapsed by lifting tab 106 out of the opening 108 and applying a compressive force to the gable. If desired, several openings similar to opening 108 may be added to provide adjustability of the device.

A further embodiment 136 is shown in FIGS. 21-24, it includes three completely separate pieceparts 130, 132 and 134. Embodiment 136 of FIGS. 21-24 employs a resilient member 146 and functions automatically. Outer panels 130, 132 contain keepers or slots 138, 140, respectively. The central or actuator panel 134 has a pair of oppositely disposed tabs 142, 144. As shown in FIGS. 21-24, e.g., resilient member 146 is secured to panels 132 and 134. Tab 144 normally fits the keeper or slot 140 and is held there under the pull of the resilient member 146 while embodiments 136 is in its collapsed state (FIG. 22). When compressive forces are removed from the embodiment 136, the resilience of member 146 pulls central actuator panel 134 to an upright position in the direction shown by the arrow A in FIGS. 23 and 24. This pushes panel 130 away from panel 132, as shown by arrow B in FIG. 24. Tab 142 then fits into keeper or slot 138 and holds the two outer panels 130, 132 in a locked, separated state.

If it is desired to collapse the structure of embodiment 136 from an upright position, the tab 142 may be disengaged from slot 138 and the parts 130, 132 and 134 collapsed to their flattened state.

Panels 130, 132 are shaped to fit into a soft bag having the contours of a satchel, such as an athletic bag, for example. Thus, the term "outer panel" or the like should be construed as having any suitable shape. One might well imagine a clam shell shape and other unique shapes, which may be accommodated in a similar manner. Because soft bags come in different sizes, shapes and materials thicknesses, embodiments of the invention can be varied to accommodate these differences. As may be appropriate or desirable in each ap-

plication, the various flat members or panels may be constructed in different lengths, widths, shapes, strengths including elliptical, rectangular, or irregular shaped.

Since the invention is, for the most part made from flat paperboard stock or similar material, it may carry printed information 122, such as advertising, bag care instructions, or decorative indicia. In this way, the bag expanding means of this invention can be used to deliver messages to the ultimate purchasers of the bags.

FIGS. 29-44 show further embodiments of the present invention in which the expandable piece of the expanding device has at least four sections with each section foldably attached to each of two adjacent sections such that the expandable piece can be articulated from an initial position in which two adjacent sections forming a first set of sections are in a substantially flat coplanar position and overlap the other two sections forming a second set of sections which are also in a substantially flat coplanar position through a series of intermediate diamond or rhomboid positions to a fully expanded position in which the sections of the first set are in a substantially parallel relation to each other and the sections of the second set are in a substantially parallel relation to each other. It will be appreciated from the drawings and the descriptions of these embodiments that the expandable piece of these embodiments in effect form a pair of gables that are inverted with respect to each other. Accordingly, this expandable device permits, for any given angular relation between two sections forming a set of sections, expansion to an extent, in a direction substantially transverse to the substantially flat planes in which the sections forming each set are in when the expandable piece is in the initial position, that is generally twice as great as the extent of expansion obtainable from an expandable piece of the embodiments shown in FIGS. 1-20 for the same length of the expandable piece when it is in the initial position.

In FIG. 29 a bag expanding device 200 is shown in combination with a soft bag 202 such as that illustrated in FIG. 3. Soft bag 202 has a pair of opposed side portions 203 and 204 with end panels 205 and 206 connecting side portions 203 and 204, and together with the side portions defining a compartment 208 that is expandable to the predetermined shape illustrated in FIG. 31. Side portions 203 and 204, as well as end panels 205 and 206, are made of a soft flexible or supple material such as nylon, vinyl, denim or the like so that bag 202, together with inserted expanding device 200, may be readily collapsed into a substantially flattened state somewhat like that illustrated in FIG. 29 or expanded into a substantially stuffed state as illustrated in FIG. 31. In the substantially stuffed state, side portions 203 and 204 are spaced apart from each other to substantially the full extent permitted by end panels 205 and 206 so that the defined predetermined shape of expanded compartment 208 restrains expanding device 200.

Included in expanding device 200 is an expandable piece 210 which is shown in top plan view in FIG. 30. Expandable piece 210 is formed of a single piece of material into four sequentially arranged sections 211, 212, 213 and 214 plus an end flap 215. Adjacent sections 211 and 212 are separated by a foldline 218, adjacent sections 212 and 213 are separated by a foldline 219, adjacent sections 213 and 214 are separated by a foldline 220 while section 214 and adjacent flap 215 are separated by a foldline 221. As is best illustrated in FIGS. 29 and 31, the outer surface of flap 215 overlaps part of the inside surface of section 211. Flap 215 and the portion of section 211 that overlaps are secured together by a suitable adhesive to form a continuous multi-section structure. With flap 215 adhesively secured to section 211, sections 211 and 214 effectively become adjacent sections that are articulatable about foldline 221. Expandable piece 210 may be constructed of corrugated board, cardboard, plastic or any other suitable material. Of course, if a plastic is used it would have to be one having properties similar to polypropelene which permits the use of a living hinge for the foldlines.

It will be appreciated, particularly from FIG. 29 that expandable piece 210 is articulatable from an initial collapsed position in which adjacent sections 212 and 213, which form a first set of sections, are in a substantially flat coplanar position and overlap adjacent sections 211 and 214 which form a second set of sections and are also in a substantially flat coplanar position to a fully expanded position in which adjacent sections 212 and 213 of the first set are in a substantially parallel relation to each other and adjacent sections 211 and 214 of the second set are also in a substantially parallel relation to each other. Pulling or pushing the adjacent sections forming either set, such as sections 212 and 213, toward each other will articulate expandable piece 210 between the initial collapsed position in which its elongated direction is a generally horizontal one as viewed in FIG. 29 to a generally vertical one in the fully expanded position. During the course of such articulation from the substantially flat horizontal position to the substantially vertical position, expandable piece 210 can assume an almost infinite number of intermediate positions in which it is in the shape of a diamond or rhomboid such as the one illustrated in FIG. 31.

Each of sections 212 and 213 have a respective cut-out 222 and 223 leaving a respective ear 224 and 225. Attached about each of ears 224 and

225 is a resilient member 230 in the form of an elastic loop which is under tension when expandable piece 210 is in the position illustrated in FIG. 29. Accordingly, in the absence of a compressive force on expandable piece 210 that overcomes the force of resilient member 230, the resilient member urges the expandable piece out of the initial collapsed position that is approximately illustrated in FIG. 29 toward the fully expanded position until articulation of expandable piece 210 is restrained in an intermediate position by the predetermined shape of expanded compartment 208 with each of adjacent sections 212 and 213 at an angle to each other and adjacent sections 211 and 214 at essentially the same angle to each other as illustrated in FIG. 31. In this intermediate position resilient member 230 is still in tension.

To assist in uniform expansion of soft bag 202 and for a smooth appearance of the bag in the substantially stuffed state, generally rigid inserts 233 and 234 are provided. The generally rigid inserts may, like expandable piece 210, be constructed of corrugated board, cardboard, plastic or any other suitable material. One of each of the generally rigid inserts is inserted inside compartment 208 adjacent to a respective one of the side portions and spaced from the other generally rigid insert with the expandable piece between them. Thus, generally rigid insert 233 is inserted adjacent to side portion 203 while generally rigid insert 234 is inserted adjacent to side portion 204 and expandable piece 210 is sandwiched between inserts 233 and 234. The outline of each of the generally rigid inserts substantially conforms to the outline of the portion to which it is adjacent. Thus, in the case of a back-pack as is shown in FIG. 10 or another soft bag as is shown in FIG. 3 having a generally rectangular solid appearance in the substantially stuffed state, each of the generally rigid inserts would be generally planar and have a rectangular shape or outline conforming to the portion to which it is adjacent.

Sections 212 and 214, as is best illustrated in FIGS. 30 and 31, are each formed with a respective die-cut, punch-out tabs 242 and 244 (tabs 242 and 244 have been omitted from FIG. 29 for ease of illustration). Tab 242 articulates about foldline 219 while tab 244 articulates about foldline 221. With die-cut tabs 242 and 244 punched or pushed out of the plane of their respective sections to the general positions illustrated in FIG. 31, each of tabs 242 and 244 engage a generally rigid insert 233 and 234, respectively. Hence, the tabs provide greater frictional engagement between expandable piece 210 and generally rigid inserts 233 and 234 to help maintain expandable piece 210 in a particular relation to the outline of the generally rigid inserts.

Prior to shipment by the manufacture to a customer, expanding device 200 is inserted into soft bag 202 in a collapsed, substantially flattened state similar to that illustrated in FIG. 29 although in actual use it would be even more collapsed and flattened, in FIG. 29 expanding device 200 has been illustrated in a slightly expanded state for ease of illustration. A number of soft bags 202 with expanding inserts 200 are placed in a sealed container or master carton in the collapsed, substantially flattened state to maximize shipping space. The compressive forces resulting from such packing maintains the soft bags and expanding inserts in the collapsed, substantially flattened state. However, when a soft bag 202 is removed from the master carton, resilient member 230 will urge sections 212 and 213 toward each other, and will simultaneously urge sections 211 and 214 toward each other, until restrained by the predetermined shape of the expanded compartment 208 defined by soft flexible material side portions 203 and 204 plus end panels 205 and 206.

FIGS. 32-35 show another embodiment of the present invention that has additional features not present in the embodiment shown in FIGS. 29-31. In FIG. 32, a bag expanding device 250 is shown in combination with a soft bag 252 that has a pair of opposed side portions 253 and 254. A pair of end panels 255 and 256 connect the side portions and, together with the side portions, define a compartment 258 that is expandable to the predetermined shape illustrated in FIG. 35. A soft flexible material is used for side portions 253 and 254 as well as for end panels 255 and 256 so that bag 252, together with inserted expanding device 250, may be readily collapsed into a substantially flattened state approximately like that illustrated in FIG. 32 or expanded into a substantially stuffed state as illustrated in FIG. 35. In actual use, both expanding device 250 and soft bag 252 may be collapsed into a flatter state that is illustrated in FIG. 32 in which expanding device 250 is shown in a slightly expanded state for ease of illustration of its various components. In the substantially stuffed state, side portions 253 and 254 are spaced apart from each other to substantially the full extent permitted by end panels 255 and 256 so that the defined predetermined shape of expanded compartment 258 restrains expanding device 250.

Included in expanding device 250 is an expanding piece 260 which is shown in top plan view in FIG. 33. Expandable piece 260 is formed of a single piece of material, such as corrugated board, cardboard, a plastic or any other suitable material, into four sequentially arranged sections 261, 262, 263 and 264 plus an end flap 265. Adjacent sections 261 and 262 are separated by a foldline 268, adjacent sections 262 and 263 are separated by a

foldline 269, adjacent sections 263 and 264 are separated by a foldline 270 while section 264 and adjacent flap 265 are separated by a foldline 271. Flap 265 and the portion of section 261 that it overlaps are secured together by a suitable adhesive resulting in sections 261 and 264 effectively becoming adjacent sections that are articulatable about foldline 271. Accordingly, expandable piece 250 forms a continuous multi-section structure that may be articulated from an initial collapsed position in which one set of adjacent sections are in a substantially flat coplanar position and overlap another set of adjacent sections that are also in a substantially flat coplanar position to a fully expanded position in which adjacent sections 262 and 263 of the first set are in a substantially parallel relation to each other and adjacent sections 261 and 264 of the second set are also in a substantially parallel relation to each other.

Pulling or pushing adjacent sections forming a set toward each other will articulate expandable piece 260 between the initial collapsed position in which its elongated direction is a generally horizontal one as viewed in FIG. 32 to a generally vertical one in the fully expanded position. During the course of such articulation from the substantially flat horizontal position to the substantially vertical position, expandable piece 260 can assume an almost infinite number of intermediate positions in which it is in the shape of a diamond or rhomboid, such as the one illustrated in FIG. 35.

Each of sections 262 and 263 have a respective cut-out portion 272 and 273 leaving a respective ear 274 and 275. Attached about each of ears 274 and 275 is a resilient member 280 in the form of an elastic loop which is under tension when expandable piece 260 is in the position illustrated in FIG. 32. Similarly, each of sections 261 and 264 have respective cut-outs and ears (not shown) about which a second resilient member 281 is attached. Like resilient member 280, the second resilient member 281 is also in the form of an elastic loop which is under tension when expandable piece 260 is in the initial collapsed position. Accordingly, both resilient members 280 and 281, by exerting force on the respective sections to which they are attached, urge expandable piece 260 out of the initial collapsed position toward the fully expanded position until articulation of expandable piece 260 is restrained in an intermediate position by the predetermined shape of expanded compartment 258. When expandable piece 260 is restrained by the predetermined shape of expanded compartment 258, as is illustrated in FIG. 35, each of adjacent sections 262 and 263 are at an angle to each other and adjacent sections 261 and 264 are essentially at the same angle to each other. In this intermediate position both resilient members 280 and 281 are still in tension.

For more uniform expansion of soft bag 252 and to provide for a smooth appearance of the expanded bag, generally rigid inserts 283 and 284 are provided. The generally rigid inserts may be constructed of the same material as expandable piece 260. Preferably, each of the generally rigid inserts has an outline that substantially conforms to the outline of the side portion that it will be adjacent to when it is inserted into compartment 258. As illustrated in FIG. 34, generally rigid insert 283 has a generally rectangular outline that would conform to a portion of a generally rectangular solid bag such as is illustrated in FIG. 3 or a back-pack such as is illustrated in FIG. 10. Generally rigid insert 283 is inserted into compartment 258 of soft bag 252 adjacent to side portion 253 while generally rigid insert 284 is inserted adjacent to side portion 254 with the generally rigid inserts spaced from each other by expandable piece 260. Insert 283 is provided with a generally centrally disposed slot 285 and generally rigid insert 284 is provided with a similar slot 286.

Each of sections 262 and 264 are formed with a respective die-cut, push-out tab 292 and 294. As is best illustrated in FIG. 33, each of the tabs has outwardly extending barbed sides 295. When pushed out of the plane of their respective section, each of the tabs articulate about a foldline. Thus, tab 292 articulates about foldline 269 while tab 294 articulates about foldline 271. Each tab engages a respective slot of a generally rigid insert to maintain expandable piece 260 in a particular side-to-side and end-to-end relation between the expandable piece and the generally rigid insert. Barbed ends 295 help keep the tab from pulling out of the slot once it is inserted into the slot. The engagement of tabs 292 and 294 with their respective slots 285 and 286 facilitate putting the expandable piece together with the generally rigid inserts as a subassembly prior to insertion into the compartment of the soft bag.

As with the other embodiments, soft bag 252 with expanding device 250 inserted into compartment 258 is maintained in the collapsed, substantially flattened state during shipment by the compressive forces resulting from packaging of a number similarly collapsed, substantially flattened soft bags with inserted expanding devices within a sealed master carton. Upon opening of the sealed container and removal of the collapsed, substantially flattened soft bags, resilient members 280 and 281 will urge expandable piece 260 from its initial collapsed position. Expandable piece 260 will in turn push the generally rigid inserts further apart against their respective side portions until the expansion of the expanding device is restrained by the predetermined shape of the expanded compart-

ment with the expandable piece in an intermediate position in the shape of a diamond or a rhomboid.

FIGS. 36-44 illustrate further embodiments of the invention which are somewhat similar to those in FIGS. 29-35 but with some further changes and modifications for adaptation of the expanding device for use in combination with a generally cylindrical soft bag of the type sometimes referred to as a barrel bag. An expanding device 300 is contained within a soft barrel bag 302 which is shown in its expanded, substantially stuffed state in FIG. 36 and in a collapsed, substantially flattened state in FIG. 37.

Barrel bag 302 has opposed side portions 303 and 304 which may be constructed of a single piece of soft flexible material to also form the bottom of the barrel bag. A pair of end panels 305 and 306 connect side portions 303 and 304 which may be secured together along their respective top edges by a zipper 307. End panels 305 and 306, together with side portions 303 and 304 define a compartment 308 that is expandable to a predetermined generally cylindrical shape as is best illustrated in FIGS. 36, 39 and 40. To facilitate carrying of barrel bag 302, a handle 309 is attached to each side portion. The same soft flexible material may be used to construct end panels 305 and 306 as is used for the piece or pieces forming side portions 303 and 304. However, a more rigid material may be used for the end panels with soft bag 302 still being collapsible into a substantially flattened state when folded as illustrated in FIGS. 37 and 38. In the substantially stuffed state, side portions 303 and 304 are spaced apart from each other to the full extent permitted by end panels 305 and 306 so that the defined predetermined shape of expanded compartment 308 restrains expanding device 300.

Included in expandable device 300 is an expandable piece 310 which is shown in FIG. 41 in top plan view as an unfolded, unarticulated blank and in FIG. 42, again in top plan view, after it has been folded and articulated into the initial collapsed position. Expandable piece 310 is formed of a single piece of corrugated board, cardboard, plastic or any other suitable material into four sequentially arranged sections 311, 312, 313, and 314 plus an end flap 315. Adjacent sections 311 and 312 are separated by a foldline 318, adjacent sections 312 and 313 are separated by a foldline 319, adjacent sections 313 and 314 are separated by a foldline 320 while sections 314 and adjacent flap 315 are separated by a foldline 321. A pair of spaced apart slots 316 extend through end flap 315 along a line generally parallel to foldline 321. Extending outwardly from the free edge of section 311 that is parallel to foldline 318 are a pair of spaced apart tabs 317 that are aligned with slots 316. As is best shown in FIGS. 38 and 39, when expandable piece 310 is folded into a continuous multi-section structure, end flap 315 will overlap part of section 311 and each one of tabs 317 will fit into and through a respective slot 316 to secure expandable piece 310 in the continuous multi-section structure. Thus, the need for an adhesive as used in the embodiments of FIGS. 29-34 is obviated.

It will be appreciated, that as with the embodiments of FIGS. 29-34, expandable piece 310 is articulatable from an initial collapsed position in which adjacent sections 312 and 313, which form a first set of sections, are in a substantially flat coplanar position and overlap adjacent sections 311 and 314 which form a second set of sections and are also in a substantially flat coplanar position to a fully expanded position in which adjacent sections 312 and 313 of the first set are in a substantially parallel relation to each other and adjacent sections 311 and 314 of the second set are also in a substantially relation to each other. Pulling or pushing the adjacent sections forming either set, such as sections 312 and 313, toward each other will articulate expandable piece 310 between the initial collapsed position in which its elongated direction is generally parallel to or coincident with the axis of the predetermined cylindrical shape of expanded compartment 308, and is generally horizontal as viewed in FIG. 38, to a generally vertical one in the fully expanded position. During the course of such articulation from the substantially flat horizontal position to the substantially vertical position, expandable piece 310 can assume an almost infinite number of intermediate positions in which it is in the shape of a diamond or rhomboid such as the one illustrated in FIG. 39.

Each of sections 311 and 313 have a respective cut-out 322 and 323 leaving a respective ear 324 and 325. In addition, section 312 has a die-cut, push-out tab 328 while section 311 has a similar die-cut, push-out tab 329. Attached about each of ears 324 and 325 is a resilient member 330 in the form of an elastic loop which is under tension when expandable piece 310 is in the initial collapsed position. Accordingly, in the absence of a compressive force which overcomes the force of resilient member 330, the resilient member urges expandable piece 310 out of the initial collapsed position that is approximately illustrated in FIG. 38 toward the fully expanded position until the articulation of expandable piece 310 is restrained in an intermediated position by the predetermined cylindrical shape of expandable compartment 308. With expandable piece 310 restrained by the predetermined shape of expanded compartment 308, each of adjacent sections 312 and 313 are at an angle to each other and adjacent sections 311 and 314 are at essentially the same angle to each other as is illustrated in FIG. 39.

For more uniform expansion of soft bag 302 and a smoother appearance of the bag in the expanded, substantially stuffed state, generally rigid inserts 333 and 334 are provided. The generally rigid inserts may, like expandable piece 310, be constructed of corrugated board, cardboard, plastic or any other suitable material that is capable of being formed into an articulatable structure. As is best illustrated in FIGS. 39, 40 and 43, each of generally rigid inserts 333 and 334 are formed with a central generally elongated rectangular segment 335. Along one elongated side edge of central segment 335 is a narrower segment 336 which in turn has another segment 337 adjacent its elongated outer edge. Similarly, along the other elongated edge of central segment 335 is a narrower segment 338 having another segment 339 along its outer elongated edge. Segment 335 is separated from segment 336 by a foldline 340 while segment 336 is separated from segment 337 by a foldline 341. On the other side, segment 335 is separated from segment 338 by a foldline 342 while segment 338 is separated from segment 339 by a foldline 343. Thus, it will be appreciated, particularly from FIGS. 39 and 40, that generally rigid insert 333, as well as generally rigid insert 334 which is similarly constructed, may be articulated from the generally planer position illustrated in FIG. 43 to an arcuate condition in which the insert substantially conforms to a side portion of the predetermined cylindrical shape of expanded compartment 308.

Generally centrally disposed in segment 335 is a slot 345 that extends through the generally rigid insert. A similar slot is provided in generally rigid insert 334. One of each of tabs 328 and 329 fits through the slot of a respective one of generally rigid inserts of 333 and 334 to maintain expandable piece 310 in a particular relation with each of the generally rigid inserts. The use of the tab and slot engagement not only helps prevent shifting of the expandable piece with respect to the generally rigid inserts during expansion of the expanding device in combination with the soft bag but also facilitates insertion of the expanding device as a subassembly into the soft bag prior to shipment.

FIG. 44 shows another embodiment of an expanding device 350 particularly adapted for use with a generally cylindrical or barrel bag such as soft bag 302 shown in FIGS. 36-40. Expanding device 350 includes an expandable piece 360 formed of a single piece of material into four sequentially arranged sections 361, 362, 363, and 364 plus an end flap 365. Sections 361 and 362 cooperate to form a generally semi-circular bottom edge 366 when expandable piece 360 is in the intermediate position shown in FIG. 44. Sections 363 and 364 also cooperate to form a similar semi-circular bottom edge (not shown). Adjacent sections 361 and 362 are separated by a foldline 368, adjacent sections 362 and 363 are separated by a foldline 369, adjacent sections 363 and 364 are separated by a foldline 370 while section 364 and adjacent flap 365 are separated by a foldline 371. End flap 365 overlaps and is secured to a portion of section 361 by a suitable adhesive resulting in sections 361 and 364 effectively becoming adjacent sections that are articulatable with respect to each other about foldline 371. Accordingly, expandable piece 360 is articulatable from an initial collapsed position in which adjacent sections 362 and 363, which form a first set of sections, are in a substantially flat coplanar position and overlap adjacent sections 361 and 364 which form a second set of sections and are also in a substantially flat coplanar position to a fully expanded position in which adjacent sections 362 and 363 of the first set are in a substantially parallel relation to each other and adjacent sections 361 and 364 of the second set are also in a substantially parallel relation to each other.

Each of sections 362 and 363 have a respective cut-out 372 and 373 leaving a respective ear 374 and 375. Section 362 has a die-cut, push-out tab 378 that is articulatable about foldline 369 and section 364 has a die-cut, push-out tab 379 that is articulatable about foldline 371. A resilient member 380 in the form of an elastic loop which is under tension when expandable piece 360 is in the initial collapsed position is attached about each of ears 374 and 375.

To assist the uniform expansion of a soft cylindrical or barrel bag and for a smoother appearance of the bag in a substantially stuffed state a generally rigid insert 382 is provided. Generally rigid insert 382 is constructed from a single piece of corrugated board, cardboard, plastic, or other suitable articulatable material and has a pair of opposed generally elongated rectangular segments 383 and 384 connected to each other by a series of sequentially arranged intermediate segments. Extending toward segment 384 from segment 383 are a sequential series of four, somewhat narrower segments 386. The one segment 386 adjacent segment 383 is separated from segment 383 by a foldline 387 and each of segments 386 are also separated from each other by similar foldlines 387. Segment 384 has a sequential series of four somewhat more narrow segments 388 extending from its inboard elongated edge toward segment 383. The one segment 388 adjacent segment 384 is separated from segment 384 by a foldline 389 and each of segments 388 are also separated from each other by similar foldlines 389. A central foldline 390 separates the adjacent ones of segments 386 and 388.

Segments 386 and 388 can be articulated into a generally semi-circular shape generally conforming to and abutting bottom edge 366 as well as the bottom edge formed by sections 363 and 364 of expandable piece 360. In the initial collapsed position of expanding device 350, generally rigid insert 382 is articulated about central foldline 390 such that segments 383 plus segments 386 lie substantially in one plane and overlap segments 384 plus segments 388 which lie in substantially another plane. Thus as is illustrated in FIG. 44, generally rigid insert 382 is articulatable, as a result of the expansion of expandable piece 360, into a generally semi-circular or U-shaped configuration which generally conforms to the desired rounded appearance of the predetermined cylindrical shape of the expanded compartment of the soft barrel bag.

Segment 383 has a slot 391 through which tab 379 is inserted and segment 384 has a similar slot (not shown) through which tab 378 is inserted to help maintain the relation between expandable piece 360 and generally rigid insert 382.

Expandable pieces 210, 260, 310 and 360 have all been shown and described as having four sides, however, it will be appreciated by those skilled in the art that more than four sides could be used such that the expandable piece would be in the shape of a pentagon, hexagon, octagon or the like in the intermediate position.

Claims

1. A bag expanding device (10,11) in combination with a soft bag (20) having a pair of opposed portions (21) partially forming the bag;

means connecting between the portions and together with the portions defining a compartment expandable to a predetermined shape;

one or more of the means and the portions being soft and flexible so that the compartment may be readily collapsed into a substantially flattened state or expanded into a substantially stuffed state in which the portions are spaced apart from each other to substantially the full extent permitted by the predetermined shape of the expanded compartment;

the expanding device including a generally planar, rigid insert (23, 32);

the generally planar, rigid insert being inserted inside the compartment adjacent to one of the portions;

characterised in that the expanding device also includes an expandable piece (12, 30) having a pair of sections foldably attached to each other with each of the sections (14, 16; 34, 36) having a free end spaced from and opposite the free end of the other section;

the sections of the expandable piece being foldable between a first substantially flat coplanar position and a second position in which the sections are substantially parallel to each other;

and in that the expanding device further includes a resilient member (18, 38) attached directly to the sections adjacent to the opposite free ends;

the resilient member being in tension when the expandable piece is in the first substantially flat position; and

the expandable piece being inserted in the first substantially flat position between the generally planar, rigid insert and the other opposed portion; and the resilient member urging the sections from their substantially flat coplanar position to an intermediate position in which the sections are at an angle to each other and are restrained by the predetermined shape of the expanded compartment.

2. A bag expanding device in combination with a soft bag as claimed in Claim 1, in which the expandable piece (12, 30) is inserted in the first substantially flat coplanar position between the generally planar rigid insert (23, 32) and the other opposed portion (21) of the compartment with the expanding device oriented so that the free ends abut the generally planar, rigid insert when the resilient member (18, 38) urges the sections to the intermediate position.

3. A bag expanding device in combination with a soft bag as claimed in Claim 1, in which:

each of the portions (21) has a respective predetermined outline; and

the generally planar, rigid insert (23, 32) substantially conforms in outline to the one portion.

4. A bag expanding device in combination with a soft bag as claimed in Claim 1 and further comprising:

a second generally planar, rigid insert (23); the second generally planar, rigid insert being inserted inside the compartment adjacent to the other opposed portion; and

the expandable device being inserted in the first substantially flat coplanar position between the generally planar, rigid insert and the second generally planar, rigid insert.

5. A bag expanding device in combination with a soft bag as claimed in Claim 4, in which:

each of the portions has a respective predetermined outline;

the generally planar, rigid insert (23, 32) substantially conforms in outline to the one portion; and

the second generally planar, rigid insert (23) substantially conforms in outline to the other opposed portion.

6. A bag expanding device in combination with a soft bag as claimed in Claim 1 and further comprising:

a second compartment (56) expandable to a second predetermined shape;

the other opposed portion also partially forming the second compartment;

a third portion of the bag;

second means connected between the opposed portion and the third portion and together with the opposed portion and the third portion defining the second compartment expandable to the second predetermined shape;

one or more of the second means, the opposed portion and the third portion being soft and flexible so that the second compartment may be readily collapsed into a substantially flattened state or expanded into a substantially stuffed state in which the opposed portion and the third portion are spaced apart from each other to substantially the full extent permitted by the predetermined shape of the expanded second compartment;

the expanding device further including a second generally planar, rigid insert (60);

the second generally planar, rigid insert being inserted inside the second compartment adjacent to the third portion;

the expanding device also including a second expandable piece (12, 30) having a pair of sections (14, 16; 34, 36) foldably attached to each other with each of the sections having a free end spaced from and opposite the free end of the other section;

the sections of the second expandable piece being foldable between a first substantially flat coplanar position and a second position in which the sections are substantially parallel to each other;

the second expanding device further including a resilient member (18, 38) attached directly to the sections adjacent to the opposite free ends;

the resilient member of the second expandable piece being in tension when the second expandable piece is in the first substantially flat position;

the second expandable piece being inserted in the first substantially flat position between the second generally planar, rigid insert and the opposed portion; and

the resilient member of the second expandable piece urging the sections of the second expandable piece from their relatively flat coplanar position to an intermediate position in which the sections are at an angle to each other and are restrained by the predetermined shape of the expanded second compartment.

7. A bag expanding device in combination with a soft bag as claimed in Claim 6, in which:

each of the portions has a respective predetermined outline;

the generally planar, rigid insert substantially conforms in outline to the one portion;

the third portion has another predetermined outline; and

the second generally planar, rigid insert substantially conforms in outline to the third portion.

8. A bag expanding device in combination with a soft bag as claimed in Claim 6, in which:

the expandable piece is inserted in the first substantially flat coplanar position between the generally planar, rigid insert and the other of the pair of opposed portions of the compartment with the expanding device oriented so that the free ends of the expandable piece abut the generally planar, rigid insert when the resilient member urges the sections to the intermediate position; and

the second expandable piece is inserted in the first substantially flat coplanar position between the second generally planar, rigid insert and the opposed portion oriented so that the free ends of the second expandable piece abut the second generally planar, rigid insert when the resilient member of the second expandable device urges the sections to the intermediate position.

9. A bag expanding device in combination with a soft bag as claimed in Claim 6 and further comprising:

a third generally planar, rigid insert (23, 32);

the third generally planar, rigid insert being inserted inside the compartment adjacent to the other opposed portion; and

the expandable device being inserted in the compartment in the first substantially flat coplanar position between the generally planar, rigid insert and the third generally planar, rigid insert.

10. A bag expanding device in combination with a soft bag as claimed in Claim 9, in which:

each of the portions has a respective pre-

determined outline;

the generally planar, rigid insert substantially conforms in outline to the one portion;

the third portion has another predetermined outline;

the second generally planar, rigid insert substantially conforms in outline to the third portion; and

the third generally planar, rigid insert substantially conforms in outline to the other opposed portion.

11. A bag expanding device in combination with a soft bag as claimed in Claim 1, wherein:

the generally rigid insert (32) and the expandable piece (30) are integral and comprise a relatively flat member being foldable along at least two transverse axes (42, 44) to form a first section (36), a second section (34) and a third section in tandem (32);

the first and second sections being the pair of sections;

the third section being the generally rigid insert; and

said first and second sections being capable of folding over and overlapping at least a portion of said third section.

12. A bag expanding device in combination with a soft bag as claimed in Claim 11, wherein said first section (36) includes a tab (52) and said third section (32) includes a slot (50) which is adapted to receive the tab when the first and second sections are formed into a gable and expand the bag.

13. A bag expanding device in combination with a soft bag as claimed in Claim 11 and further comprising:

a second generally planar, rigid insert (23);

the second generally planar, rigid insert being inserted inside the compartment adjacent to the other opposed portion; and

the first and second sections being disposed between the third section and the second generally, planar rigid insert.

14. A bag expanding device in combination with a soft bag as claimed in Claim 13, in which:

each of the portions has a respective predetermined outline;

the generally planar, rigid insert substantially conforms in outline to the one portion; and

the second generally planar, rigid insert substantially conforms in outline to the other opposed portion.

15. A bag expanding device (13, 15) in combination with a soft bag (20) having a pair of opposed portions (21) partially forming the bag;

means connected between the portions and together with the portions defining a compartment expandable to a predetermined shape;

one or more of the means and the portions being soft and flexible so that the compartment may be readily collapsed into a substantially flattened state or expanded into a substantially stuffed state in which the portions are spaced apart from each other to substantially the full extent permitted by the predetermined shape of the expanded compartment;

the expanding device including a cord (72, 98) having opposed ends with one end of the cord being attached to the expanding device,

characterised in that the expanding device further includes an elongate member (62, 91) foldable along at least two lines (76, 78; 99, 100) transverse to the elongate direction of the member to form a first section (70, 116), a second section (68, 114) and a third section (64, 112) in tandem;

the first and second sections being capable of overlapping at least a part of the third section;

the first and second sections further being capable of folding between a first substantially flat coplanar position and a second position in which the first and second sections are substantially parallel to each other while overlapping the third section;

the one end of the cord being attached to the first section;

the second section having an aperture (86, 104) through which the unattached end of the cord extends;

the member being inserted inside the compartment with the first and second sections overlapping at least a part of the third section in the first substantially coplanar position and with the third section adjacent to one of the portions; and

tension on the unattached end of the cord urging the first and second sections from their substantially flat coplanar position to an intermediate position forming a gable in which the first and second sections are at an angle to each other as well as to the third section and are restrained by the predetermined shape of the expanded compartment.

16. A bag expanding device in combination with a soft bag as claimed in Claim 15, in which:

the third section (64, 112) includes at least

one slot (90, 92, 94, 108); and

the first section (70, 116) includes a tab (82, 106) which is adapted to be inserted into the slot when the first and second sections (68, 114) are formed into a gable.

17. A bag expanding device in combination with a soft bag as claimed in Claim 16, in which a plurality of slots (90, 92, 94) is provided, each of which is adapted to receive the tab (82), whereby the gable height can be adjusted to accommodate the expansion of different sized bags.

18. A bag expanding device in combination with a soft bag as claimed in Claim 15, in which a generally rigid insert (23) is placed in the bag parallel to the third section with the first and second sections being between the third section and the generally rigid insert.

19. A bag expanding device in combination with a soft bag as claimed in Claim 15 and further comprising:

a fourth section (66) in tandem with the first (70), second (68) and third (64) sections;

the fourth section being between the second and the third sections;

the fourth section being capable of overlapping the third section in a relatively fixed position when the first and second sections are in the first position, the second position, or an intermediate gable forming position; and

tension on the unattached end of the cord urging the first and second sections from their substantially flat coplanar position to a position in which the first and second sections are at an angle to each other as well as to both of the third and fourth sections.

20. A bag expanding device in combination with a soft bag as claimed in Claim 19, in which the first section has slots (84) for the attachment of the one end of the cord.

21. A bag expanding device in combination with a soft bag as claimed in Claim 19 and including means for securing the fourth section to the third section in the relatively fixed position.

22. A bag expanding device in combination with a soft bag as claimed in Claim 21, in which a generally rigid insert (23) is placed in the bag parallel to the third section with the first, second and fourth sections being between the third section and the generally rigid insert.

23. A bag expanding device in combination with a soft bag as claimed in Claim 19, in which:

the third section (64) includes at least one slot (90, 92, 94); and

the first section (70) includes a tab (82) which is adapted to be inserted into the slot when the first and second sections are formed into a gable.

24. A bag expanding device in combination with a soft bag as claimed in Claim 19, in which:

the third section (64) has a plurality of slots (90, 92, 94);

the first section (70) includes a tab (82); and

the slots are adapted to receive the tab, whereby the gable height can be adjusted to accommodate the expansion of different sized bags.

25. A bag expanding device in combination with a soft bag as claimed in Claim 19, in which a generally rigid insert (23) is placed in the bag parallel to the third section with the first, second and fourth sections being between the third section and the generally rigid insert.

26. An expanding device (136) in combination with and for insertion within a soft bag (20) of the type having a collapsed condition and an expanded condition and having a first side (21) and a generally opposite second side (21) at least partially forming the soft bag;

a first rigid insert (130) for bearing against the first side of said bag;

a second rigid insert (132) for bearing against the second side of said bag; and

a rigid expander (134) positioned between said inserts,

characterised in that

each of the inserts has a slot (138, 140);

the expander has a pair of oppositely disposed tabs (142, 144); and

an elastic means (146) is attached to the expander for moving said inserts from a relatively flat position in which said expander and said inserts are positioned in a generally parallel relationship, to a bag-expanding position in which said expander is at an angle with respect to said first and second inserts to separate the first and the second inserts in order to expand said soft bag;

one of the tabs being held in engagement with one of the slots by the elastic means when the expander and the inserts are positioned in the generally parallel relationship; and

upon the elastic means automatically moving the expander to separate the inserts, each

of the tabs fitting into a respective one of the slots to hold the inserts in a locked, separated state.

27. An expanding device and soft bag combination as claimed in Claim 26, wherein said inserts (130, 132) are shaped and dimensioned to fit the respective sides of said bag.

28. An expanding device and soft bag combination as claimed in Claim 26 or 27, and including a supple material joining said sides, said bag being movable between a collapsed condition, in which said sides are adjacent to each other and said material is collapsed, and an expanded condition in which said sides are spaced from each other and said material is extended.

29. An expanding device and soft bag combination as claimed in Claim 26, 27, or 28, in which the expander is substantially perpendicular to each of the inserts in the bag expanding position.

30. An expanding device and soft bag combination as claimed in Claim 26, 27, 28 or 29, in which the elastic means is attached between the expander and one of the inserts.

31. An expanding device and soft bag combination as claimed in Claim 26, 27, 28, 29, or 30, in which:

the expander and the inserts are held parallel by compressive forces applied to the bag; and

the elastic means automatically moves the expander and inserts to the bag expanding position when the compressive forces are removed from the bag.

32. A bag expanding device (136) in combination with a soft bag (20) having a pair of opposed portions (21) partially forming the bag;

means connected between the portions and together with the portions defining a compartment expandable to a predetermined shape;

one or more of the means and the portions being soft and flexible so that the compartment may be readily collapsed into a substantially flattened state or expanded into a substantially stuffed state in which the portions are spaced apart from each other to substantially the full extent permitted by the predetermined shape of the expanded compartment;

the expanding device including a first generally planar, rigid insert (130) and a second generally planar, rigid insert (132);

the expanding device additionally including a generally planar rigid expanding piece (134) positioned between the inserts in an initial, substantially parallel relationship;

characterised in that the expanding device further includes a resilient member (146) attached between the expanding piece and one of the inserts;

the resilient member being in tension when the expanding piece and the inserts are in the substantially parallel relationship;

the expanding piece being inserted within the compartment with the first insert adjacent to the one portion and the second insert adjacent to the other portion in the initial, substantially parallel relationship and being retained in that initial, substantially parallel relationship by a compressive force; and

the resilient member automatically urging the expanding piece into a bag expanding position in which the expanding piece is at an angle to each of the inserts to the extent permitted by the predetermined shape of the expanded compartment upon removal of the compressive force.

33. A bag expanding device in combination with a soft bag as claimed in Claim 32, in which:

each of the portions has a respective predetermined outline;

the first generally planar, rigid insert substantially conforms in outline to the one portion; and

the second generally planar, rigid insert substantially conforms in outline to the other, opposed portion.

34. A bag expanding device (200, 260, 300, 350) in combination with a soft bag (202, 252, 302) having a pair of opposed portions (203, 204; 253, 254; 303, 304) partially forming the bag;

means (205, 206; 255, 256; 305, 306) interconnecting the portions and, together with the portions, defining a compartment expandable to a predetermined shape;

one or more of the means and the portions being soft and flexible so that the compartment may be readily collapsed into a substantially flattened state or expanded into a substantially stuffed state in which the portions are spaced apart from each other to substantially the full extent permitted by the predetermined shape of the expanded compartment;

characterised in that the expanding device includes an expandable piece (210, 260, 310, 360) having at least four sections (211, 212, 213, 214; 261, 262, 263, 264; 311, 312, 313, 314,; 361, 362, 363, 364);

each of the sections of the expandable piece being foldably attached to each of two adjacent ones of the sections for articulation relative to each other;

two or more adjacent ones of the sections (212, 213; 262, 263; 312, 313; 362, 363) forming a first set of sections;

two or more adjacent ones of the sections (211, 214; 261, 264; 311, 314; 361, 364), not forming the first set of sections, forming a second set of sections;

the expandable piece being articulatable between an initial collapsed position in which the two or more adjacent ones of the sections forming the first set of sections are in a substantially flat coplanar position and at least partially overlap the two or more adjacent ones of the sections forming the second set of sections which are also in a substantially flat coplanar position and a fully expanded position in which sections of the first set are substantially parallel to each other and sections of the second set are substantially parallel to each other;

the expanding device further including a member (230; 280, 281; 330; 380) attached to at least one of the sections;

the expandable piece being inserted into the compartment in the initial collapsed position between the opposed portions; and

tension on the member urging each set of two or more adjacent ones of the sections from its respective, substantially flat coplanar position to an intermediate position in which the sections of each set are at an angle to each other and are restrained by the predetermined shape of the expanded compartment.

35. A bag expanding device in combination with a soft bag as claimed in Claim 34, in which:

the member (230; 280, 281; 330; 380) is resilient and is attached to at least two of the sections; and

the resilient member is in tension when the expandable piece is in the initial collapsed position.

36. A bag expanding device in combination with a soft bag as claimed in Claim 35, in which the resilient member (230; 280, 281; 330; 380) is in tension when the expandable piece is in the intermediate position.

37. A bag expanding device in combination with a soft bag as claimed in Claim 35 and further comprising:

a second resilient member (281) attached to at least two other sections;

the second resilient member also being in tension when the expandable piece is in the initial collapsed position; and

the second resilient member assisting in urging each set of two or more adjacent ones of the sections from its respective substantially flat coplanar relation to an intermediate position in which the sections of each set are at an angle to each other and are restrained by the predetermined shape of the expanded compartment.

38. A bag expanding device in combination with a soft bag as claimed in Claim 35, in which:

the expanding device also includes a generally rigid insert (233, 234; 283, 284; 333, 334; 382); and

the generally rigid insert is inserted inside the compartment adjacent to one of the portions between the expandable piece and the one portion.

39. A bag expanding device in combination with a soft bag as claimed in Claim 38 and further comprising:

a tab (292, 294; 328, 329; 378, 379) extending outwardly from the expandable piece;

a slot (285, 286; 345; 391) in the generally rigid insert; and

the tab engaging the slot to assist in maintaining the expandable piece in a particular relation to the generally rigid insert.

40. A bag expanding device in combination with a soft bag as claimed in Claim 34, in which:

the expanding device also includes a generally rigid insert (233, 234; 283, 284; 333, 334; 382); and

the generally rigid insert is inserted inside the compartment adjacent to one of the portions between the expandable piece and the one portion.

41. A bag expanding device in combination with a soft bag as claimed in Claim 38 or 40, in which:

each of the portions has a respective predetermined outline; and

the generally rigid insert substantially conforms in outline to the one portion.

42. A bag expanding device in combination with a soft bag as claimed in Claim 41, in which:

the soft bag has an elongate direction and the compartment is expandable to an approximately cylindrical predetermined shape; and

the generally rigid insert (333, 334; 382) has an elongate direction and a plurality of

generally planar segments (335, 336, 337, 338, 339; 383, 384, 386, 388) that are each foldably attached to each adjacent segment along a line generally parallel to the elongate direction to conform to the portions that in part define the approximately cylindrical predetermined shape when the expandable piece is in the intermediate position.

43. A bag expanding device in combination with a soft bag as claimed in Claim 40 and further comprising:

a tab (292, 294; 328, 329; 378, 379) extending outwardly from the expandable piece;

a slot (285, 286; 345; 391) in the generally rigid insert; and

the tab engaging the slot to assist in maintaining the expandable piece in a particular relation to the generally rigid insert.

44. A bag expanding device in combination with a soft bag as claimed in Claim 38 or 40 and further comprising:

a second generally rigid insert(234; 284; 334); and

the second generally rigid insert being inserted inside the compartment adjacent to the other opposed portion and spaced from the first generally rigid insert with the expandable piece between the two generally rigid inserts.

45. A bag expanding device in combination with a soft bag as claimed in Claim 44, in which:

each of the portions has a respective predetermined outline;

the first generally rigid insert substantially conforms in outline to the one portion; and

the second generally rigid insert substantially conforms in outline to the other opposed portion.

46. A bag expanding device in combination with a soft bag as claimed in Claim 45, in which:

the soft bag (302) has an elongate direction and the compartment is expandable to an approximately cylindrical predetermined shape; and

both of the generally rigid inserts (333, 334) have an elongate direction and a plurality of generally planar segments (335, 336, 337, 338, 339) that are each foldably attached to each adjacent segment along a line generally parallel to the elongate direction so that each of the generally rigid inserts conforms to one of the portions that in part define the approximately cylindrical predetermined shape when the expandable piece is in the intermediate position.

47. A bag expanding device in combination with a soft bag as claimed in Claim 45 and further comprising:

a pair of tabs (292, 294; 328, 329; 378, 379);

each of the tabs extending outwardly from a generally opposed part of the expandable piece;

a first slot (285; 345; 391) in the first generally rigid insert;

a second slot (286; 345; 391) in the second generally rigid insert; and

one of the pair of tabs engaging the first slot and the other of the pair of tabs engaging the second slot to assist in maintaining the expandable piece in a particular relation to the first and second generally rigid inserts.

48. A bag expanding device in combination with a soft bag as claimed in any preceding claim, wherein said expandable piece or said generally rigid insert contains printed indicia (122).

Patentansprüche

1. Taschenaufspannvorrichtung (10, 11) in Kombination mit einer weichen Tasche (20), welche ein Paar gegenüberliegender, die Tasche teilweise bildender Abschnitte (21) aufweist,
wobei Mittel zwischen den Abschnitten eine Verbindung herstellen und zusammen mit diesen Abschnitten eine auf eine vorbestimmte Form ausdehnbare Kammer begrenzen,
wobei ein oder mehrere der Mittel und der Abschnitte weich und flexibel sind, so daß die Kammer leicht in einen im wesentlichen abgeflachten Zustand Zusammenfallen kann oder in einen im wesentlichen ausgefüllten Zustand ausgedehnt werden kann, in welchem die Abschnitte in im wesentlichen vollem, durch die vorbestimmte Form der ausgedehnten Kammer zugelassenem Maß voneinander Abstand aufweisen,
wobei die Aufspannvorrichtung ein allgemein ebenes, starres Einsetzteil (23, 32) umfaßt,
wobei das allgemein ebene, starre Einsetzteil einem der Abschnitte benachbart in die Kammer eingesetzt wird,
dadurch gekennzeichnet, daß die Aufspannvorrichtung auch ein streckfähiges Stück (12, 30) mit einem Paar klappbar aneinander angebrachten Teilstücke umfaßt, wobei jedes der Teilstücke (14, 16; 34, 36) ein freies Ende aufweist, das vom freien Ende des anderen Teilstücks Abstand aufweist und diesem gegenüberliegt,
wobei die Teilstücke des streckfähigen Stücks zwischen einer ersten, im wesentlichen fla-

chen, koplanaren Stellung und einer zweiten Stellung klappbar sind, in welcher die Teilstükke im wesentlichen parallel zueinander sind,
und daß die Aufspannvorrichtung ferner ein elastisches Element (18, 38) umfaßt, das den gegenüberliegenden freien Enden benachbart direkt an den Teilstücken angebracht ist,
wobei das elastische Element unter Spannung ist, wenn das streckfähige Stück in der ersten, im wesentlichen flachen Stellung ist, und
wobei dar streckfähige Stück in der ersten, im wesentlichen flachen Stellung zwischen das allgemein ebene, starre Einsetzteil und den anderen, gegenüberliegenden Abschnitt eingesetzt wird und das elastische Element die Teilstücke aus ihrer im wesentlichen flachen, koplanaren Stellung in eine Zwischenposition drängt, in welcher die Teilstücke unter einem Winkel zueinander stehen und durch die vorbestimmte Form der ausgedehnten Kammer zurückgehalten werden.

2. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 1, bei der das streckfähige Stück (12, 30) in der ersten, im wesentlichen flachen, koplanaren Stellung zwischen das allgemein ebene, starre Einsetzteil (23, 32) und den anderen, gegenüberliegenden Abschnitt (21) der Kammer bei derart orientierter Aufspannvorrichtung eingesetzt wird, daß die freien Enden an dem allgemein ebener, starren Einsetzteil anliegen, wenn das elastische Element (18, 38) die Teilstücke in die Zwischenstellung drängt.

3. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 1, bei der:
jeder der Abschnitte (21) einen entsprechenden vorbestimmten Umriß hat und
das allgemein ebene, starre Einsetzteil (23, 32) im Umriß mit dem einen Abschnitt im wesentlichen übereinstimmt.

4. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 1, ferner umfassend:
ein zweites allgemein ebenes, starres Einsetzteil (23), wobei das zweite allgemein ebene, starre Einsetzteil dem anderen, gegenüberliegenden Abschnitt benachbart in die Kammer eingesetzt wird und das streckfähige Stück in der ersten, im wesentlichen flachen, koplanaren Stellung zwischen das allgemein ebene, starre Einsetzteil und das zweite allgemein ebene, starre Einsetzteil eingesetzt wird.

5. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 4, bei der:
jeder der Abschnitte einen entsprechenden vorbestimmten Umriß hat,
das allgemein ebene, starre Einsetzteil (23, 32) im Umriß mit dem einen Abschnitt im wesentlichen übereinstimmt und das zweite allgemein ebene, starre Einsetzteil (23) im Umriß mit dem anderen, gegenüberliegenden Abschnitt im wesentlichen übereinstimmt.

6. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 1, ferner umfassend:
eine zweite, auf eine zweite vorbestimmte Form ausdehnbare Kammer (56),
wobei der andere, gegenüberliegende Abschnitt auch die zweite Kammer teilweise bildet,
einen dritten Abschnitt der Tasche,
zweite Mittel, die zwischen dem gegenüberliegenden Abschnitt und dem dritten Abschnitt eine Verbindung herstellen und zusammen mit dem gegenüberliegenden Abschnitt und dem dritten Abschnitt die zweite, auf die zweite vorbestimmte Form ausdehnbare Kammer begrenzen,
wobei ein oder mehrere der zweiten Mittel, des gegenüberliegenden Abschnitts und des dritten Abschnitts weich und flexibel sind, so daß die zweite Kammer leicht in einen im wesentlichen abgeflachten Zustand zusammenfallen kann oder in einen im wesentlichen ausgefüllten Zustand ausgedehnt werden kann, in welchem der gegenüberliegende Abschnitt und der dritte Abschnitt in im wesentlichen vollem, durch die vorbestimmte Form der ausgedehnten zweiten Kammer zugelassenen Maß voneinander Abstand aufweisen,
wobei die Aufspannvorrichtung ferner ein zweites allgemein ebenes, starres Einsetzteil (60) umfaßt,
wobei das zweite allgemein ebene, starre Einsetzteil dem dritten Abschnitt benachbart in die zweite Kammer eingesetzt wird,
wobei die Aufspannvorrichtung auch ein zweites streckfähiges Stück (12, 30) mit einer, Paar klappbar aneinander ange-brachter Teilstücke (14, 16; 34, 36) umfaßt, wobei jedes der Teilstücke ein freies Ende aufweist, das vom freien Ende des anderen Teilstücks Abstand aufweist und diesem gegenüberliegt,
wobei die Teilstücke des zweiten streckfähigen Stücks zwischen einer ersten, im wesentlichen flachen, koplanaren Stellung und einer zweiten Stellung klappbar sind, in welchen die Teilstükke im wesentlichen parallel zueinander sind,

wobei das zweite streckfähige Stück ferner ein elastisches Element (18, 38) umfaßt, das den gegenüberliegenden freien Enden benachbart direkt an den Teilstücken angebracht ist,
wobei das elastische Element des zweiten streckfähigen Stücks unter Spannung ist, wenn das zweite streckfähige Stück in dar ersten, im wesentlichen flachen Stellung ist,
wobei das zweite streckfähige Stück in der ersten, im wesentlichen flachen Stellung zwischen das zweite allgemein ebene, starre Einsetzteil und den gegenüberliegenden Abschnitt eingesetzt wird und das elastische Element des zweiten streckfähigen Stücks die Teilstükke des zweiten streckfähigen Stücks aus ihrer relativ flachen, koplanaren Stellung in eine Zwischenstellung drängt, in welcher die Teilstücke unter einem Winkel zueinander stehen und durch die vorbestimmte Form der ausgedehnten zweiten Kammer zurückgehalten werden.

7. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 6, bei der:
jeder der Abschnitte einen entsprechenden vorbestimmten Umriß hat,
das allgemein ebene, starre Einsetzteil im Umriß mit dem einen Abschnitt im wesentlichen übereinstimmt,
der dritte Abschnitt einen weiteren vorbestimmten Umriß hat und
das zweite allgemein ebene, starre Einsetzteil im Umriß mit dem dritten Abschnitt im wesentlichen übereinstimmt.

8. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 6, bei der:
das streckfähige Stück in der ersten, im wesentlichen flachen, koplanaren Stellung zwischen das allgemein ebene, starre Einsetzteil und den anderen des Paars gegenüberliegender Abschnitte der Kammer bei derart orientierter Aufspannvorrichtung eingesetzt wird, daß die freien Enden des streckfähigen Stücks am allgemein ebenen, starren Einsetzteil anliegen, wenn das elastische Element die Teilstükke in die Zwischenstellung drängt, und
das zweite streckfähige Stück in der ersten, im wesentlichen flachen, koplanaren Stellung mit solcher Orientierung zwischen das zweite allgemein ebene, starre Einsetzteil und den gegenüberliegenden Abschnitt eingesetzt wird, daß die freien Enden des zweiten streckfähigen Stücks am zweiten allgemein ebenen, starren Einsetzteil anliegen, wenn das elastische Element des zweiten streckfähigen Stücks die Teilstücke in die Zwischenstellung drängt.

9. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 6, ferner umfassend:
ein drittes allgemein ebenes, starres Einsetzteil (23, 32), wobei das dritte allgemein ebene, starke Einsetzteil dem anderen, gegenüberliegenden Abschnitt benachbart in die Kammer eingesetzt wird und dar streckfähige Stück in der ersten, im wesentlichen flachen, koplanaren Stellung zwischen das allgemein ebene, starre Einsetzteil und das dritte allgemein ebene, starre Einsetzteil in die Kammer eingesetzt wird.

10. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 9, bei der:
jeder der Abschnitte einer, entsprechenden vorbestimmten Umriß hat,
das allgemein ebene, starre Einsetzteil im Umriß mit dem einen Abschnitt im wesentlichen übereinstimmt,
der dritte Abschnitt einen weiteren vorbestimmten Umriß hat und
das dritte allgemein ebene, starre Einsetzteil im Umriß mit dem anderen, gegenüberliegenden Abschnitt im wesentlichen übereinstimmt.

11. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 1, bei der:
das allgemein starre Einsetzteil (32) und das streckfähige Stück (30) einteilig sind und ein längs wenigstens zweier Querachsen (42, 44) klappbares, relativ flaches Element umfassen, um hintereinander angeordnet ein erstes Teilstück (36), ein zweites Teilstrück (34) und ein drittes Teilstück (32) zu bilden,
wobei das erste und zweite Teilstück das Paar von Teilstücken sind,
wobei das dritte Teilstück das allgemein starre Einsetzteil ist und
wobei das erste und zweite Teilstück über wenigstens einer Teilabschnitt des dritten Teilstücks hinweg klappen und diesen überlappen können.

12. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 11, bei der das erste Teilstück (36) eine Lasche (52) umfaßt und das dritte Teilstück (32) einen Schlitz (50) umfaßt, welcher so ausgeführt ist, daß er die Lasche aufnimmt, wenn das erste und zweite Teilstück zu einem Giebel geformt werden und die Tasche aufspannen.

13. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 11 und ferner umfassend:
ein zweites allgemein ebenes, starres Einsetzteil (23), wobei das zweite allgemein ebene starre Einsetzteil dem anderen, gegenüberliegenden Abschnitt benachbart in die Kammer eingesetzt wird und das erste und zweite Teilstück zwischen dem dritten Teilstück und dem zweiten allgemein ebenen, starren Einsetzteil angeordnet werden.

14. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 13, bei der:
jeder der Abschnitte einen entsprechenden vorbestimmten Umriß hat,
das allgemein ebene, starre Einsetzteil im Umriß mit dem einen Abschnitt im wesentlichen übereinstimmt und
das zweite allgemein ebene, starre Einsetzteil im Umriß mit dem anderen, gegenüberliegenden Abschnitt im wesentlichen übereinstimmt.

15. Taschenaufspannvorrichtung (13, 15) in Kombination mit einer weicher Tasche (20), welche ein Paar gegenüberliegender, die Tasche teilweise bildender Abschnitte (21) aufweist,
wobei Mittel zwischen den Abschnitten eine Verbindung herstellen und zusammen mit den Abschnitten eine auf eine vorbestimmte Form ausdehnbare Kammer begrenzen,
wobei ein oder mehrere der Mittel und der Abschnitte weich und flexibel sind, so daß die Kammer leicht in einen im wesentlichen abgeflachten Zustand zusammenfallen kann oder in einen im wesentlichen ausgefüllten Zustand ausgedehnt werden kann, in welchem die Abschnitte in im wesentlichen vollem, durch die vorbestimmte Form der ausgedehnten Kammers zugelassenem Maß voneinander Abstand aufweisen,
wobei die Aufspannvorrichtung eine Schnur (72, 98) mit entgegengesetzten Enden umfaßt,
wobei ein Ende der Schnur an der Aufspannvorrichtung angebracht ist,
dadurch gekennzeichnet, daß die Aufspannvorrichtung ferner ein längliches Element (62, 91) umfaßt, das längs wenigstens zweier, zur Längsrichtung des Elements transversaler Linien (76, 78; 99, 100) klappbar ist, um hintereinander angeordnet ein erstes Teilstück (70, 116), ein zweites Teilstuck (68, 114) sowie ein drittes Teilstück (64, 112) zu bilden,
wobei das erste und zweite Teilstück wenigstens einen Teil des dritten Teilstücks überlappen können,
wobei das erste und zweite Teilstück ferner zwischen einer ersten, im wesentlichen flachen, koplanaren Stellung und einer zweiten Stellung klappen können, in welcher das erste und zweite Teilstück unter Überlappung des dritten Teilstücks im wesentlichen parallel zueinander sind,
wobei das eine Ende der Schnur am erster Teilstück angebracht ist,
wobei das zweite Teilstück eine Öffnung (86, 104) aufweist. durch die hindurch sich das nicht angebrachte Ende der Schnur erstreckt,
wobei das Element bei in der ersten, im wesentlichen koplanaren Stellung wenigstens einen Teil des dritten Teilstücks überlappendem ersten und zweiten Teilstück und bei einem der Abschnitte benachbartem dritten Teilstück in die Kammer eingesetzt wird und
wobei eine Zugkraft auf das nicht angebrachten Ende der Schnur das erste und zweite Teilstück aus ihrer im wesentlichen flachen, koplanaren Stellung in eine einen Giebel bildende Zwischenstellung drängt, in welcher das erste und zweite Teilstück unter einem Winkel sowohl zueinander als auch zum dritten Teilstück stehen und durch die vorbestimmte Form der ausgedehnten Kammer zurückgehalten werden.

16. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 15, bei der:
das dritte Teilstück (64, 112) wenigstens einen Schlitz (90, 92, 94, 108) umfaßt und
das erste Teilstück (70, 116) eine Lasche (82, 106) umfaßt, die dazu ausgeführt ist, in den Schlitz eingeführt zu werden, wenn das erste und zweite Teilstück (68, 114) zu einem Giebel geformt werden.

17. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 16, dei der eine Mehrzahl von Schlitzen (90, 92, 94), die jeweils zur Aufnahme der Lasche (82) ausgeführt sind, vorgesehen ist, wodurch die Giebelhöhe zur Angleichung der Aufspannung an Taschen verschiedener Größe eingestellt werden kann.

18. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 15, bei der ein allgemein starres Einsetzteil (23) parallel zum dritten Teilstück in der Tasche platziert wird, wobei das erste und zweite Teilstück zwischen dem dritter Teilstück und dem allgemein starren Einsetzteil sind.

19. Taschenaufspannvorichtung in Kombination mit einer weichen Tasche nach Anspruch 15, fer-

ner umfassend:
ein mit dem ersten (70), zweiten (68) und dritten (64) Teilstück hintereinander angeordnetes viertes Teilstück (66),
wobei das vierte Teilstück zwischen dem zweiten und dritten Teilstück ist,
wobei das vierte Teilstück das dritte Teilstück in einer relativ festen Stellung überlappen kann, wenn das erste und zweite Teilstück in der ersten Stellung, der zweiten Stellung oder einer giebelbildenden Zwischenstellung sind, und
wobei eine Zugkraft auf das nicht angebrachte Ende der Schnur das erste und zweite Teilstück aus ihrer im wesentlichen flachen, koplanaren Stellung in eine Stellung drängt, in welcher das erste und zweite Teilstück unter einem Winkel sowohl zueinander als auch zum dritten sowie zum vierten Teilstück stehen.

20. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 19, bei der das erste Teilstück Schlitze (84) zur Anbringung des einen Endes der Schnur aufweist.

21. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 19, umfassend Mittel zur Befestigung des vierten Teilstücks am dritten Teilstück in der relativ festen Stellung.

22. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 21, bei der ein allgemein starres Einsetzteil (23) parallel zum dritten Teilstück in der Tasche platziert wird, wobei das erste, zweite und vierte Teilstück zwischen dem dritten Teilstück und dem allgemein starren Einsetzteil sind.

23. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 19, bei der:
das dritte Teilstück (64) wenigstens einen Schlitz (90, 92, 94) umfaßt und
das erste Teilstück (70) eine Lasche (82) umfaßt, die dazu ausgeführt ist, in den Schlitz eingeführt zu werden, wenn das erste und zweite Teilstück zu einem Giebel geformt werden.

24. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 19, bei der:
das dritte Teilstück (64) eine Mehrzahl Schlitze (90, 92, 94) aufweist,
das erste Teilstück (70) eine Lasche (82) umfaßt und die Schlitze zur Aufnahme der Lasche ausgeführt sind, wodurch die Giebelhöhe zur Angleichung der Aufspannung an Taschen verschiedener Größe eingestellt werden kann.

25. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 19, bei der ein allgemein starres Einsetzteil (23) parallel zum dritten Teilstück in der Tasche platziert wird, wobei das arste, zweite und vierte Teilstück zwischen dem dritten Teilstück und dem allgemein starren Einsetzeil sind.

26. Aufspannvorrichtung (136) in Kombination mit einer weichen Tasche (20) und zum Einsetzen in diese, wobei die weiche Tasche der Art ist, die einen zusammengefallenen Zustand und einen aufgespannten Zustand hat sowie eine erste Seite (21) und eine allgemein gegenüberliegende, zweite Seite (21) aufweist, welche die weiche Tasche wenigstens teilweise bilden,
ein erstes starres Einsetzteil (130) zur Abstützung an der ersten Seite der Tasche,
ein zweites starres Einsetzteil (132) zur Abstützung an der zweiten Seite der Tasche und
einen zwischen diesen Einsetzteilen positionierten starren Expander (134),
dadurch gekennzeichnet, daß jedes der Einsetzteile einen Schlitz (138, 140) hat,
der Expander ein Paar gegenüberliegend angeordneter Laschen (142, 144) aufweist und
am Expander ein elastisches Mittel (146) angebracht ist, zur Bewegung der Einsetzteile aus einer relativ flachen Stellung, in welcher der Expander und die Einsetzteile in allgemein parallelem Verhältnis positioniert sind, in eine Taschenaufspannstellung, in welcher der Expander unter einem Winkel bezüglich des ersten und zweiten Einsetzteils steht, um das erste und zweite Einsetzteil zwecks Aufspannung der weichen Tasche zu trennen,
wobei eine der Laschen durch das elastische Mittel in Eingriff mit einem der Schlitze gehalten ist, wenn der Expander und die Einsetzteile in dem allgemein parallelen Verhältnis positioniert werden, und
wobei jede der Laschen, wenn das elastische Mittel den Expander zur Trennung der Einsetzteile automatisch bewegt, in einen entsprechenden der Schlitze eingreift, um die Einsetzteile in einem verriegelten, getrennten Zustand zu halten.

27. Kombination aus Aufspannvorrichtung und weicher Tasche nach Anspruch 26, bei der die Einsetzteile (130, 132) so gestaltet und abmessungsmäßig ausgeführt sind, daß sie an die jeweiligen Seiten der Tasche angepaßt sind.

28. Kombination aus Aufspannvorrichtung und weicher Tasche nach Anspruch 26 oder 27, umfassend ein die Seiten verbindendes flexibles Material, wobei die Tasche zwischen einem zusammengefallenen Zustand, in welchem die Seiten einander benachbart sind und das Material zusammengefallen ist, und einem aufgespannten Zustand beweglich ist, in welchem die Seiten Abstand voneinander aufweisen und das Material aufgespannt ist.

29. Kombination aus Aufspannvorrichtung und weicher Tasche nach Anspruch 26, 27 oder 28, bei der der Expander in der Taschenaufspannstellung im wesentlichen senkrecht zu jedem der Einsetzteile ist.

30. Kombination aus Aufspannvorrichtung und weicher Tasche nach Anspruch 26, 27, 28 oder 29, bei der das elastische Mittel zwischen dem Expander und einem der Einsetzteile angebracht ist.

31. Kombination aus Aufspannvorrichtung und weicher Tasche nach Anspruch 26, 27, 28, 29 oder 30, bei der:
der Expander und die Einstezteile durch auf die Tasche aufgebrachte Kompressionskräfte parallel gehalten werden und
das elastische Mittel automatisch den Expander und die Einsetzteile in die Taschenaufspannstellung bewegt, wenn die Kompressionskräfte von der Tasche weggenommen werden.

32. Taschenaufspannvorrichtung (136) in Kombination mit einer weichen Tasche (20), welche ein Paar gegenüberliegender, die Tasche teilweise bildender Abschnitte (21) aufweist,
wobei Mittel zwischen den Abschnitten eine Verbindung herstellen und zusammen mit den Abschnitten eine auf eine vorbestimmte Form ausdehnbare Kammer begrenzen,
wobei ein oder mehrere der Mittel und der Abschnitte weich und flexibel sind, so daß die Kammer leicht in einen im wesentlichen abgeflachten Zustand zusammenfallen kann oder in einen im wesentlichen ausgefüllten Zustand ausgedehnt werden kann, in welchem die Abschnitte in im wesentlichen vollem, durch die vorbestimmte Form der ausgedehnten Kammer zugelassenem Maß voneinander Abstand aufweisen,
wobei die Aufspannvorrichtung ein erstes allgemein ebenes, starres Einsetzteil (130) und ein zweites allgemein ebenes, starres Einsetzteil (132) umfaßt,
wobei die Aufspannvorrichtung zusätzlich ein allgemein ebenes, starres Aufspannstück (134) aufweist, das zwischen den Einsetzteilen in einem anfänglichen, im wesentlichen parallelen Verhältnis positioniert ist,
dadurch gekennzeichnet, daß die Aufspannvorrichtung ferner ein zwischen dem Aufspannstück und einem der Einsetzteile angebrachtes elastisches Element (146) umfaßt,
wobei das elastische Element unter Spannung ist, wenn das Aufspannstück und die Einsetzteile in dem im wesentlichen parallelen Verhältnis sind,
wobei das Aufspannstück bei dem einen Abschnitt benachbartem ersten Einsetzteil und dem anderen Abschnitt benachbartem zweiten Einsetzteil in dem anfänglichen, im wesentlichen parallelen Verhältnis in die Kammer eingesetzt wird und in diesen anfänglichen, im wesentlichen parallelen Verhältnis durch eine Kompressionskraft zurückgehalten wird und
wobei das elastische Element nach Wegnahme der Kompressionskraft automatisch das Aufspannstück in eine Taschenaufspannstellung drängt, in welcher das Aufspannstück in dem durch die vorbestimmte Form der ausgedehnten Kammer zugelassenen Maß unter einem Winkel zu jedem der Einsetzteile steht.

33. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 32, bei der:
jeder der Abschnitte einen entsprechenden vorbestimmten Umriß hat,
das erste allgemein ebene, starre Einsetzteil im Umriß mit dem einen Abschnitt im wesentlichen übereinstimmt und
das zweite allgemein ebene, starre Einsetzteil im Umriß mit den anderen, gegenüberliegenden Abschnitt im wesentlichen übereinstimmt.

34. Taschenaufspannvorrichtung (200, 260, 300 350) in Kombination mit einer weichen Tasche (202, 252, 302), welche ein Paar gegenüberliegender, die Tasche teilweise bildender Abschnitte (203, 204; 253, 254; 303, 304) aufweist,
wobei Mittel (205, 206; 255, 256; 305, 306) die Abschnitte miteinander verbinden und, zusammen mit den Abschnitten, eine auf eine vorbestimmte Form ausdehnbare Kammer begrenzen,
wobei ein oder mehrere der Mittel und der Abschnitte weich und flexibel sind, so daß die Kammer leicht in einen im wesentlichen abgeflachten Zustand zusammenfallen kann oder in einen im wesentlichen ausgefüllten Zustand ausgedehnt werden kann, in welchem die Abschnitte in im wesentlichen vollem, durch die

vorbestimmte Form der ausgedehnten Kammer zugelassenem Maß voneinander Abstand aufweisen,
dadurch gekennzeichnet, daß die Aufspannvorrichtung ein streckfähiges Stück (210, 260, 310, 360) mit wenigstens vier Teilstücken (211, 212, 213, 214; 261, 262, 263, 264; 311, 312, 313, 314; 361, 362, 363, 364) umfaßt,
wobei jedem der Teilstücke dem streckfähigen Stücks an jedem zweier benachbartes der Teilstücke zur relative zueinander gelenkigen Verbindung klappbar angebracht ist,
wobei zwei oder mehrere benachbarte der Teilstücke (212, 213, 262, 263; 312, 313; 362, 363) eine erste Gruppe von Teilstücken bilden,
wobei zwei oder mehrere benachbarte der Teilstücke (211, 214; 261, 264; 311, 314; 361, 364), welche nicht die erste Gruppe von Teilstücken bilden, eine zweite Gruppe von Teilstücken bilden,
wobei das streckfähige Stück gelenkig beweglich ist, zwischen einer anfänglichen, zusammengeklappten Stellung, in welcher die die erste Gruppe von Teilstücken bildenden zwei oder mehreren benachbarten der Teilstücke in einer im wesentlichen flachen, koplanaren Stellung sind und die die zweite Gruppe von Teilstücken bildenden zwei oder mehreren benachbarten der Teilstücke, welche ebenfalls in einer im wesentlichen flachen, koplanaren Stellung sind, wenigstens teilweise überlappen, und einer völlig ausgedehnten Stellung, in welcher Teilstücke der ersten Gruppe im wesentlichen parallel zueinander sind und Teilstücke der Zweiten Gruppe im wesentlichen parallel zueinander sind,
wobei die Aufspannvorrichtung ferner ein Element (230; 280, 281; 330; 380) umfaßt, welches an wenigstens einem der Teilstücke angebracht ist,
wobei das streckfähige Stück in der anfänglichen, zusammengeklappten Stellung zwischen die gegenüberliegenden Abschnitte eingesetzt wird und
wobei eine Spannung auf das Element jede Gruppe von zwei oder mehreren benachbarten der Teilstücke aus ihrer jeweiligen im wesentlichen flachen, koplanaren Stellung in eine Zwischenstellung drängt, in welcher die Teilstücke jeder Gruppe unter einem Winkel zueinander stehen und durch die vorbestimmte Form der ausgedehnten Kammer zurückgehalten werden.

35. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 34, bei der:
das Element (230; 280, 281; 330; 380) elastisch ist und an wenigstens zweien der Teilstücke angebracht ist und das elastische Element unter Spannung ist, wenn das aus streckfähige Stuck in der anfänglichen, zusammengeklappten Stellung ist.

36. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 35, bei der das elastische Element (230; 280, 281; 330; 380) unter Spannung ist, wenn das streckfähige Stück in der Zwischenstellung ist.

37. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 35, ferner umfassend:
ein zweites elastisches Element (281), weiches an wenigstens zwei anderen Teilstücken angebracht ist,
wobei das zweite elastische Element ebenfalls unter Spannung ist, wenn das streckfähige Stück in der anfänglichen, zusammengeklappten Stellung ist, und
wobei das zweite elastische Element dabei mitwirkt, jede Gruppe von zwei oder mehreren benachbarten der Teilstücke aus ihrer jeweiligen im wesentlichen flachen, koplanaren Stellung in eine Zwischenstellung zu drängen, in welcher die Teilstücke jeder Gruppe unter einem Winkel zueinander stehen und durch die vorbestimmte Form der ausgedehnten Kammer zurückgehalten werden.

38. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 35, bei der:
die Aufspannvorrichtung auch ein allgemein starres Einsetzteil (233, 234; 283, 284; 333, 334; 382) umfaßt und
das allgemein starre Einsetzteil einem der Abschnitte benachbart zwischen das streckfähige Stück und den einen Abschnitt in die Kammer eingesetzt wird.

39. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 38, ferner umfassend:
eine sich vom streckfähigen Stück nach außen weg erstreckende Lasche (292, 294; 328, 329; 378, 379),
einen Schlitz (285, 286; 345; 391) im allgemein starren Einsetzteil,
wobei die Lasche in Eingriff mit dem Schlitz steht, um dabei mitzuwirken, das streckfähige Stück in einem bestimmten Verhältnis zum allgemein starren Einsetzteil zu halten.

40. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 34,

bei der:
die Aufspannvorrichtung auch ein allgemein starres Einsetzteil (233, 234; 283, 284; 333, 334; 382) umfaßt und
das allgemein starre Einsetzteil einem der Abschnitte benachbart zwischen das streckfähige Stück und den einen Abschnitt in die Kammer eingesetzt wird.

41. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 38 oder 40, bei der:
jeder der Abschnitte einen entsprechenden vorbestimmten Umriß hat und
das allgemein starre Einsetzteil im Umriß mit dem einen Abschnitt im wesentlichen übereinstimmt.

42. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 41, bei der:
die weiche Tasche eine Längsrichtung hat und die Kammer auf eine annähernd zylindrische vorbestimmte Form ausdehnbar ist und
das allgemein starre Einsetzteil (333, 334; 382) eine Längarichtung sowie eine Mehrzahl allgemein ebener Segmente (335, 336, 337, 338, 339; 383, 384, 386, 388) aufweist, die jeweils längs eines zur Längsrichtung allgemein parallelen Linie klappbar an jedem benachbarten Segment angebracht sind, um mit den Abschnitten übereinzustimmen, welche die annähernd zylindrische vorbestimmte Form zum Teil begrenzen, wenn dar streckfähige Stück in dar Zwischenstellung ist.

43. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 40, ferner umfassend:
eine sich vom streckfähigen Stück nach außen weg erstreckenden Lasche (292, 294; 328, 329; 378, 379),
einen Schlitz (285, 286; 345; 391) im allgemein starren Einsetzteil,
wobei die Lasche in Eingriff mit dem Schlitz steht, um dabei mitzuwirken, das streckfähige Stück in einem bestimmten Verhältnis zum allgemein starren Einsetzteil zu halten.

44. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 38 oder 40, ferner umfassend:
ein zweites allgemein starres Einsetzteil (234; 284; 334), wobei das zweite allgemein starre Einsetzteil dem anderen, gegenüberliegenden Abschnitt benachbart und vom ersten allgemein starren Einsetzteil Abstand aufweisend bei zwischen den zwei allgemein starren Einsatzteilen sich befindendem streckfähigen Stück in die Kammer eingesetzt wird.

45. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 44, bei der:
jeder der Abschnitte einen entsprechenden vorbestimmten Umriß hat,
das erste allgemein starre Einsetzteil im Umriß mit dem einen Abschnitt im wesentlichen übereinstimmt und
das zweite allgemein starre Einsetzteil im Umriß mit dem anderen, gegenüberliegenden Abschnitt in wesentlichen übereinstimmt.

46. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 45, bei der:
die weiche Tasche (302) eine Längsrichtung hat und die Kammer auf eine annähernd zylindrische vorbestimmte Form ausdehnbar ist und beide allgemein starren Einsetzteile (333, 334) eine Längsrichtung und eine Mehrzahl allgemein ebener Segmente (335, 336, 337, 338, 339) aufweisen, die jeweils längs einer zur Längsrichtung allgemein parallelen Linie klappbar an jedem benachbarten Segment angebracht sind, so daß jedes der allgemein starren Einsetzteile mit einem der Abschnitte übereinstimmt, welche die annähernd zylindrische vorbestimmte Form zum Teil begrenzen, wenn das streckfähige Stück in der Zwischenstellung ist.

47. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach Anspruch 45, ferner umfassend:
ein Paar von Laschen (292, 294; 328, 329; 378, 379),
wobei sich die Laschen jeweils von einem allgemein gegenüberliegenden Teil des streckfähigen Stücks nach außen weg erstrecken,
einen ersten Schlitz (285; 345; 391) im ersten allgemein starren Einsetzteil,
einen zweiten Schlitz (286; 345; 391) im zweiten allgemein starren Einsetzteil,
wobei eine des Paars von Laschen mit dem ersten Schlitz in Eingriff steht und die andere das Paars von Laschen mit dem zweiten Schlitz in Eingriff steht, um dabei mitzuwirken, das streckfähige Stück in einem bestimmten Verhältnis zum ersten und zweiten allgemein starren Einsetzteil zu halten.

48. Taschenaufspannvorrichtung in Kombination mit einer weichen Tasche nach einem der vorhergehenden Ansprüche, wobei das streckfähige Stück oder die allgemein starren Einsetztei-

le gedruckte Hinweisangaben ("indicia") (122) enthalten.

Revendications

1. Dispositif d'extension d'un sac (10, 11) en combinaison avec un sac souple (20) ayant une paire de portions opposées (21) formant partiellement le sac ;

un moyen relié entre les portions et, avec ces portions, définissant un compartiment extensible jusqu'à une forme prédéterminée ;

un ou plusieurs élément(s) parmi le moyen et les portions étant souple(s) et flexible(s), de sorte qu'on peut aisément faire affaisser le compartiment jusqu'à un état substantiellement aplati ou l'étendre jusqu'à un état substantiellement déployé dans lequel les portions sont espacées l'une de l'autre substantiellement jusqu'au degré complet permis par la forme prédéterminée du compartiment étendu ;

le dispositif d'extension incluant un insert rigide, généralement planaire (23, 32) ;

l'insert rigide, généralement planaire, étant inséré à l'intérieur du compartiment de façon adjacente à l'une des portions ;

caractérisé en ce que le dispositif d'extension inclut aussi un morceau extensible (12, 30) ayant une paire de sections attachées l'une à l'autre de façon pliée, chacune des sections (14, 16 ; 34, 36) ayant une extrémité libre espacée de, et à l'opposé de, l'extrémité libre de l'autre section ;

les sections du morceau extensible étant pliables entre une première position coplanaire substantiellement plate et une seconde position dans laquelle les sections sont substantiellement parallèles l'une à l'autre ;

et en ce que le dispositif extensible inclut en outre un élément résilient (18, 38) attaché directement aux sections de façon adjacente aux extrémités libres opposées ;

l'élément résilient étant en tension lorsque le morceau extensible est dans la première position substantiellement plate ; et

le morceau extensible étant inséré dans la première position substantiellement plate entre l'insert rigide, généralement planaire, et l'autre portion opposée ; et l'élément résilient poussant les sections à passer de leur position coplanaire substantiellement plate à une position intermédiaire dans laquelle les sections forment un angle l'une par rapport à l'autre et sont limitées par la forme prédéterminée du compartiment étendu.

2. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 1, dans lequel le morceau extensible (12, 30) est inséré dans la première position coplanaire substantiellement plate entre l'insert rigide généralement planaire (23, 32) et l'autre portion opposée (21) du compartiment, le dispositif d'extension étant orienté de sorte que les extrémités libres butent contre l'insert rigide, généralement planaire, lorsque l'élément résilient (18, 38) pousse les sections à passer à la position intermédiaire.

3. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 1, dans lequel :

chacune des portions (21) a un contour respectif prédéterminé ; et

l'insert rigide, généralement planaire (23, 32), correspond substantiellement en contour à une portion.

4. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 1 et comprenant en outre :

un second insert rigide, généralement planaire (23) ; ce second insert rigide, généralement planaire, étant inséré a l'intérieur du compartiment de façon adjacente à l'autre portion opposée ; et

le dispositif extensible étant inséré dans la première position coplanaire substantiellement plate entre l'insert rigide, généralement planaire, et le second insert rigide, généralement planaire.

5. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 4, dans lequel :

chacune des portions a un contour respectif prédéterminé ;

l'insert rigide, généralement planaire (23, 32), correspond substantiellement en contour à une portion ; et

le second insert rigide, généralement planaire (23), correspond substantiellement en contour à l'autre portion opposée.

6. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 1 et comprenant en outre :

un second compartiment (56) extensible jusqu'à une seconde forme prédéterminée ;

l'autre portion opposée formant aussi partiellement le second compartiment ;

une troisième portion du sac ;

un second moyen relié entre la portion opposée et la troisième portion et, avec la portion opposée et la troisième portion, définissant le second compartiment extensible jus-

qu'à la seconde forme prédéterminée ;

un ou plusieurs élément(s) parmi le second moyen, la portion opposée et la troisième portion étant souple(s) et flexible(s), de sorte qu'on peut aisément faire affaisser le second compartiment jusqu'à un état substantiellement aplati ou l'étendre jusqu'à un état substantiellement déployé dans lequel la portion opposée et la troisième portion sont espacées l'une de l'autre substantiellement jusqu'au degré complet permis par la forme prédéterminée du second compartiment étendu ;

le dispositif d'extension incluant en outre un second insert rigide, généralement planaire (60) ;

le second insert rigide, généralement planaire, étant inséré à l'intérieur du second compartiment de façon adjacente à la troisième portion ;

le dispositif extensible incluant aussi un second morceau extensible (12, 30) ayant une paire de sections (14, 16 ; 34, 36) attachées l'une à l'autre de façon pliée, chacune des sections ayant une extrémité libre espacée de, et a l'opposé de, l'extrémité libre de l'autre section ;

les sections du second morceau extensible étant pliables entre une première position coplanaire substantiellement plate et une seconde position dans laquelle les sections sont substantiellement parallèles l'une à l'autre ;

le second dispositif d'extension incluant en outre un élément résilient (18, 38) attaché directement aux sections de façon adjacente aux extrémités libres opposées ;

l'élément résilient du second morceau extensible étant en tension lorsque le second morceau extensible est dans la première position substantiellement plate ;

le second morceau extensible étant inséré dans la première position substantiellement plate entre le second insert rigide, généralement planaire, et la portion opposée ; et

l'élément résilient du second morceau extensible poussant les sections du second morceau extensible à passer de leur position coplanaire relativement plate à une position intermédiaire dans laquelle les sections forment un angle l'une par rapport à l'autre et sont limitées par la forme prédéterminée du second compartiment étendu.

7. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 6, dans lequel :

chacune des portions a un contour respectif prédéterminé ;

l'insert rigide, généralement planaire, correspond substantiellement en contour à une portion ;

la troisième portion a un autre contour prédéterminé ; et

le second insert rigide, généralement planaire, correspond substantiellement en contour à la troisième portion.

8. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 6, dans lequel :

le morceau extensible est inséré dans la première position coplanaire substantiellement plate entre l'insert rigide, généralement planaire, et l'autre portion de la paire de portions opposées du compartiment, le dispositif d'extension étant orienté de sorte que les extrémités libres du morceau extensible butent contre l'insert rigide, généralement planaire, lorsque l'élément résilient pousse les sections à passer à la position intermédiaire ; et

le second morceau extensible est inséré dans la première position coplanaire substantiellement plate entre le second insert rigide, généralement planaire, et la portion opposée, orienté de sorte que les extrémités libres du second morceau extensible butent contre le second insert rigide, généralement planaire, lorsque l'élément résilient du second dispositif extensible pousse les sections à passer à la position intermédiaire.

9. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 6 et comprenant en outre :

un troisième insert rigide, généralement planaire (23, 32) ;

le troisième insert rigide, généralement planaire, étant inséré à l'intérieur du compartiment de façon adjacente à l'autre portion opposée ; et

le dispositif extensible étant inséré dans le compartiment dans la première position coplanaire substantiellement plate entre l'insert rigide, généralement planaire, et le troisième insert rigide, généralement planaire.

10. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 9, dans lequel :

chacune des portions a un contour respectif prédéterminé ;

l'insert rigide, généralement planaire, correspond substantiellement en contour à une portion ;

la troisième portion a un autre contour prédéterminé ;

le deuxième insert rigide, généralement

planaire, correspond substantiellement en contour à la troisième portion ; et

le troisième insert rigide, généralement planaire, correspond substantiellement en contour à l'autre portion opposée.

11. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 1, dans lequel :

l'insert généralement rigide (32) et le morceau extensible (30) sont intégrés et constituent un élément relativement plat étant pliable la long d'au moins deux axes transversaux (42, 44) pour former une première section (36), une deuxième section (34) et une troisième section en tandem (32) ;

les première et deuxième sections étant la paire de sections ;

la troisième section étant l'insert généralement rigide ; et

lesdites première et deuxième sections étant capables de se plier sur, et de chevaucher, au moins une partie de ladite troisième section.

12. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 11, dans lequel ladite première section (36) inclut un onglet (52) et ladite troisième section (32) inclut une fente (50) qui est adaptée pour recevoir l'onglet lorsque les première et deuxième sections se forment en une crête et étendent le sac.

13. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 11 et comprenant en outre :

un second insert rigide, généralement planaire (23) ;

le second insert rigide, généralement planaire, étant inséré à l'intérieur du compartiment de façon adjacente à l'autre portion opposée ; et

les première et deuxième sections étant disposées entre la troisième section et le second insert rigide, généralement planaire.

14. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 13, dans lequel :

chacune des portions a un contour respectif prédéterminé ;

l'insert rigide, généralement planaire, correspond substantiellement en contour à une portion ; et

le second insert rigide, généralement planaire, correspond substantiellement en contour à l'autre portion opposée.

15. Dispositif d'extension d'un sac (13, 15) en combinaison avec un sac souple (20) avant une paire de portions opposées (21) formant partiellement le sac ;

un moyen relié entre les portions et, avec les portions, définissant un compartiment extensible jusqu'à une forme prédéterminée ;

un ou plusieurs élément(s) parmi le moyen et les portions étant souple(s) et flexible(s), de sorte qu'on peut aisément faire affaisser le compartiment jusqu'à un état substantiellement aplati ou l'étendre jusqu'à un état substantiellement déployé dans lequel les portions sont espacées l'une de l'autre substantiellement jusqu'au degré complet permis par la forme prédéterminée du compartiment étendu ;

le dispositif d'extension incluant une corde (72, 98) ayant des extrémités opposées, une extrémité de la corde étant attachée au dispositif d'extension,

caractérisé en ce que le dispositif d'extension inclut en outre un élément allongé (62, 91) pliable le long d'au moins des lignes (76, 78 ; 99, 100) de façon transversale par rapport à la direction allongée de l'élément, pour former une première section (70, 116), une deuxième section (68, 114) et une troisième section (64, 112) en tandem ;

les première et deuxième sections étant capables de chevaucher au moins une partie de la troisième section ;

les première et deuxième sections étant en outre capables de se plier entre une première position coplanaire substantiellement plate et une seconde position dans laquelle les première et deuxième sections sont substantiellement parallèles l'une à l'autre tout en chevauchant la troisième section ;

une extrémité de la corde étant attachée à la première section ;

la deuxième section ayant une ouverture (86, 104) au travers de laquelle passe l'extrémité non attachée de la corde ;

l'élément étant inséré à l'intérieur du compartiment, les première et deuxième sections chevauchant au moins une partie de la troisième section dans la première position substantiellement coplanaire et la troisième section étant adjacente à l'une des portions ; et

la tension sur l'extrémité non attachée de la corde poussant les première et deuxième sections à passer de leur position coplanaire substantiellement plate à une position intermédiaire formant une crête, dans laquelle les première et deuxième sections forment un angle l'une par rapport à l'autre ainsi que par rapport à la troisième section et sont limitées par la forme prédéterminée du compartiment étendu.

16. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 15, dans lequel :

la troisième section (64, 112) inclut au moins une fente (90, 92, 94, 108) ; et

la première section (70, 116) inclut un onglet (82, 106) qui est adapté pour être inséré dans la fente lorsque les première et deuxième sections (68, 114) sont formées en une crête.

17. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 16, dans lequel plusieurs fentes (90, 92, 94) sont fournies, dont chacune est adaptée pour recevoir l'onglet (82), de sorte que la hauteur de la crête peut être ajustée pour satisfaire à l'expansion de sacs de différentes tailles.

18. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 15, dans lequel un insert généralement rigide (23) est placé dans le sac de façon parallèle à la troisième section, les première et deuxième sections étant entre la troisième section et l'insert généralement rigide.

19. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 15 et comprenant en outre :

une quatrième section (66) en tandem avec les première (70), deuxième (68) et troisième (64) sections ;

la quatrième section étant entre les deuxième et troisième sections ;

la quatrième section étant capable de chevaucher la troisième section dans une position relativement fixe lorsque les première et deuxième sections sont dans la première position, la seconde position, ou une position intermédiaire formant une crête ; et

la tension sur l'extrémité non attachée de la corde poussant les première et deuxième sections à passer de leur position coplanaire substantiellement plate à une position dans laquelle les première et deuxième sections forment un angle l'une par rapport à l'autre, ainsi que tant par rapport à la troisième que par rapport à la quatrième section.

20. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 19, dans lequel la première section a des fentes (84) pour l'attachement d'une extrémité de la corde.

21. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 19 et incluant un moyen pour fixer la quatrième section à la troisième section dans la position relativement fixe.

22. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 21, dans lequel un insert généralement rigide (23) est placé dans le sac de façon parallèle à la troisième section, les première, deuxième et quatrième sections étant entre la troisième section et l'insert généralement rigide.

23. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 19, dans lequel :

la troisième section (64) inclut au moins une fente (90, 92, 94) ; et

la première section (70) inclut un onglet (82) qui est adapté pour être inséré dans la fente lorsque les première et deuxième sections sont formées en une crête.

24. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 19, dans lequel :

la troisième section (64) a plusieurs fentes (90, 92, 94) ;

la première section (70) inclut un onglet (82) ; et

les fentes sont adaptées pour recevoir l'onglet, de sorte que la hauteur de la crête peut être ajustée pour satisfaire à l'expansion de sacs de différentes tailles.

25. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 19, dans lequel un insert généralement rigide (23) est placé dans le sac de façon parallèle a la troisième section, les première, deuxième et quatrième sections étant entre la troisième section et l'insert généralement rigide.

26. Dispositif d'extension (136) en combinaison avec, et pour l'insertion dans, un sac souple (20) du type ayant un état affaisse et un état étendu, et ayant un premier côté (21) et un second coté généralement opposé (21) formant au moins partiellement le sac souple ;

un premier insert rigide (130) destine à s'appuyer contre le premier côté dudit sac ;

un second insert rigide (132) destiné à s'appuyer contre le second côté dudit sac ; et

un extenseur rigide (134) positionné entre lesdits inserts,

caractérisé en ce que

chacun des inserts a une fente (138, 140) ;

l'extenseur a une paire d'onglets disposés de façon opposée (142, 144) ; et

un moyen élastique (146) est attaché à

l'extenseur pour déplacer lesdits inserts depuis une position relativement plate dans laquelle ledit extenseur et lesdits inserts sont positionnés dans une relation généralement parallèle, jusqu'a une position d'extension du sac dans laquelle ledit extenseur forme un angle par rapport auxdits premier et second inserts pour séparer les premier et second inserts afin d'étendre ledit sac couple ;

l'un des onglets étant maintenu engagé avec l'une des fentes par le moyen élastique lorsque l'extenseur et les inserts sont positionnés dans la relation généralement parallèle ; et

lorsque le moyen élastique déplace automatiquement l'extenseur pour séparer les inserts, chacun des onglets s'insère dans l'une des fentes respectives pour maintenir les inserts dans un état bloqué séparé.

27. Combinaison d'un dispositif d'extension et d'un sac souple selon la revendication 26, dans lequelle lesdits inserts (130, 132) sont façonnés et dimensionnés pour s'adapter aux côtés respectifs dudit sac.

28. Combinaison d'un dispositif d'extension et d'un sac souple selon la revendication 26 ou 27, et incluant un matériau souple joignant lesdits côtés, ledit sac étant transformable entre un état affaissé, dans lequel lesdits côtés sont adjacents l'un a l'autre et ledit matériau est affaissé, et un état étendu dans lequel lesdits côtés sont espacés l'un de l'autre et ledit matériau est étendu.

29. Combinaison d'un dispositif d'extension et d'un sac souple selon la revendication 26, 27, ou 28, dans laquelle l'extenseur est substantiellement perpendiculaire à chacun des inserts dans la position d'extension du sac.

30. Combinaison d'un dispositif d'extension et d'un sac souple selon la revendication 26, 27, 28 ou 29, dans laquelle le moyen élastique est attaché entre l'extenseur et l'un des inserts.

31. Combinaison d'un dispositif d'extension et d'un sac souple selon la revendication 26, 27, 28, 29, ou 30, dans laquelle :

l'extenseur et les inserts sont maintenus parallèles par des forces de compression exercées sur le sac ; et

le moyen élastique fait automatiquement passer l'extenseur et les inserts à la position d'extension du sac lorsque les forces de compression sont enlevées du sac.

32. Dispositif d'extension d'un sac (136) en combinaison avec un sac souple (20) ayant une paire de portions opposées (21) formant partiellement le sac ;

un moyen relié entre les portions et, avec les portions, définissant un compartiment extensible jusqu'à une forme prédéterminée ;

un ou plusieurs élément(s) parmi le moyen et les portions étant souple(s) et flexible(s), de sorte qu'on peut aisement faire affaisser le compartiment jusqu'à un etat substantiellement aplati ou l'étendre jusqu'à un etat substantiellement déployé dans lequel les portions sont espacées l'une de l'autre substantiellement jusqu'au degré complet permis par la forme prédéterminée du compartiment étendu ;

le dispositif d'extension incluant un premier insert rigide, généralement planaire (130), et un second insert rigide, généralement planaire (132) ;

le dispositif d'extension incluant en plus un morceau d'extension rigide, généralement planaire (134), positionné entre les inserts dans une relation initiale,
substantiellement parallèle ;

caractérisé en ce que le dispositif d'extension inclut en outre un élément résilient (146) attaché entre le morceau d'extension et l'un des inserts ;

l'élément résilient étant en tension lorsque le morceau d'extension et les inserts sont dans la relation substantiellement parallèle ;

le morceau d'extension étant inséré dans le compartiment avec le premier insert adjacent à une portion et le second insert adjacent à l'autre portion dans la relation initiale, substantiellement parallèle, et étant retenus dans cette relation initiale, substantiellement parallèle par une force de compression ; et

l'élément résilient poussant automatiquement le morceau d'extension dans une position d'extension du sac dans laquelle le morceau d'extension forme un angle par rapport à chacun des inserts dans la mesure permise par la forme prédéterminée du compartiment étendu au moment de l'enlèvement de la force de compression.

33. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 32, dans lequel :

chacune des portions a un contour respectif déterminé ;

le premier insert rigide, généralement planaire, correspond substantiellement en contour à une portion ; et

le second insert rigide, généralement planaire, correspond substantiellement en contour

à l'autre portion opposée.

34. Dispositif d'extension d'un sac (200, 260, 300, 350) en combinaison avec un sac souple (202, 252, 302) ayant une paire de portions opposées (203, 204 ; 253, 254 ; 303, 304) formant partiellement le sac ;

un moyen (205, 206 ; 255, 256 ; 305, 306) reliant les portions et, avec les portions, définissant un compartiment extensible jusqu'à une forme prédéterminée ;

un ou plusieurs élément(s) parmi le moyen et les portions étant souple(s) et flexible(s), de sorte qu'on peut aisement faire affaisser le compartiment jusqu'a un état substantiellement aplati ou l'étendre jusqu'à un état substantiellement déployé dans lequel les portions sont espacées l'une de l'autre substantiellement jusqu'au degré complet permis par la forme prédéterminée du compartiment étendu ;

caractérisé en ce que le dispositif d'extension inclut un morceau extensible (210, 260, 310, 360) ayant au moins quatre sections (211, 212, 213, 214 ; 261, 262, 263, 264 ; 311, 312, 313, 314 ; 361, 362, 363, 364) ;

chacune des sections du morceau extensible étant attachée de façon pliée à chacune de deux sections adjacentes des sections, pour l'articulation l'une par rapport à l'autre ;

deux sections adjacentes, ou plus, des sections (212, 213 ; 262, 263 ; 312, 313 ; 362, 363) formant un premier ensemble de sections ;

deux sections adjacentes, ou plus, des sections (211, 214 ; 261, 264 ; 311, 314 ; 361, 364), ne formant pas le premier ensemble de sections, formant un second ensemble de sections ;

le morceau extensible étant articulable entre une position initiale affaissée dans laquelle deux sections adjacentes, ou plus, des sections formant le premier ensemble de sections sont dans une position coplanaire substantiellement plate et chevauchent au moins partiellement les deux sections adjacentes, ou plus, des sections formant le second ensemble de sections, qui sont aussi dans une position coplanaire substantiellement plate, et une position totalement étendue dans laquelle les sections du premier ensemble sont substantiellement parallèles les unes aux autres et les sections du second ensemble sont substantiellement parallèles les unes aux autres ;

le dispositif d'extension incluant en outre un élément (230 ; 280, 281 ; 330 ; 380) attaché à au mois l'une des sections ;

le morceau extensible étant inséré dans le compartiment dans la position initiale affaissée entre les portions opposées ; et

la tension sur l'élément poussant chaque ensemble de deux sections adjacentes, ou plus, des sections à passer de sa respective position coplanaire substantiellement plate à une position intermédiaire dans laquelle les sections de chaque ensemble forment un angle l'une par rapport à l'autre et sont limitées par la forme prédéterminée du compartiment étendu.

35. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 34, dans lequel :

l'élément (230 ; 280, 281 ; 330 ; 380) est résilient et est attaché à au moins deux des sections ; et

l'élément résilient est en tension lorsque le morceau extensible est dans la position initiale affaissée.

36. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 35, dans lequel l'élément résilient (230 ; 280, 281 ; 330 ; 380) est en tension lorsque le morceau extensible est dans la position intermédiaire.

37. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 35 et comprenant en outre :

un second élément résilient (281) attache à au moins deux autres sections ;

le second élément résilient étant aussi en tension lorsque le morceau extensible est dans la position initiale affaissée ; et

le second élément résilient aidant à pousser chaque ensemble de deux sections adjacentes, ou plus, des sections à passer de sa respective position coplanaire substantiellement plate à une position intermédiaire dans laquelle les sections de chaque ensemble forment un angle l'une par rapport a l'autre et sont limitées par la forme prédéterminée du compartiment étendu.

38. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 35, dans lequel :

le dispositif d'extension inclut aussi un insert généralement rigide (233, 234 ; 283, 284 ; 333, 334 ; 382) ; et

l'insert généralement rigide est inséré à l'intérieur du compartiment de façon adjacente à l'une des portions entre le morceau extensible et une portion.

39. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 38

et comprenant en outre :

un onglet (292, 294; 328, 329; 378, 379) s'étendant vers l'extérieur à partir du morceau extensible ;

une fente (285, 286; 345 ; 391) dans l'insert généralement rigide ; et

l'onglet s'insérant dans la fente pour aider à maintenir le morceau extensible dans une position particulière par rapport à l'insert généralement rigide.

40. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 34, dans lequel :

le dispositif extensible inclut aussi un insert généralement rigide (233, 234 ; 283, 284 ; 333, 334 ; 382) ; et

l'insert généralement rigide est inséré à l'intérieur du compartiment de façon adjacente à l'une des portions, entre le morceau extensible et une portion.

41. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 38 ou 40, dans lequel :

chacune des portions a un contour respectif prédéterminé ; et

l'insert généralement rigide correspond substantiellement en contour à une portion.

42. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 41, dans lequel :

le sac souple a une direction allongée et le compartiment est extensible jusqu'à une forme prédéterminée approximativement cylindrique ; et

l'insert généralement rigide (333, 334 ; 382) a une direction allongée et plusieurs segments généralement planaires (335, 336, 337, 338, 339 ; 383, 384, 386, 388) qui sont chacun attachés de façon pliée à chaque segment adjacent le long d'une ligne généralement parallèle à la direction allongée pour correspondre aux portions qui définissent en partie la forme prédéterminée approximativement cylindrique lorsque le morceau extensible est dans la position intermédiaire.

43. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 40 et comprenant en outre :

un onglet (292, 294 ; 328, 329 ; 378, 379) s'étendant vers l'extérieur depuis le morceau extensible ;

une fente (285, 286 ; 345 ; 391) dans l'insert généralement rigide ; et

l'onglet s'engageant dans la fente pour aider à maintenir le morceau extensible dans une relation particulière par rapport a l'insert généralement rigide.

44. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 38 ou 40 et comprenant en outre :

un second insert généralement rigide (234 ; 284 ; 334) ; et

le second insert généralement rigide étant inséré à l'intérieur du compartiment de façon adjacente à l'autre portion opposée, et espacé du premier insert généralement rigide, le morceau extensible étant entre les deux inserts généralement rigides.

45. Dispositif d'extension d'un sac eu combinaison avec un sac souple selon la revendication 44, dans lequel :

chacune des portions a un contour respectif prédéterminé ;

le premier insert généralement rigide correspond substantiellement en contour à une portion ; et

le second insert généralement rigide correspond substantiellement en contour à l'autre portion opposée.

46. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 45, dans lequel :

le sac souple (302) a une direction allongée et le compartiment est extensible jusqu'à une forme prédéterminée approximativement cylindrique ; et

les deux inserts généralement rigides (333, 334) ont une direction allongée et plusieurs segments généralement planaires (335, 336, 337, 338, 339) qui sont chacun attachés de façon pliée à chaque segment adjacent le long d'une ligne généralement parallèle à la direction allongée, de sorte que chacun des inserts généralement rigides correspond à l'une des portions gui définissent en partie la forme prédéterminée approximativement cylindrique, lorsque le morceau extensible est dans la position intermédiaire.

47. Dispositif d'extension d'un sac en combinaison avec un sac souple selon la revendication 45 et comprenant en outre :

une paire d'onglets (292, 294 ; 328, 329 ; 378, 379) ;

chacun des onglets s'étendant vers l'extérieur à partir d'une partie généralement opposée du morceau extensible ;

une première fente (285 ; 345 ; 391) dans le premier insert généralement rigide ;

une seconde fente (286 ; 345 ; 391) dans le second insert généralement rigide ; et

un onglet de la paire d'onglets s'insérant dans la première fente et l'autre onglet de la paire d'onglets s'engageant dans la seconde fente pour aider à maintenir le morceau extensible dans une relation particulière par rapport aux premier et second inserts généralement rigides.

48. Dispositif d'extension d'un sac en combinaison avec un sac souple selon l'une quelconque des revendications précédentes, dans lequel ledit morceau extensible ou ledit insert généralement rigide contient un timbre imprimé (122).

Fig 1

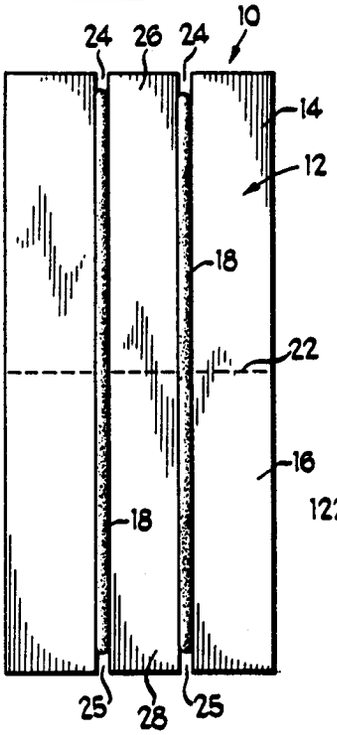


Fig 2

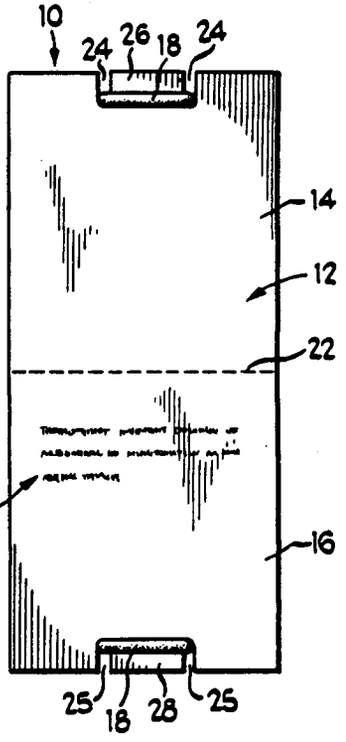


Fig 3

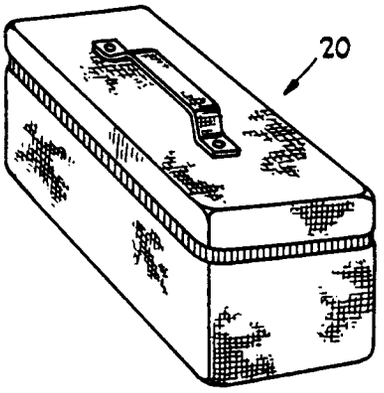


Fig 4

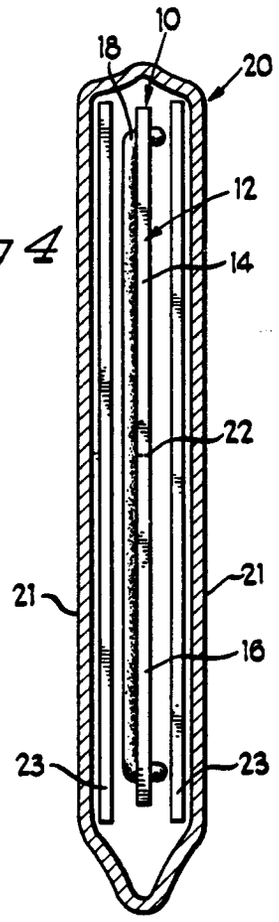


Fig 5

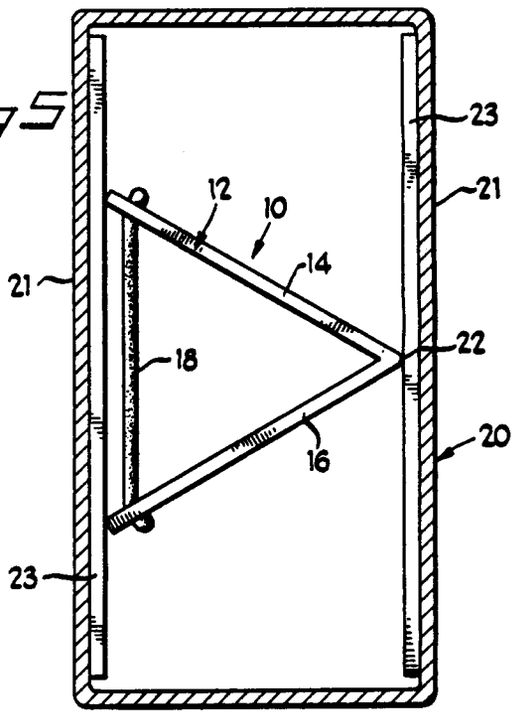


Fig 9

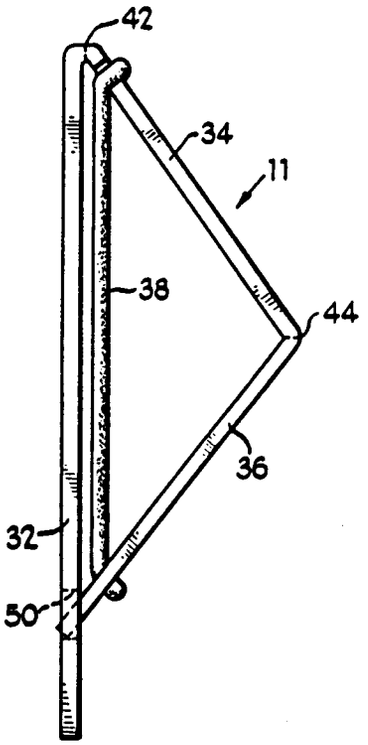


Fig 6

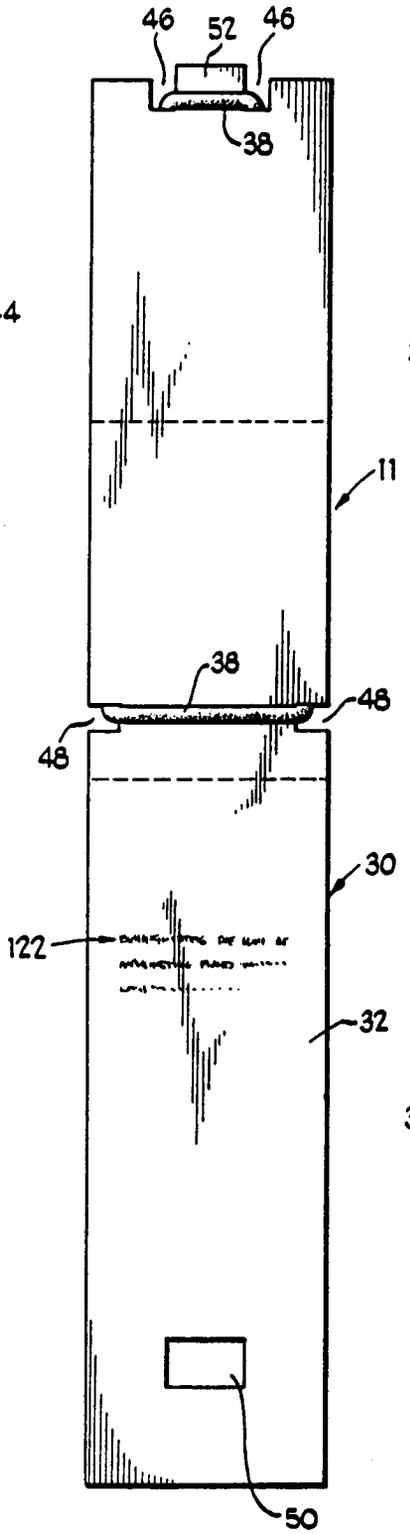


Fig 7

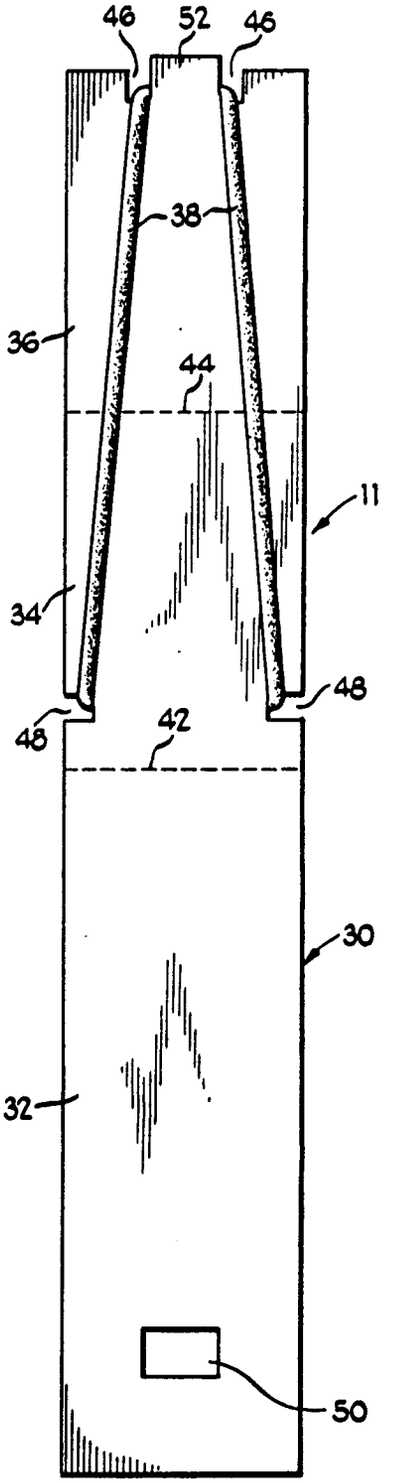


Fig 8

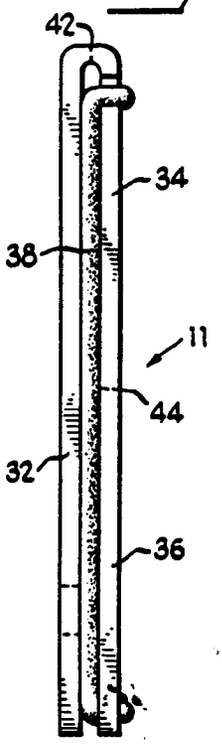


Fig 12

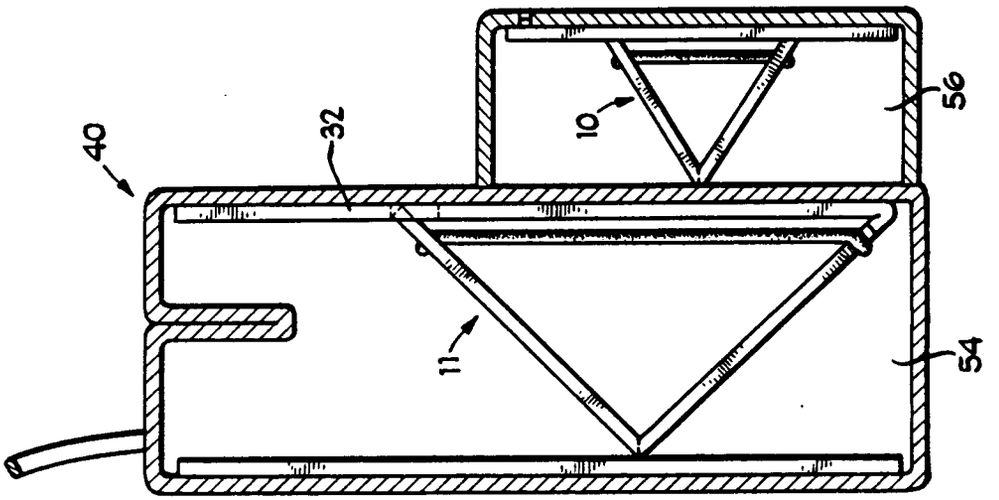


Fig 11

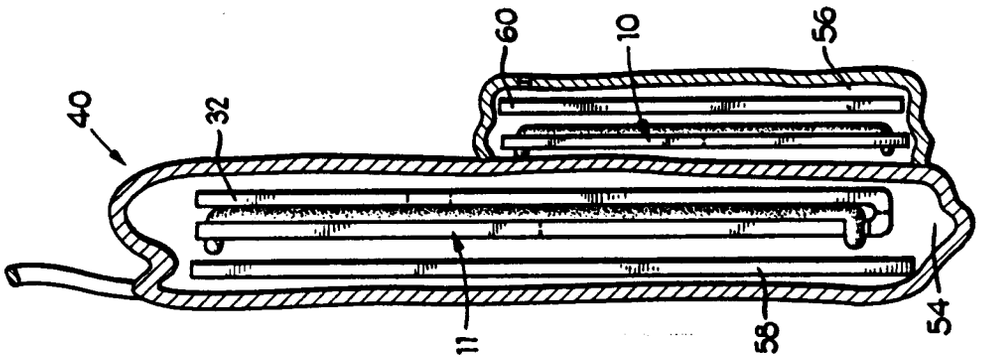


Fig 10

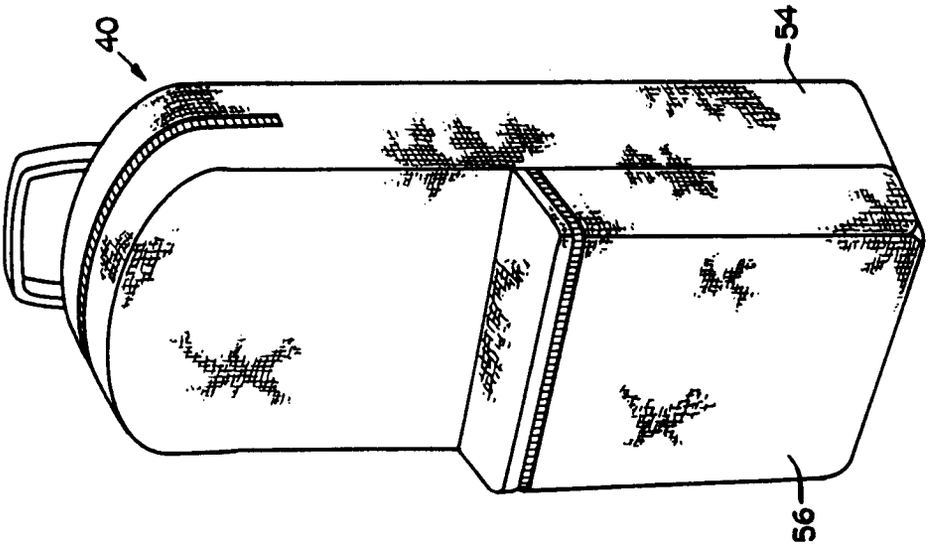


Fig 13

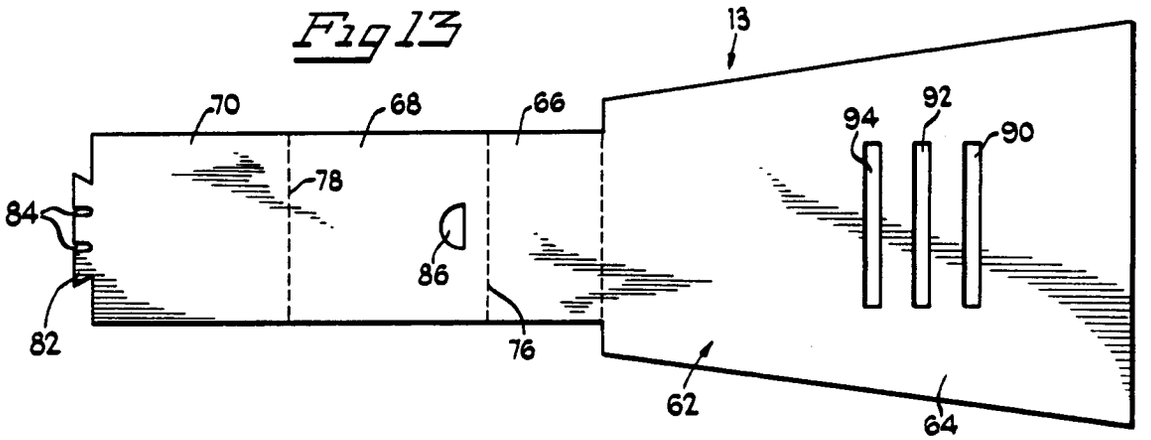


Fig 14

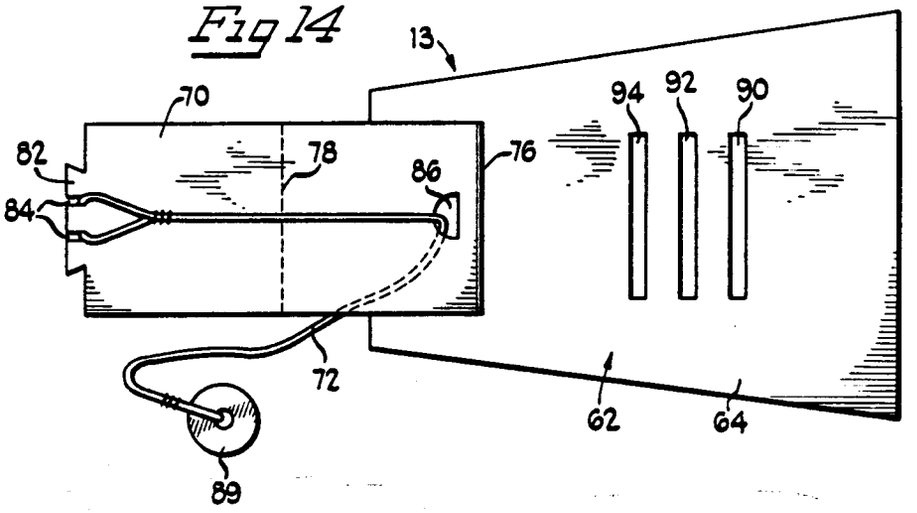


Fig 15

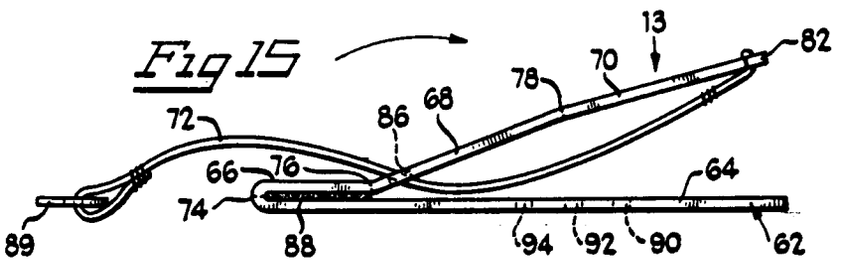


Fig 16

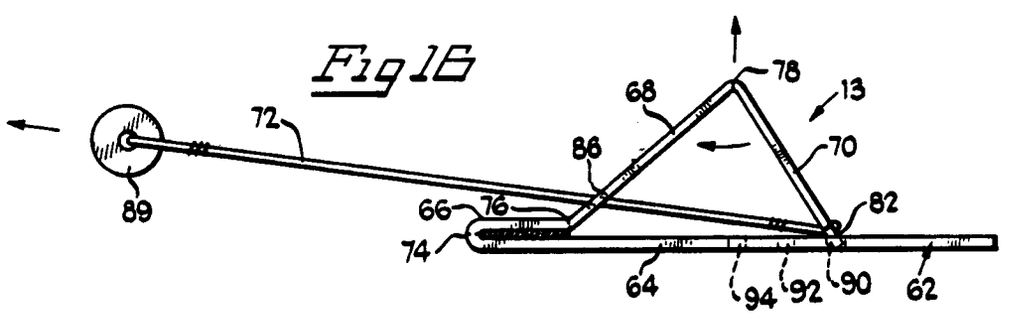


Fig 17

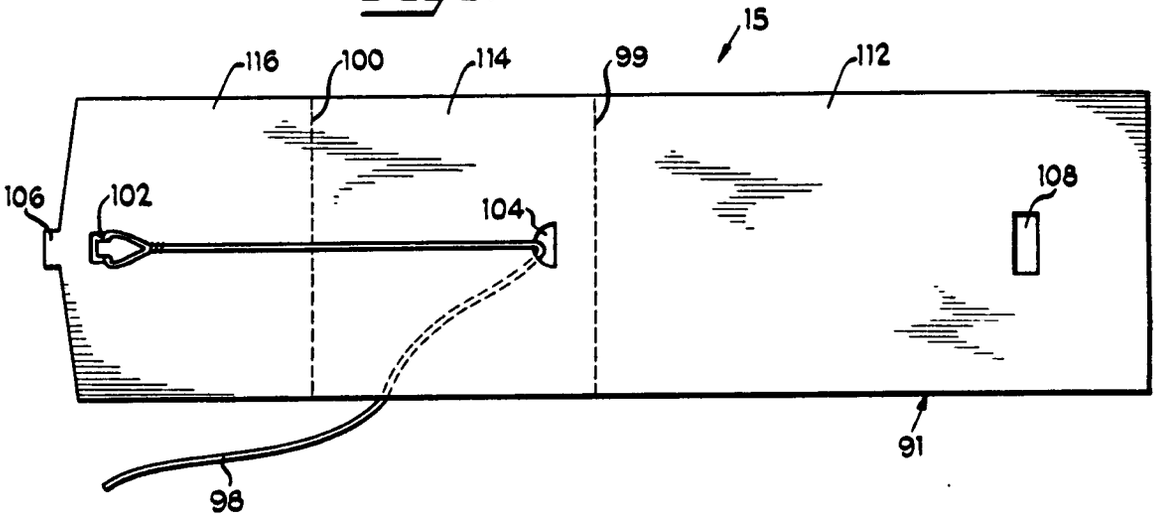


Fig 18

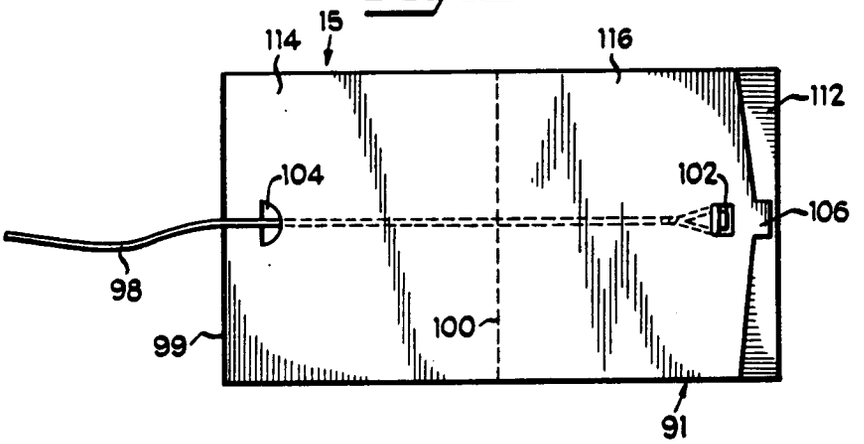


Fig 19

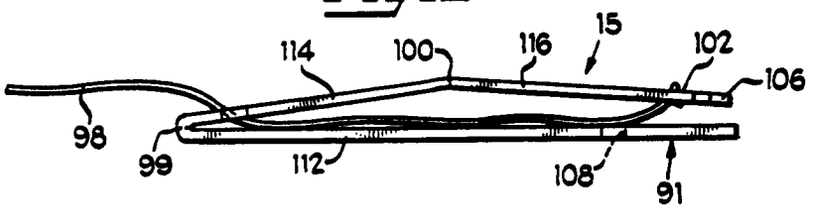
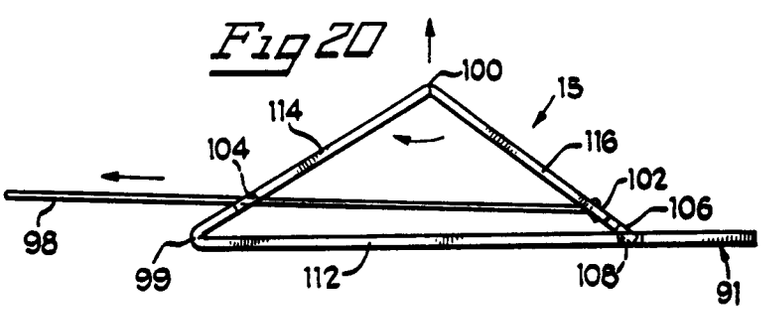


Fig 20



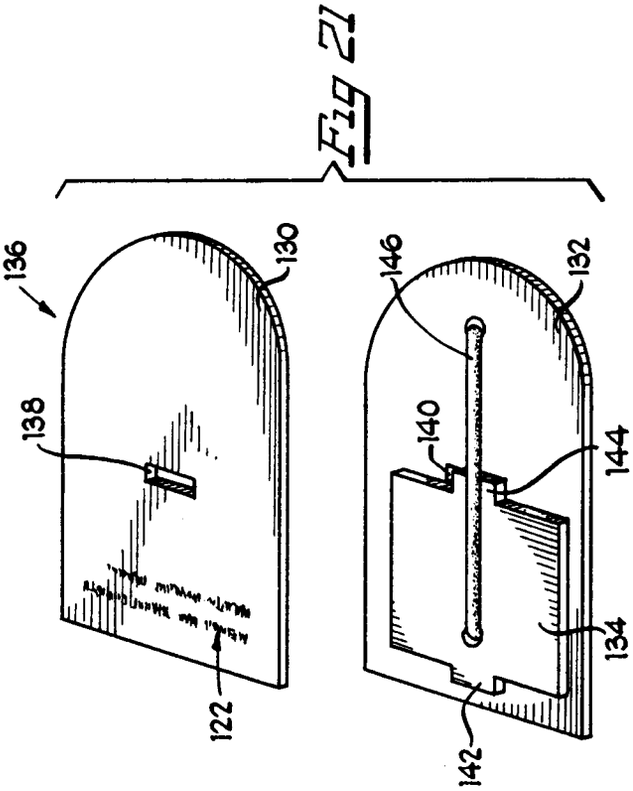


Fig 21

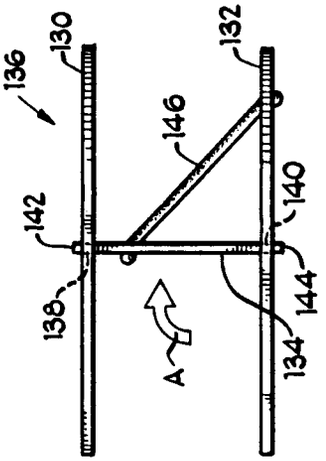


Fig 23

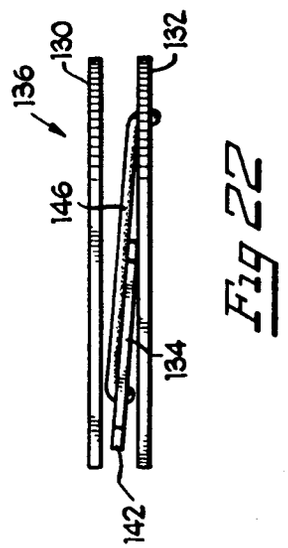


Fig 22

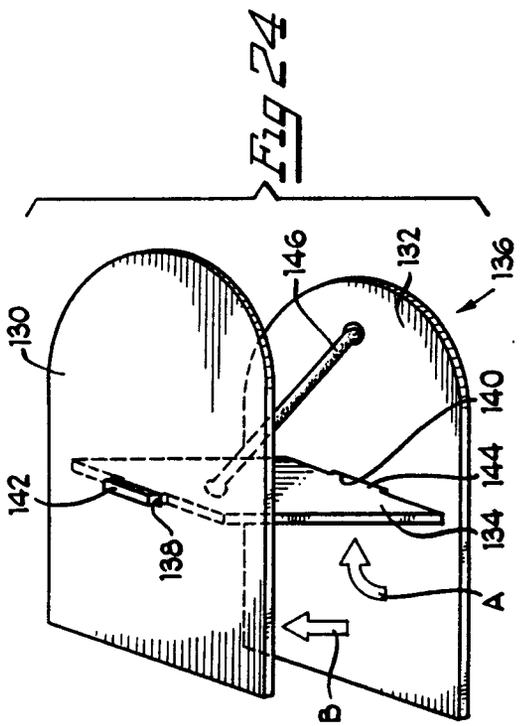


Fig 24

Fig 30

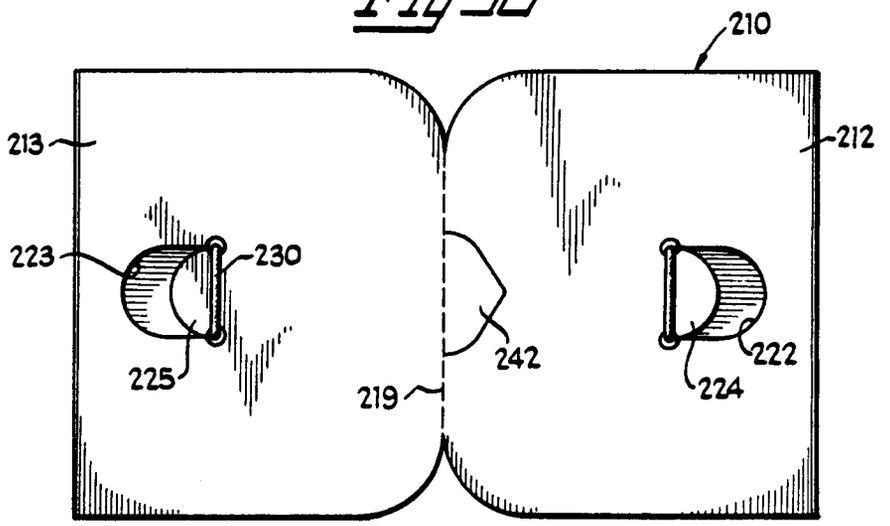


Fig 29

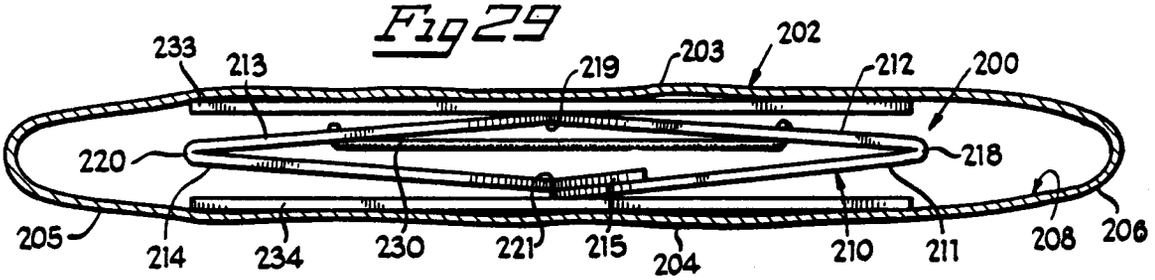


Fig 31

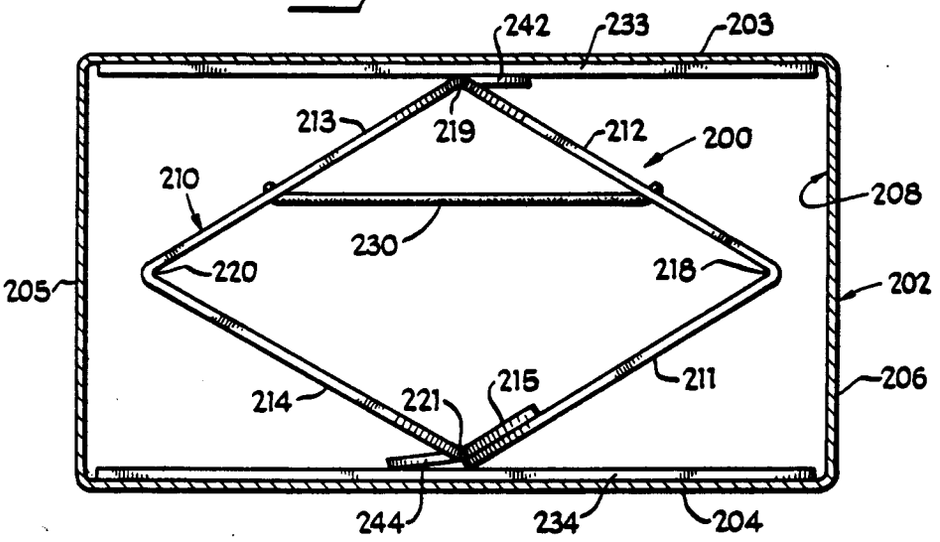


Fig 33

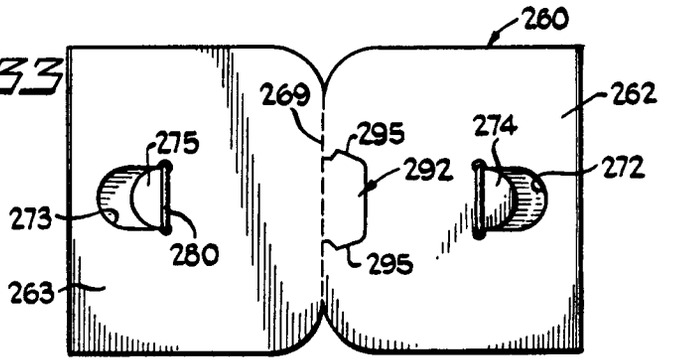


Fig 34

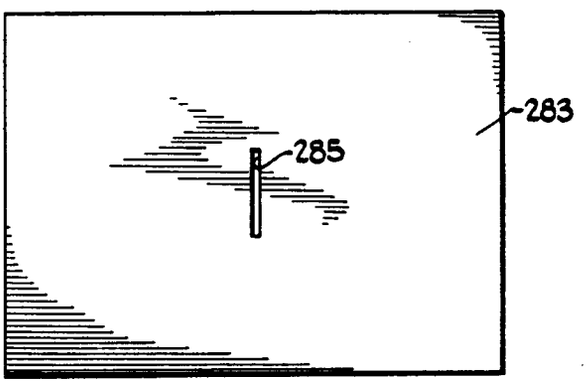


Fig 32

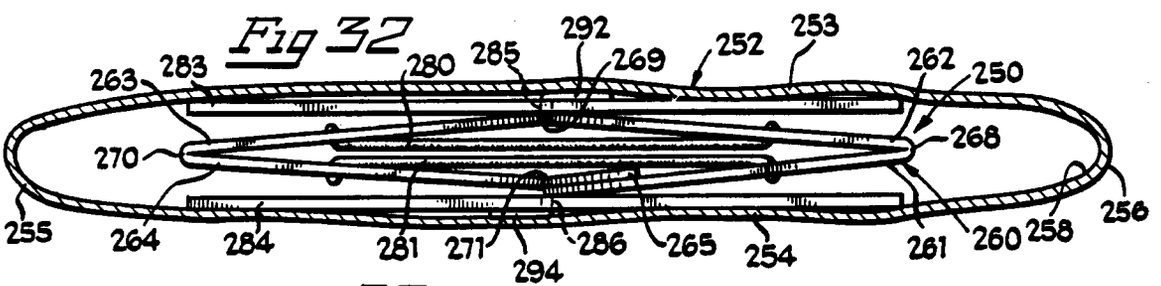


Fig 35

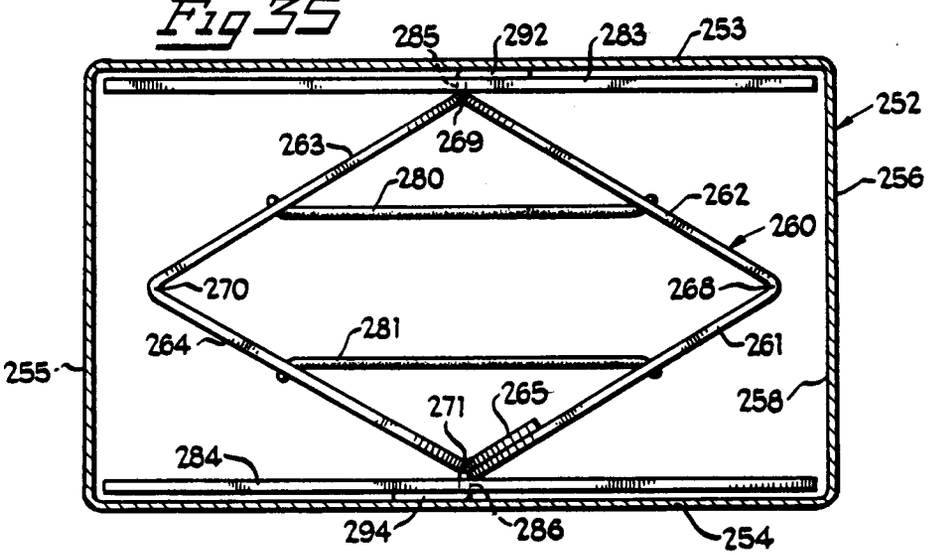


Fig 36

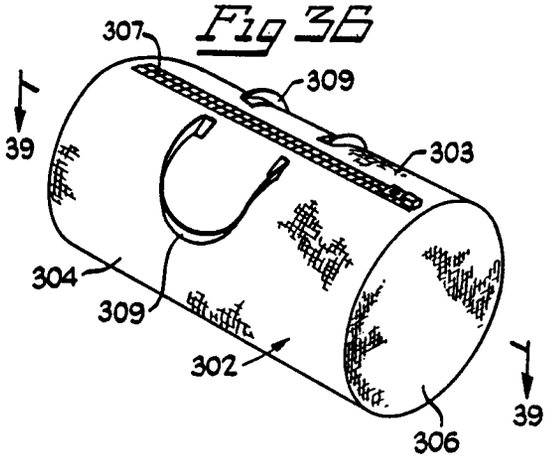


Fig 37

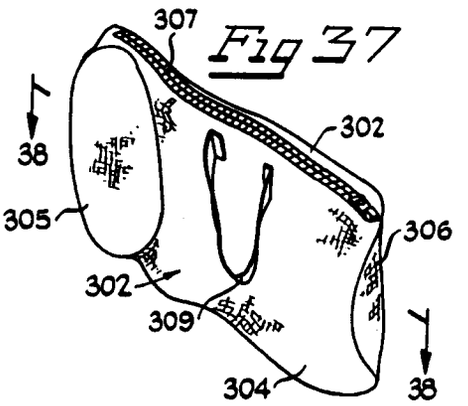


Fig 38

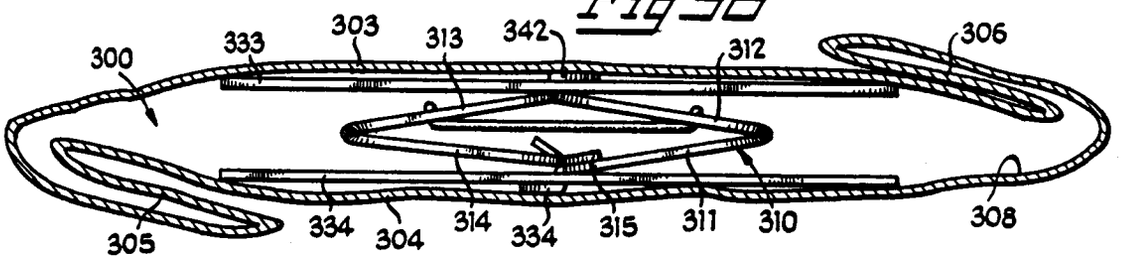


Fig 39

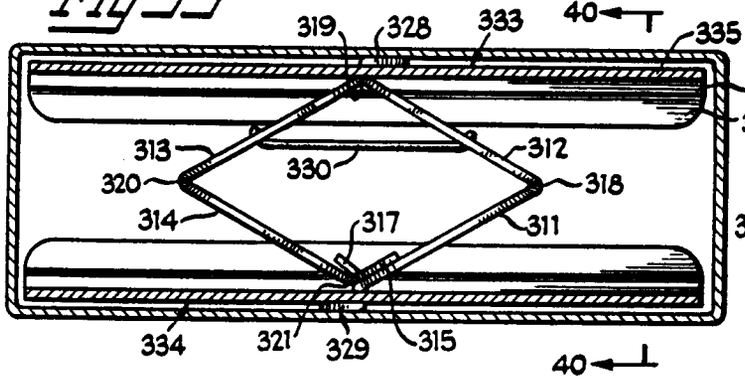


Fig 40

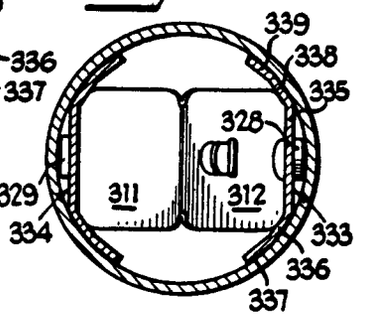


Fig 41

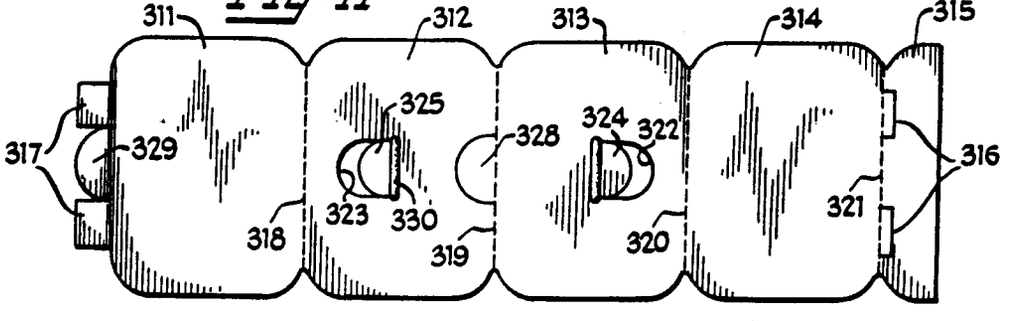


Fig43

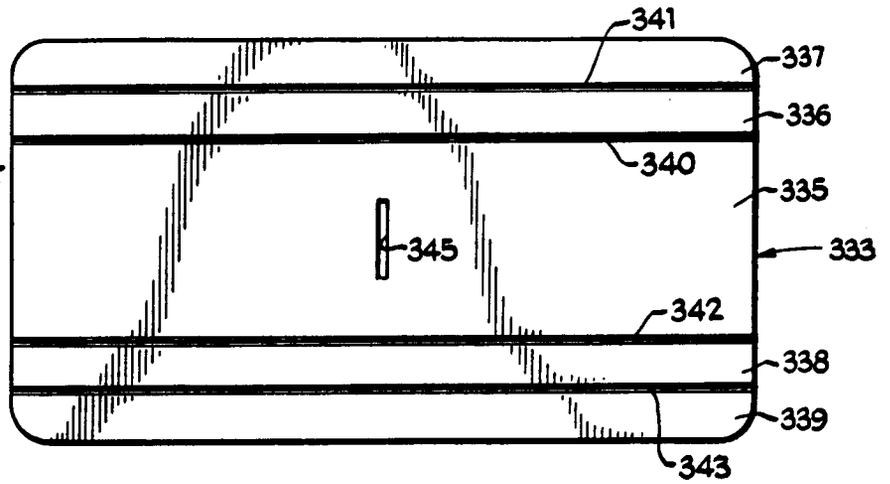


Fig42

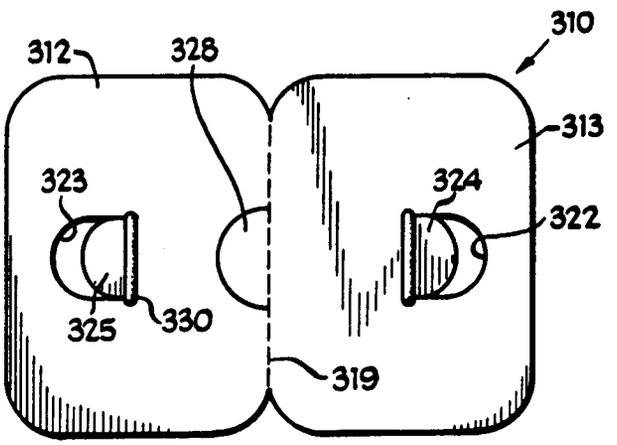


Fig44