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(54) **Title:** OSTOMY BAG LINER WITH VENT GUARDS

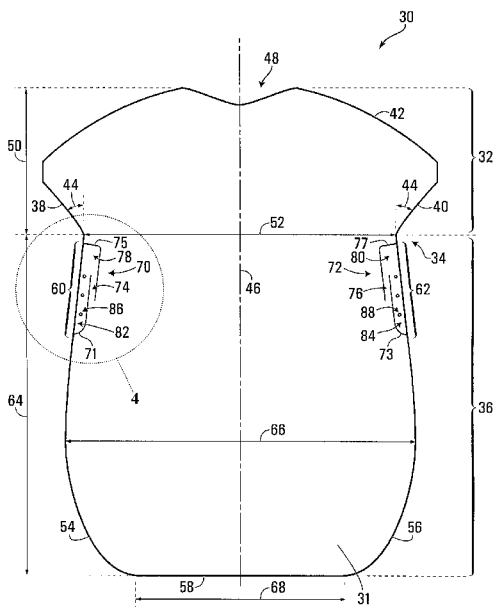


FIG. 2

(57) **Abstract:** A vented ostomy bag liner apparatus and a method for venting gas from an ostomy bag liner is described. The vented ostomy bag liner includes a flexible container having a narrowed neck portion and operably held in an ostomy bag to receive and hold body fluid in an interior volume defined by the container. The vented ostomy bag liner also includes at least one channel proximate the narrowed neck portion. The at least one channel is operable to collect gas from the body fluid in the interior volume through at least one collection portion, at least one switchback portion in communication with the at least one collection portion, and at least one venting portion in communication with the at least one switchback portion. Collected gas travels into the at least one collection portion and is caused to change direction in the switchback portion before passing into the at least one venting portion. The venting ostomy bag liner apparatus further includes at least one opening in the at least one venting portion for venting the collected gas out of the at least one venting portion.

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## **OSTOMY BAG LINER WITH VENT GUARDS**

### **BACKGROUND**

#### **1. Field**

This disclosure relates to ostomy bag liners, and in particular, ostomy bag liners configured to vent gas therefore.

#### **2. Description of Related Art**

Colostomy and ileostomy patients use ostomy bags to collect their intestinal discharge from surgically created stoma. Liners for the ostomy bags permit users to reduce their costs of ostomy supplies because ostomy bags can be used multiple times while lower cost liners are discarded and replaced with new ones.

In some previous liners, the liner was airtight, which caused problems if the user produced a moderate or large amounts of bowel gas. In an airtight liner, the bowel gas within the liner may develop into a bulge over the abdomen which may inconvenience the user. To overcome this problem, some liners have incorporated openings into the wall of the liner such that gas can be vented outside the liner. However, these openings may be positioned in a location that may be conducive to release of liquid intestinal contents in addition to bowel gas, which may increase a likelihood of soiling skin or clothing.

### **SUMMARY**

The disclosure describes a method of venting gas from an ostomy bag liner, the method involves collecting gas, from a fluid in a volume defined by the liner, in at least one collection portion of at least one channel having at least one switchback portion in communication with at least one venting portion of the channel. The gas travels into the at least one collection portion and changes direction in the switchback portion and then passes into the at least one venting portion. The method further involves causing the at least one channel to present greater resistance to liquid in the fluid than the gas in the fluid, such that the gas passes more freely through the at least one channel. The method

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further involves venting the gas passing through the at least one venting portion through at least one opening in the at least one venting portion.

Collecting the gas in the at least one collection portion may involve collecting the gas in at least one linear collection portion.

Collecting the gas may involve causing the gas to pass from the switchback portion into at least one linear venting portion.

Collecting the gas in the at least one collection portion may involve collecting the gas in at least one collection portion that is parallel to at least one venting portion.

Causing the at least one channel to present greater resistance to the liquid than the gas may involve causing the at least one channel to present greater resistance to flow of liquid by at least one of a dimension and a position of the at least one channel.

Causing the at least one channel to present greater resistance to the liquid than the gas may involve causing the gas to pass through at least one portion of the at least one channel having at least one of a width between about **1mm** and about **20mm** and a length between about **5mm** and about **40mm**.

Causing the at least one channel to present greater resistance to the liquid than the gas may involve collecting the gas in at least one channel located adjacent a narrowed neck portion of the ostomy bag liner.

The disclosure also describes a vented ostomy bag liner apparatus including a flexible container having a narrowed neck portion operably held in an ostomy bag to receive and hold body fluid in an interior volume defined by the container. The vented ostomy bag liner further includes at least one channel proximate the narrowed neck portion and operable to collect gas from the body fluid in the interior volume. The at least one channel includes at least one collection portion, at least one switchback portion in

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communication with the at least one collection portion, and at least one venting portion in communication with the at least one switchback portion such that collected gas travels into the at least one collection portion and is caused to change direction in the switchback portion before passing into the at least one venting portion. The vented ostomy bag liner apparatus further includes at least one opening in the at least one venting portion for venting the collected gas out of the at least one venting portion.

The at least one collection portion may include a linear collection portion.

The at least one venting portion may include a linear venting portion.

The at least one collecting portion and the at least one venting portion may be parallel to each other.

At least one portion of the at least one channel may have at least one of a width between about **1mm** and about **20mm** and a length between about **5mm** and about **40mm**.

At least one portion of the at least one channel may have a width and a length, the width being less than the length.

The width of the at least one portion may be about **10%** to about **40%** of the length of the at least one portion.

A width of the at least one collection portion may be generally equal to a width of the at least one venting portion.

The container may include a top container portion, the narrowed neck portion adjacent the top container portion, and a bottom container portion adjacent the narrowed necked portion. The top container portion may include first and second angled side edges extending outwardly relative to a longitudinal axis of the container and a top edge extending between the first and second angled side edges to define a top opening

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operable to receive the body fluids. The bottom container portion may include first and second lower side edges and a bottom edge. The first and second lower side edges may include respective first and second adjacent edge portions disposed adjacent the narrowed neck portion.

The at least one channel may be disposed adjacent to at least one of the first and second adjacent edge portions.

The container may include first and second sheet portions bound to each other, each the sheet portion having bonded edges and unbonded edges. The bonded edges may include the first and second angled side edges, the first and second lower side edges, and the bottom edge, and the unbonded edges may include the top edge.

The at least one channel may be defined by a plurality of bond lines bonding the first and second sheet portions together at locations.

The plurality of bond lines may include first and second bond lines proximate to and extending from at least one of the first and second side edges. The first and second bond lines may include a first and a second straight portion respectively, and a first and a second curved portion respectively.

The first and second straight portions may be parallel and spaced apart from each other.

The first and second curved portions may extend from spaced apart locations on the at least one of the first and second side edges. At least one of the first and second straight portions may be parallel to, spaced apart from and adjacent to the at least one of the first and second side edge portions.

The bonded edges may be heat-bonded.

The plurality of bond lines may be heat-bonded.

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The first and second sheet portions may be formed of at least one of a biodegradable film, a compostable film and a polyethylene material.

The first and second sheet portions may have a thickness of between about **0.0015mm** and about **0.0040mm**.

At least one of the first and second angled edges may be at an angle between about **20** and **90** degrees relative to the longitudinal axis of the container.

The top edge may define an opening with a width between about **100mm** and about **200mm**,

The bottom edge may have a width between about **50mm** and about **100mm**.

The bottom edge and the narrowed neck portion may be spaced apart by a distance between about **100mm** and about **200mm**.

The narrowed neck portion and the top edge may be spaced apart by a distance between about **50mm** and about **100mm**.

The bottom container portion may have an average width greater than a width of the narrowed neck portion.

The narrowed neck portion may have a width between about **30mm** and about **180mm**.

The at least one opening may have a diameter of about **0.60mm**.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

In drawings which illustrate the embodiments,

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- Figure 1 is a schematic representation of an ostomy system including an ostomy bag having an ostomy bag liner according to a first embodiment.
- Figure 2 is front view of a front side of the ostomy bag liner shown in Figure 1.
- Figure 3 is a perspective view showing an opening in the ostomy bag liner shown in Figure 1, for admitting body fluid into the ostomy bag liner.
- Figure 4 is an enlarged view of a channel of the ostomy bag liner shown in Figure 1.
- Figure 5 is a perspective view from a front side of an ostomy bag liner according to another embodiment.
- Figure 6 is an enlarged view of a channel of the ostomy bag liner shown in Figure 5.
- Figures 7 – 15 are front views of a front side of ostomy bag liners according to various embodiments.

#### **DETAILED DESCRIPTION**

Referring to Figure 1, an ostomy system according to a first embodiment of the invention is shown generally at 10. The ostomy system 10 includes an ostomy bag 12 that may be formed of an air permeable material, for example, having a bag flange 16 operably configured to cooperate with a mating flange 18 secured to a user's body and surrounding an ostomy 20 of the user. The bag flange 16 has a generally circular opening 22 that is generally aligned with the ostomy 20 when the bag flange 16 is secured to the mating flange 18, to receive fluid from the ostomy. The ostomy bag 12 generally defines an interior volume 24 operable to hold an ostomy bag liner 30.

Referring to Figure 2, the ostomy bag liner 30 is shown in greater detail. The ostomy bag liner 30 may be made of plastic, waterproof cloth or a coated paper material. The ostomy bag liner 30 comprises a top container portion 32, a narrowed neck portion 34 adjacent the top container portion 32, and a bottom container portion 36 adjacent the narrowed neck portion 34. Referring back to Figure 1, when the ostomy bag liner 30 is coupled with the ostomy bag 12, the top container portion 32 is disposed outside of

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the ostomy bag **12** such that it covers the flange **16**, the narrowed neck portion **34** is generally contained within the opening **22** defined by the flange **16**, and the bottom container portion **36** is generally contained within volume **24** of the ostomy bag **12**. The ostomy bag liner **30** defines an interior volume **31** configured to receive and hold body fluids and solids from the ostomy **20** of the user.

Referring to Figure **2**, the top container portion **32** comprises first and second angled side edges **38** and **40** and a curved top edge **42** extending between the first and second angled side edges **38** and **40**. The first and second angled side edges extend outwardly at an angle **44** relative to a longitudinal axis **46** of the bag liner **30**. The angle **44** can range from about **20** to **90** degrees relative to a longitudinal axis **46** of the liner **30**, for example. In embodiment shown the angle **44** is **42** degrees, for example.

The top edge **42** defines a top opening **48** of the bag liner **30**, which is operable to receive body fluids and solids from the ostomy **20** of the user when the bag liner **30** is coupled to the ostomy bag **12** and coupled to the mating flange **18**. Referring to Figure **3**, the bag liner **30** is shown installed in ostomy bag **12**. It will be appreciated that by providing the curved top edge **42**, a generally circular or generally elliptical form is established by the top container portion **32**. This causes the top container portion **32** to extend relatively evenly about the bag flange **16** when the bag liner **30** is installed within the interior volume **24** of the ostomy bag **12**, and provides for easy positioning of the ostomy bag liner **30** within the ostomy bag **12** (not shown in Figure **3**). The top container portion **32** also has a length **50**, which can be measured from the top edge **42** to the narrowed neck portion **34**. The length **50** may be about **65mm**, for example

Referring to Figures **2** and **3**, the narrowed neck portion **34** is operable to be positioned at the opening **22** defined by the flange **16** when the bag liner **30** is coupled to ostomy bag **12**. The narrowed neck portion **34** has a width **52** that defines a narrow portion of the bag liner **30**. The width **52** can range from about **30mm** to **180mm**, for example. In the embodiment shown the width is about **140mm**, for example.



The bottom container portion **36** is contained within the interior volume **24** of the ostomy bag **12** when the bag liner **30** is coupled to the ostomy bag **12** and is generally the portion of bag liner **30** configured to hold the body fluids and solids of the user. The bottom container portion **36** comprises first and second lower side edges **54** and **56**, and a bottom edge **58** extending between the first and second lower side edges **54** and **56**. Each of the first and second lower side edges **54** and **56** includes a respective adjacent edge portion **60** and **62**. The first and second adjacent edge portions **60** and **62** are generally disposed adjacent the narrowed neck portion **34**. The bottom container portion **36** also includes channels **70** and **72** configured to collect and vent the gas from the body fluids contained within the interior volume **31**. The channels **70** and **72** are generally disposed adjacent the narrowed neck portion **34** and respectively, the first and second adjacent edge portions **60** and **62**. The channels **70** and **72** may be defined by space between respective first lines **71** and **73** and respective second lines **75** and **77**. Lines **71**, **73**, **75** and **77** may be formed by securing together certain locations of the bottom container portion **36** adjacent the narrowed neck portion **34**. The bottom container portion **36** may be secured in various ways to form lines **71**, **73**, **75** and **77**, such as through heat-sealing, adhesives, or stitching, for example.

The bottom container portion has a length **64**. The length **64** can range from **100mm** to **200mm**, for example, and in the embodiment shown is about **150mm**, for example. Additionally, the bottom container portion **36** has a width **66** at a widest part and a width **68** of the bottom edge **58**. The widths **66** and **68** may range from between **120mm** and **190mm** and from **50mm** and **100mm** respectively, for example. In the embodiment shown, the widths **66** and **68** are about **155mm** and **90mm** respectively, for example.

The channels **70** and **72** are operably configured to collect and vent gas from the body fluid in the interior volume **31** of ostomy bag liner **30** through respective first and second collection portions **74** and **76**, respective first and second switchback portions **78** and **80** in communication with their respective collection portions **74** and **76**,

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respective first and second venting portions **82** and **84** in communication with their respective switchback portions **78** and **80**, and a respective first and second set of openings **86** and **88** located within their respective venting portions **82** and **84**. First channel **70** will now be described in greater detail, with the understanding that the second channel **72** generally operates in substantially the same way.

Figure **4** is an enlarged view of the first channel **70** depicted in Figure **2**. Channel **70** comprises the collection portion **74**, the switchback portion **78** in communication with the collection portion **74**, the venting portion **82** in communication with the switchback portion **78**, and the openings **86** located within the venting portion **82**. The collection portion **74** is operable to collect gas from the body fluid in the interior volume **31** of ostomy bag liner **30**. Within the collection portion **74**, the collected gas flows generally in the direction of arrow **90** toward the switchback portion **78**. Within the switchback portion **78**, the collected gas is caused to change direction as seen by arrow **92** before entering the venting portion **82**. Within the venting portion **82**, the collected gas flows generally in the direction of arrow **94** before being vented outside the bag liner **30** through the openings **86**. The collection portion **74** and the venting portion **82** may be linear and parallel to each other, and may be parallel to the first adjacent side edge portion **60**. Alternatively, the collection portion **74** and the venting portion **82** may be curved.

In addition to venting gas, all three channel portions **74**, **78** and **82** are appropriately dimensioned to present greater resistance to liquid than gas from the body fluid contained within interior volume **31**. Due to the natural tendency of gaseous molecules to possess greater kinetic energy than similar liquid molecules, the gaseous molecules are more capable than liquid molecules to traverse narrow, lengthy and winding channels. Accordingly, the collection portion **74** has a width **96** and a length **98**. The collection portion width **96** can range between about **1mm** and about **20mm** and the collection portion length **98** can range between about **3mm** and about **60mm**, for example. Experiments have demonstrated that a collection width **96** of about **2mm** and a collection length **98** of about **9mm** results in a suitable resistance to liquid while

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still enabling a sufficient flow of gas when the liner **30** is in operation. The switchback portion **78** also has a width **100** and a length **102**. The switchback width **100** can range between about **2mm** and about **40mm**, for example, and the switchback length **102** can range between about **1mm** and about **40mm**, for example. In the embodiment shown, the switchback width **100** is about **7mm** and the switchback length **102** is about **8mm**, for example. The venting portion **82** also has a width **104** and a length **106**. The venting width **104** can range between about **1mm** and about **20mm**, for example, and the venting length **106** can range between about **4mm** and about **40mm**, for example. In the embodiment shown, the venting width **104** is about **6mm** for example and the venting length **106** is about **30mm**, for example.

Generally, the collection and venting widths **96** and **104** are lesser than their respective collection and venting lengths **98** and **106**, as a long and narrow channel would provide generally greater resistance to less mobile liquid molecules when compared with a short and wide channel. Accordingly, the collection and venting widths **96** and **104** may be between about **10%** to **40%** of their respective collection and venting lengths **98** and **106**. In the embodiment shown, the collection width **96** is about **22%** of the collection length **98** and the venting width **104** is about **20%** of the venting length **106**, for example. The switchback width **100** may also be lesser than the switchback length **102**. Alternatively, the switchback width **100** may also be about equal the switchback length **102** as the switchback portion **78** is configured to change the direction of the gas. The switchback width **100** may be between **40%** and **100%** of the switchback length **102** for example, and is about **88%** of the switchback length **102** in the current embodiment, for example.

The openings **86** located in the venting portion **82** can similarly be dimensioned to present greater resistance to the liquid than the gas in the body fluid contained within interior volume **31**. In addition to increased kinetic energy when compared to liquid molecules, gaseous molecules also tend to diffuse to areas of low air pressure, such as those created by openings **86** in the bag liner **30**. Liquid molecules do not share the tendency of gaseous molecules to flow towards such areas. Accordingly, the openings

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**86** have diameters **108** that may range from between about **0.5mm** and about **10mm**, for example, and in the embodiment shown are about **0.6mm**, for example.

Referring back to Figure 2, it will be seen that the channels **70** and **72** are positioned at a location on the bag liner **30** to present greater difficulty to the movement of the liquid of the body fluid to the openings **86** and **88** than the gas of the body fluid. Due to the increased kinetic energy of gaseous molecules described above, gaseous molecules are less affected by gravitational forces and tend to fill the entire volume that they are contained within. Conversely, liquid molecules are affected by gravitational forces. When the bag liner **30** is in operation (i.e. coupled with the ostomy bag **12** and installed on the ostomy **20** of the user), the liquid of the body fluids contained within interior volume **31** has a tendency to collect near to the bottom edge **58** of the bottom container portion **36**. Therefore, by positioning channels **70** and **72** near the narrowed neck portion **34** and away from the bottom edge **58**, there is a decreased likelihood for liquid to flow through either channel **70** or **72**.

Referring to Figure 5, an alternative embodiment of the disposable ostomy bag liner is shown generally at **150**. In this embodiment the ostomy bag liner comprises first and second sheet portions **152** and **154** that may be made of compostable film material such as for example, a sheet comprised of about **50%** to about **95%** BASF Ecovio® F compostable polymer Film C2331 with bio-based content and about **50%** to about **5%** BASF Ecoflex® C Blend certified compostable polymer Film 1200 available from BASF of Germany. Alternatively, the first and second sheet portions **152** and **154** may be made of biodegradable film or a low-density polyethylene. The sheet portions **152** and **154** may have a thickness of between about **0.015mm** to about **0.040mm**, for example.

Each of the first and sheet portions **152** and **154** has a respective top edge portion **156**, a respective first angled side edge portion **158**, a respective second angled side edge portion **160**, a respective first lower side edge portion **162**, a respective second lower side edge portion **164** and a respective bottom edge portion **166**. The top edge

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portions **156** are disposed generally flat against each other and define a top opening **168**. The first angled side edge portions **158** are bonded together to form a first angled side edge **170** and the second angled side edge portions **160** are bonded together to form a second angled side edge **172**. Similarly, the first lower side edge portions **162** are bonded together to form a first lower angled side edge **174** and the second lower side edge portions **164** are bonded together to form a second lower side edge **176**. The bottom edge portions **166** are bonded together to form a bottom edge **178**. The first and second angled side edges **170** and **172**, the first and second lower side edges **174** and **176**, and the bottom edge **178** may collectively be referred to as bonded edges **180**. The bonded edges **180** may be bonded together such as by heat-bonding or adhesive for example. In the current embodiment, the first and second angled side edges **170** and **172** are sealed by an outer edge bond line **183**, while the first and second lower side edges **174** and **176** and the bottom edge **178** are double-sealed by the outer edge bond line **183** and an inner edge bond line **185**. The top edge portions **156** defining the top opening **168** may be referred to as the unbonded edge **182**. Together, the bonded edges **180** and unbonded edge **182** generally define a water-tight bag with an interior volume **151** having the top opening **168** between the first and second angled side edges **170** and **172**.

Still referring to Figure 5, the bag liner **150** has a top container portion **184**, a narrowed neck portion **186** adjacent the top container portion **184** and a bottom container portion **188** adjacent the narrowed neck portion **186**. Additionally, the bag liner **150** has dimensions similar to the bag liner **30** depicted in Figure 2.

The top container portion **184** includes the top opening **168** and the first and second angled side edges **170** and **174**. The first and second angled side edges extend outwardly at an angle **181** relative to a longitudinal axis **171** of the bag liner **150**. In the current embodiment, the angle **181** is identical to the angle **44** of the bag liner **30**, and is about **42** degrees, for example.

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The narrowed neck portion **186** has a width **173** that defines a narrow portion of the bag liner **150**. The width **173** is identical to the width **52** of bag liner **30**, and is about **140mm** in the current embodiment, for example.

The bottom portion **188** includes the first and second lower side edges **174** and **176**, and the bottom edge **178**. The first and second lower side edges **174** and **176** include respective first and second adjacent edge portions **175** and **177** which are adjacent the narrowed neck portion **186**. The bottom container portion **188** has a length **179**. The length **179** is identical to the length **64** of bag liner **30**, and is about **150mm** in the current embodiment, for example. The bottom container portion **188** also has a width **187** at a widest part and a width **189** of the bottom edge **178**. Widths **187** and **189** are identical to widths **66** and **68** of bag liner **30**, and are about **155mm** and **90mm** in the current embodiment, for example.

The bottom portion **188** also includes first and second channels **190** and **192**, disposed adjacent the narrowed neck portion **186**, and adjacent respective first and second adjacent edge portions **175** and **177**. Channels **190** and **192** are similar to channels **70** and **72** and are operable to collect and vent gas from body fluid contained within the interior volume **151** of bag liner **150**. Channels **190** and **192** have respective first and second collection portions **194** and **196** operable to collect the gas, respective first and second switchback portions **198** and **200** in communication with their respective collection portions **194** and **196**, respective first and second venting portions **202** and **204** in communication with their respective switchback portions **198** and **200**, and respective first and second sets of openings **203** and **205** located within the first and second venting portions **202** and **204** operable to vent the gas.

The first and second channels **190** and **192** may be defined by respective first channel bond lines **206** and **208** and respective second channel bond lines **210** and **212** bonding the first and second sheet portions **152** and **154** together at specified locations adjacent the narrowed neck portion **186** of bag liner **150**. The channel bond lines **206**, **208**, **210** and **212** may be bond together such as by heat-bonding or

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adhesive for example. Additionally, a double seal provided by a double-weld line may be used to secure channel bond lines **206**, **208**, **210** and **212**. It can be appreciated that by forming the channels **190** and **192** in the same way as bonded edges **180**, the process of manufacturing the bag liner **150** can be simplified by forming the channel bond lines **206**, **208**, **210** and **212** and the edge bond lines **183** and **185** in a single step. Additionally, it is possible for the first channel bond lines **206** and **208** to converge with the inner edge bond line **185**, such that the channel and edge bond lines **206**, **185** and **208** are formed from a single continuous line seal, as shown in the current embodiment. First channel **190** and first and second bond lines **206** and **210** will now be described in greater detail, with the understanding that the second channel **192** generally operates in substantially the same way.

Referring to Figure 6, an enlarged view of the first channel **190** depicted in Figure 5 is provided. As previously described, the first channel **190** is defined by the space between the first bond line **206** and the second bond line **210** as well as the first bond line **206** and the adjacent edge portion **175**. Both bond lines **206** and **210** extend from spaced apart locations on the adjacent edge portion **175** of bonded lower side edge **174** and are generally proximate the narrowed neck portion **186**.

The first bond line **206** has a straight portion **212** and a curved portion **216**. The second bond line **210** similarly has a straight portion **214** and a curved portion **218**. In the current embodiment, the first straight portion **212** and second straight portion **214** are spaced apart from and parallel to each other, and a distance **220** separating them generally defines a width of the collection portion **194**. Additionally, a portion **221** of the first straight portion **212** of first bond line **206** may overlap with a portion **223** of the straight portion **214** of second bond line **210**, and a length **222** of overlap between the two portions **221** and **223** generally defines a length of the collection portion **194**. Additionally, the straight portion **212** of first bond line **206** is spaced apart but generally parallel to the adjacent edge portion **175** of lower side edge **174**. A distance **224** between the straight portion **214** and the adjacent edge portion **175** generally defines a width of the venting portion **202**. Additionally, a length **226** of overlap between the

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first bond line **206** and the adjacent edge portion **175** generally defines a length of venting portion **202**. Finally, a second portion **228** of the straight portion **214** of second bond line **210** is parallel to and spaced apart from a portion **230** of the adjacent edge portion **175**. A distance **232** between the second portion **228** and the portion **230** generally defines a width of the switchback portion **198**.

Referring to Figure 7, a disposable ostomy bag apparatus according to an alternative embodiment is shown generally at **300**. The ostomy bag liner **300** has a top container portion **301**, a narrowed neck portion **303** adjacent the top container portion **301**, and a bottom container portion **305** adjacent the narrowed neck portion **303**. The top container portion **301** includes bonded angled side edges **302** and **304** and an unbonded top edge **312** defining a top opening **314**. The bottom container portion **305** includes bonded lower side edges **306** and **308**, a bonded bottom edge **310** and channels **307** and **309**. The bonded edges **302** and **304** are sealed by edge bond line **320**, and bonded edges **306**, **308** and **310** are double-sealed by edge bond lines **320** and **322**. The channels **307** and **309** are formed by respective first bond lines **324** and **325** and respective second bond lines **326** and **327**. In contrast to the bag liner **150** depicted in Figure 5, the angled side edges **302** and **304** are at a decreased angle **316** relative to a longitudinal axis **318** of the bag liner **300** when compared to the angle **181** relative to the longitudinal axis **171** of bag liner **150**. The angle **316** may be about 20 degrees, for example. The bag liner **300** thus has less pronounced first and second angled side edges **302** and **304**.

Referring to Figure 8, a disposable ostomy bag apparatus according to an alternative embodiment is shown generally at **330**. The ostomy bag liner **330** has a top container portion **331**, a narrowed neck portion **333** adjacent the top container portion **331**, and a bottom container portion **335** adjacent the narrowed neck portion **333**. The top container portion **331** includes bonded angled side edges **332** and **334** and an unbonded top edge **342** defining a top opening **344**. The bottom container portion includes bonded lower side edges **336** and **338**, a bonded bottom edge **340** and channels **337** and **339**. The bonded edges **332** and **334** are sealed by edge bond line



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**350** and bonded edges **336**, **338** and **340** are double-sealed by edge bond lines **350** and **352**. The channels **337** and **339** are formed by respective first bond lines **354** and **355** and respective second bond lines **356** and **357**. When compared to bag liner **150** depicted in Figure 5, the angled side edges **332** and **334** are at an increased angle **346** relative to a longitudinal axis **348** when compared to angle **181** of bag liner **150**. The angle **346** may be about **90** degrees, for example. The bag liner **330** thus has more pronounced first and second angled side edges **332** and **334**, and a larger top container portion **331**, which may be more easily disposed around the flange **16**.

Referring to Figure 9, a disposable ostomy bag apparatus according to an alternative embodiment is shown generally at **360**. The ostomy bag liner **360** has a top container portion **362**, a narrowed neck portion **364** adjacent the top container portion **362**, and a bottom container portion **366** adjacent the narrowed neck portion **364**. The top container portion **362** includes bonded angled side edges **368** and **370** and an unbonded top edge **372** defining a top opening **374**. The bottom container portion **366** includes bonded lower side edges **376** and **378**, a bonded bottom edge **380**, and channels **382** and **384**. The bonded edges **368** and **370** are sealed by edge bond line **388**, and bonded edges **376**, **378**, and **380** are double-sealed by edge bond lines **388** and **390**. The channels **382** and **384** are formed by respective first bond lines **392** and **393** and respective second bond lines **394** and **395**. In contrast to bag liner **150** depicted in Figure 5, the narrowed neck portion **364** has a decreased width **386** when compared to narrowed neck width **173** of bag liner **150**. The width **386** may be about **30mm**, for example. The bag liner **360** thus has a narrower narrowed neck portion **364** capable of more easily fitting around a smaller bag flange, and thus a smaller ostomy bag.

Referring to Figure 10, a disposable ostomy bag apparatus according to an alternative embodiment is shown generally at **400**. The ostomy bag liner **400** has a top container portion **402**, a narrowed neck portion **404** adjacent the top container portion **402**, and a bottom container portion **406** adjacent the narrowed neck portion **404**. The top container portion **402** includes bonded angled side edges **408** and **410** and an

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unbonded top edge **412** defining a top opening **414**. The bottom container portion includes bonded lower side edges **416** and **418**, a bonded bottom edge **420**, and channels **422** and **424**. The bonded edges **408** and **410** are sealed by edge bond line **428**, and bonded edges **416**, **418**, and **420** are double-sealed by edge bond lines **428** and **430**. The channels **422** and **424** are formed by respective first bond lines **432** and **433** and respective second bond lines **434** and **435**. In contrast to bag liner **150** depicted in Figure 5, the narrowed neck portion **404** has an increased width **426** when compared to the narrowed neck width **173** of bag liner **150**. The width **426** may be about **180mm**, for example. The bag liner **400** thus has a wider narrowed neck portion **404** when compared to bag liner **150**, and is thus capable of fitting around a wider bag flange of a larger ostomy bag.

Referring to Figure 11, a disposable ostomy bag apparatus according to an alternative embodiment is shown generally at **440**. The ostomy bag liner **440** has a top container portion **442**, a narrowed neck portion **444** adjacent the top container portion **442**, and a bottom container portion **446** adjacent the narrowed neck portion **444**. The top container portion **402** includes bonded angled side edges **448** and **450** and an unbonded top edge **452** defining a top opening **454**. The bottom container portion includes bonded lower side edges **456** and **458**, a bonded bottom edge **460**, and channels **462** and **464**. The bonded edges **448** and **450** are sealed by edge bond line **468**, and bonded edges **456**, **458**, and **460** are double-sealed by edge bond lines **468** and **470**. The channels **462** and **464** are formed by respective first bond lines **472** and **473** and respective second bond lines **474** and **475**. In contrast to the bag liner **150** depicted in Figure 5, the bag liner **440** has a decreased length **466** between the narrowed neck portion **444** and the bonded bottom edge **460** when compared to the bottom container length **179** of bag liner **150**. The length **466** may be about **150mm**, for example. The bag liner **440** thus has a shorter bottom container portion **446** operable to fit a smaller ostomy bag.

Referring to Figure 12, a disposable ostomy bag apparatus according to an alternative embodiment is shown generally at **490**. The ostomy bag liner **490** has a top container

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portion **492**, a narrowed neck portion **494** adjacent the top container portion **492**, and a bottom container portion **496** adjacent the narrowed neck portion **494**. The top container portion **492** includes bonded angled side edges **498** and **500** and an unbonded top edge **502** defining a top opening **504**. The bottom container portion includes bonded lower side edges **506** and **508**, a bonded bottom edge **510**, and channels **512** and **514**. The bonded edges **498** and **500** are sealed by edge bond line **518**, and bonded edges **506**, **508**, and **510** are double-sealed by edge bond lines **518** and **520**. The channels **512** and **514** are formed by respective first bond lines **522** and **523** and respective second bond lines **524** and **525**. In contrast to bag liner **150** depicted in Figure 5, the bag liner **490** has an increased length **516** between the narrowed neck portion **494** and the bonded bottom edge **510** when compared to bottom container length **179** of bag liner **150**. The length **516** may be about **200mm**, for example. The bag liner **490** thus has a longer bottom container portion **496** operable to receive an increased amount of fluids and solid from the ostomy **20** of the user when the bag liner **490** is coupled to ostomy bag **12**, and may be operable to fit a larger ostomy bag.

Referring to Figure 13, a disposable ostomy bag apparatus according to an alternative embodiment is shown generally at **530**. The ostomy bag liner **530** has a top container portion **532**, a narrowed neck portion **534** adjacent the top container portion **532**, and a bottom container portion **536** adjacent the narrowed neck portion **534**. The top container portion **532** includes bonded angled side edges **538** and **540** and an unbonded top edge **542** defining a top opening **544**. The bottom container portion **536** includes bonded lower side edges **546** and **548**, a bonded bottom edge **550**, and channels **552** and **554**. The bonded edges **538** and **540** are sealed by edge bond line **558**, and bonded edges **546**, **548**, and **550** are double-sealed by edge bond lines **558** and **560**. The channels **552** and **554** are formed by respective first bond lines **562** and **563** and respective second bond lines **564** and **565**. In contrast to the bag liner **150** depicted in Figure 5, the bag liner **530** has a gently curved tapered bonded lower side edges **546** and **548** that taper inwardly toward the bonded bottom edge **550** of the

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liner. The bag liner **530** thus defines a narrower bottom container portion **536** operable fit into a smaller ostomy bag.

Referring to Figure **14**, a disposable ostomy bag apparatus according to an alternative embodiment is shown generally at **570**. The ostomy bag liner **570** has a top container portion **572**, a narrowed neck portion **574** adjacent the top container portion **572**, and a bottom container portion **576** adjacent the narrowed neck portion **574**. The top container portion **572** includes bonded angled side edges **578** and **580** and an unbonded top edge **582** defining a top opening **584**. The bonded edges **578** and **580** are sealed by edge bond line **598**, and bonded edges **586**, **588**, and **590** are double-sealed by edge bond lines **598** and **600**. The channels **592** and **594** are formed by respective first bond lines **602** and **603** and respective second bond lines **604** and **605**. The bottom container portion **576** includes bonded lower side edges **586** and **588**, a bonded bottom edge **590**, and channels **592** and **594**. In contrast to the bag liner **150** depicted in Figure **5**, the bag liner **570** has an increased width **596** defining a widest point of bottom container portion **536** between bonded lower side edges **546** and **548** when compared to bottom container width **189** of bag liner **150**. The width **596** may be about **190mm**, for example. The bag liner **570** thus defines a wider bottom container portion **576** operable to receive an increased amount of fluid and solid from the ostomy **20** of the when the bag liner **530** is coupled to ostomy bag **12**, and operable to fit into a larger ostomy bag.

Referring to Figure **15**, a disposable ostomy bag apparatus according to an alternative embodiment is shown generally at **610**. The ostomy bag liner **610** has a top container portion **612**, a narrowed neck portion **614** adjacent the top container portion **612**, and a bottom container portion **616** adjacent the narrowed neck portion **614**. The top container portion **612** includes bonded angled side edges **618** and **620** and an unbonded top edge **622** defining a top opening **624**. The bottom container portion **616** includes bonded lower side edges **626** and **628**, a bonded bottom edge **630**, and channels **632** and **634**. The bonded edges **618** and **620** are sealed by edge bond line **638**, and bonded edges **626**, **628**, and **630** are double-sealed by edge bond lines **638**

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and **640**. The channels **632** and **634** are formed by respective first bond lines **642** and **643** and respective second bond lines **644** and **645**. In contrast to the bag liner **150** depicted in Figure **5**, the bonded lower side edges **626** and **628** are straight rather than generally curved, which results in a greater width **636** of bonded bottom edge **630** than bonded bottom edge width **189** of bag liner **150**. The bag liner **610** thus defines a larger and more angular bottom container portion **616** operable to receive an increased amount of body fluids and solids from the ostomy **20** of the user when the bag liner **610** is coupled to ostomy bag **12**. Additionally, liner **610** may also be less expensive to manufacture due to its more angular and uniform shape.

While specific embodiments of the invention have been described and illustrated, such embodiments should be considered illustrative of the invention only and not as limiting the invention as construed in accordance with the accompanying claims.

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

1. A method of venting gas from an ostomy bag liner, the method comprising:

collecting gas, from a fluid in a volume defined by the liner, in at least one collection portion of at least one channel having at least one switchback portion in communication with at least one venting portion of the channel such that the gas travels into said at least one collection portion and changes direction in said switchback portion and then passes into said at least one venting portion;

causing said at least one channel to present greater resistance to liquid in the fluid than said gas in the fluid, such that said gas passes more freely through said at least one channel; and

venting said gas passing through said at least one venting portion through at least one opening in said at least one venting portion.

2. The method of claim 1 wherein collecting said gas in said at least one collection portion comprises collecting said gas in at least one linear collection portion.
3. The method of claim 1 or 2 wherein collecting said gas comprises causing said gas to pass from said switchback portion into at least one linear venting portion.
4. The method of any one of claims 1 – 3, wherein collecting said gas in said at least one collection portion comprises collecting said gas in at least one collection portion that is parallel to at least one venting portion.

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5. The method of any one of claims **1 – 4**, wherein causing said at least one channel to present greater resistance to said liquid than said gas comprises causing said at least one channel to present greater resistance to flow of liquid by at least one of a dimension and a position of said at least one channel.
6. The method of claim **5**, wherein causing said at least one channel to present greater resistance to said liquid than said gas comprises causing said gas to pass through at least one portion of said at least one channel having at least one of a width between about **1mm** and about **20mm** and a length between about **5mm** and about **40mm**.
7. The method of claim **5** or **6**, wherein causing said at least one channel to present greater resistance to said liquid than said gas comprises collecting said gas in at least one channel located adjacent a narrowed neck portion of the ostomy bag liner.
8. A vented ostomy bag liner apparatus comprising:
  - a flexible container having a narrowed neck portion operably held in an ostomy bag to receive and hold body fluid in an interior volume defined by said container;
  - at least one channel proximate said narrowed neck portion and operable to collect gas from the body fluid in the interior volume, said at least one channel having:
    - at least one collection portion;
    - at least one switchback portion in communication with said at least one collection portion;

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at least one venting portion in communication with said at least one switchback portion such that collected gas travels into said at least one collection portion and is caused to change direction in said switchback portion before passing into said at least one venting portion; and

at least one opening in said at least one venting portion for venting said collected gas out of said at least one venting portion.

9. The apparatus of claim 8 wherein said at least one collection portion includes a linear collection portion.
10. The apparatus of claim 8 or 9 wherein said at least one venting portion includes a linear venting portion.
11. The apparatus of any one of claims 8 – 10, wherein said at least one collecting portion and said at least one venting portion are parallel to each other.
12. The apparatus of any one of claims 8 – 11, wherein at least one portion of said at least one channel has at least one of a width between about **1mm** and about **20mm** and a length between about **5mm** and about **40mm**.
13. The apparatus of any one of claims 8 – 12, wherein at least one portion of said at least one channel has a width and a length, said width being less than said length.
14. The apparatus of claim 13, wherein said width of said at least one portion is about **10%** to about **40%** of said length of said at least one portion.



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**15.** The apparatus of any one of claims **8 – 12**, wherein a width of said at least one collection portion is generally equal to a width of said at least one venting portion.

**16.** The apparatus of any one of claims **8 – 15**, wherein said container includes a top container portion, said narrowed neck portion adjacent said top container portion, and a bottom container portion adjacent said narrowed necked portion, wherein:

said top container portion includes first and second angled side edges extending outwardly relative to a longitudinal axis of said container and a top edge extending between said first and second angled side edges to define a top opening operable to receive the body fluids; and

said bottom container portion includes first and second lower side edges and a bottom edge, wherein said first and second lower side edges include respective first and second adjacent edge portions disposed adjacent said narrowed neck portion.

**17.** The apparatus of claim **16**, wherein said at least one channel is disposed adjacent to at least one of said first and second adjacent edge portions.

**18.** The apparatus of claim **16** or **17**, wherein said container comprises first and second sheet portions bound to each other, each said sheet portion having bonded edges and unbonded edges wherein:

said bonded edges include said first and second angled side edges, said first and second lower side edges, and said bottom edge; and

said unbonded edges include said top edge.

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19. The apparatus of claim **18**, further comprising a plurality of bond lines bonding said first and second sheet portions together at locations to define said at least one channel.
20. The apparatus of claim **19** wherein said plurality of bond lines includes first and second bond lines proximate to and extending from at least one of said first and second side edges, wherein said first and second bond lines include a first and a second straight portion respectively, and a first and a second curved portion respectively.
21. The apparatus of claim **20** wherein said first and second straight portions are parallel and spaced apart from each other.
22. The apparatus of claim **20 or 21**, wherein said first and second curved portions extend from spaced apart locations on said at least one of said first and second side edges, and wherein at least one of said first and second straight portions is parallel to, spaced apart from and adjacent to said at least one of said first and second side edge portions.
23. The apparatus of any one of claims **18 – 22**, wherein said bonded edges are heat-bonded.
24. The apparatus of any one of claims **19 – 23**, wherein said plurality of bond lines are heat-bonded.
25. The apparatus of any one of claims **18 – 24**, wherein said first and second sheet portions are formed of at least one of a biodegradable film, a compostable film and a polyethylene material.
26. The apparatus of claim **18 – 25**, wherein said first and second sheet portions have a thickness of between about **0.0015**mm and about **0.0040**mm.

27. The apparatus of any one of claims **16 – 26**, wherein at least one of said first and second angled edges are at an angle between about **20** and **90** degrees relative to said longitudinal axis of the container.
28. The apparatus of any one of claims **16 – 27**, wherein said top edge defines an opening with a width between about **100mm** and about **200mm**,
29. The apparatus of any one of claims **16 – 28**, wherein said bottom edge has a width between about **50mm** and about **100mm**.
30. The apparatus of any one of claims **16 – 29**, wherein said bottom edge and said narrowed neck portion are spaced apart by a distance between about **100mm** and about **200mm**.
31. The apparatus of any one of claims **16 – 30**, wherein said narrowed neck portion and said top edge are spaced apart by a distance between about **50mm** and about **100mm**.
32. The apparatus of any one of claims **16 – 31**, wherein said bottom container portion has an average width greater than a width of the narrowed neck portion.
33. The apparatus of any one of claims **8 – 32**, wherein said narrowed neck portion has a width between about **30mm** and about **180mm**.
34. The apparatus of any one of claims **8 – 33**, wherein said at least one opening has a diameter of about **0.60mm**.

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY  
OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

AMENDED CLAIMS

received by the International Bureau on 21 July 2016 (21.07.2016)

1. A method of venting gas from an ostomy bag liner having an unbonded top edge for receiving body fluid and bonded first side, second side and bottom edges to define an interior volume for holding the body fluid, the method
- 5 comprising:
- collecting gas, from the body fluid held in the interior volume, in at least one collection portion of at least one channel defined by bond lines extending from at least one of the bonded first side edge and the bonded
- 10 second side edge, the at least one channel having at least one switchback portion in communication with at least one venting portion of the channel such that the gas travels into said at least one collection portion and changes direction in said switchback portion and then passes into said at least one venting portion;
- 15 causing said at least one channel to present greater resistance to liquid in the fluid than said gas in the fluid, such that said gas passes more freely through said at least one channel; and
- 20 venting said gas passing through said at least one venting portion through at least one opening in said at least one venting portion.
2. The method of claim 1 wherein collecting said gas in said at least one collection portion comprises collecting said gas in at least one linear collection portion.
- 25
3. The method of claim 1 or 2 wherein collecting said gas comprises causing said gas to pass from said switchback portion into at least one linear venting portion.

4. The method of any one of claims 1 – 3, wherein collecting said gas in said at least one collection portion comprises collecting said gas in at least one collection portion that is parallel to at least one venting portion.
- 5 5. The method of any one of claims 1 – 4, wherein collecting said gas in said at least one collection portion comprises collecting said gas in a collection portion of a channel defined by a first bond line and a second bond line extending from at least one of said bonded first side edge and said bonded second side edge.
- 10 6. The method of any one of claims 1 – 5, wherein causing said at least one channel to present greater resistance to said liquid than said gas comprises causing said at least one channel to present greater resistance to flow of liquid by at least one of a dimension and a position of said at least one channel.
- 15 7. The method of claim 6, wherein causing said at least one channel to present greater resistance to said liquid than said gas comprises causing said gas to pass through at least one portion of said at least one channel having at least one of a width between about 1mm and about 20mm and a length between about 5mm and about 40mm.
- 20 8. The method of claim 6 or 7, wherein causing said at least one channel to present greater resistance to said liquid than said gas comprises collecting said gas in at least one channel located adjacent a narrowed neck portion of the ostomy bag liner.
- 25 9. A vented ostomy bag liner apparatus comprising:
- a flexible container having a narrowed neck portion operably configured to be held in an ostomy bag, said container having:
- 30 an unbonded top edge for receiving body fluid; and

bonded first side, second side and bottom edges to define an interior volume for holding said body fluid;

5 bond lines extending from at least one of said bonded first side edge and said bonded second side edge to define at least one channel proximate said narrowed neck portion, said at least one channel operable to collect gas from the body fluid in the interior volume and having:

10 at least one collection portion;

at least one switchback portion in communication with said at least one collection portion;

15 at least one venting portion in communication with said at least one switchback portion such that collected gas travels into said at least one collection portion and is caused to change direction in said switchback portion before passing into said at least one venting portion; and

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at least one opening in said at least one venting portion for venting said collected gas out of said at least one venting portion.

25 **10.** The apparatus of claim **9** wherein said at least one collection portion includes a linear collection portion.

**11.** The apparatus of claim **9** or **10** wherein said at least one venting portion includes a linear venting portion.

30 **12.** The apparatus of any one of claims **9 – 11**, wherein said at least one collecting portion and said at least one venting portion are parallel to each other.

13. The apparatus of any one of claims 9 – 12, wherein at least one portion of said at least one channel has at least one of a width between about 1mm and about 20mm and a length between about 5mm and about 40mm.

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14. The apparatus of any one of claims 9 – 13, wherein at least one portion of said at least one channel has a width and a length, said width being less than said length.

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15. The apparatus of claim 14, wherein said width of said at least one portion is about 10% to about 40% of said length of said at least one portion.

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16. The apparatus of any one of claims 9 – 13, wherein a width of said at least one collection portion is generally equal to a width of said at least one venting portion.

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17. The apparatus of any one of claims 9 – 16, wherein said container includes a top container portion, said narrowed neck portion adjacent said top container portion, and a bottom container portion adjacent said narrowed necked portion, wherein:

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said top container portion includes first and second angled side edges extending outwardly relative to a longitudinal axis of said container and a top edge extending between said first and second angled side edges to define a top opening operable to receive the body fluids; and

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said bottom container portion includes first and second lower side edges and a bottom edge, wherein said first and second lower side edges include respective first and second adjacent edge portions disposed adjacent said narrowed neck portion.

18. The apparatus of claim 17, wherein said at least one channel is disposed adjacent to at least one of said first and second adjacent edge portions.

19. The apparatus of claim 17 or 18, wherein:

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said bonded first side edge includes said first angled side edge and said first lower side edge;

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said bonded second side edge includes said second angled side edge and said second lower side edge;

said bonded bottom edge includes said bottom edge; and

said unbonded top edge includes said top edge.

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20. The apparatus of any one of claims 9 – 19, wherein said container comprises first and second sheet portions bound to each other at said bonded first side, second side and bottom edges.

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21. The apparatus of claim 20, wherein said bond lines bond said first and second sheet portions together at locations to define said at least one channel.

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22. The apparatus of any one of claims 9 – 21 wherein said bond lines includes first and second bond lines proximate to and extending from at least one of said bonded first side edge and said bonded second side edge, wherein said first and second bond lines include a first and a second straight portion respectively, and a first and a second curved portion respectively.

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23. The apparatus of claim 22 wherein said first and second straight portions are parallel and spaced apart from each other.



- 5 24. The apparatus of claim **22** or **23**, wherein said first and second curved portions extend from spaced apart locations on said at least one of said bonded first side edge and said bonded second side edge, and wherein at least one of said first and second straight portions is parallel to, spaced apart from and adjacent to said at least one of said bonded first side edge and said bonded second side edge.
- 10 25. The apparatus of any one of claims **9** – **24**, wherein said bonded edges are heat-bonded.
26. The apparatus of any one of claims **9** – **25**, wherein said bond lines are heat-bonded.
- 15 27. The apparatus of any one of claims **20** – **26**, wherein said first and second sheet portions are formed of at least one of a biodegradable film, a compostable film and a polyethylene material.
- 20 28. The apparatus of claim **20** – **27**, wherein said first and second sheet portions have a thickness of between about **0.0015mm** and about **0.0040mm**.
- 25 29. The apparatus of any one of claims **17** – **28**, wherein at least one of said first and second angled edges are at an angle between about **20** and **90** degrees relative to said longitudinal axis of the container.
30. The apparatus of any one of claims **9** – **29**, wherein said unbonded top edge defines an opening with a width between about **100mm** and about **200mm**,
- 30 31. The apparatus of any one of claims **9** – **30**, wherein said bonded bottom edge has a width between about **50mm** and about **100mm**.

32. The apparatus of any one of claims 9 – 31, wherein said bonded bottom edge and said narrowed neck portion are spaced apart by a distance between about **100mm** and about **200mm**.
- 5 33. The apparatus of any one of claims 9 – 32, wherein said narrowed neck portion and said unbonded top edge are spaced apart by a distance between about **50mm** and about **100mm**.
- 10 34. The apparatus of any one of claims 17 – 33, wherein said bottom container portion has an average width greater than a width of the narrowed neck portion.
35. The apparatus of any one of claims 9 – 34, wherein said narrowed neck portion has a width between about **30mm** and about **180mm**.
- 15 36. The apparatus of any one of claims 9 – 35, wherein said at least one opening has a diameter of about **0.60mm**.

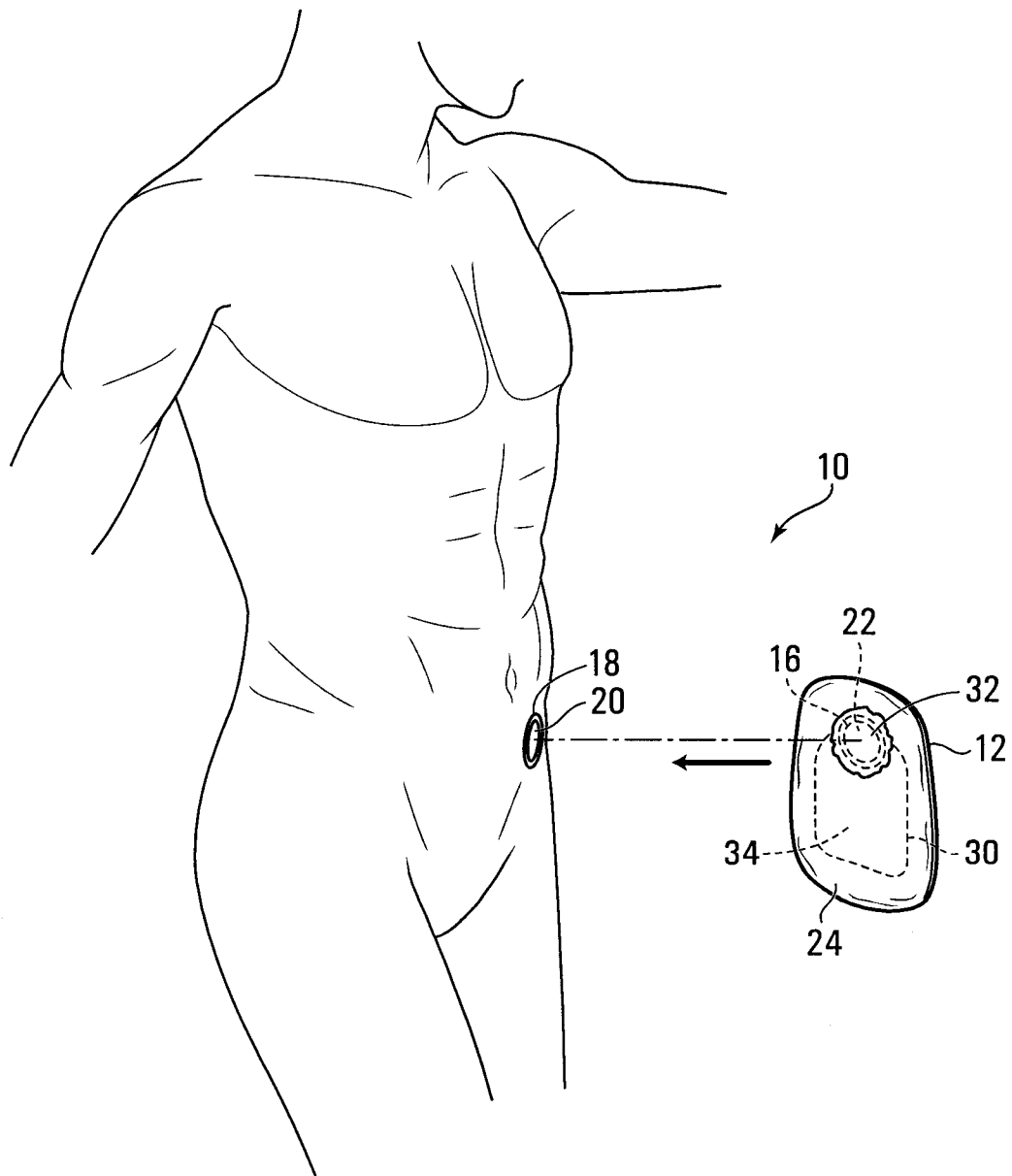
**STATEMENT ACCOMPANYING AMENDMENT UNDER ARTICLE 19**

Independent claims 1 and 9 (formerly 8) have been amended to recite that:

- a) the ostomy bag liner has *an unbonded top edge for receiving body fluid and a bonded first side, second side and bottom edges to define an interior volume for holding said body fluid*; and
- b) *bond lines extending from at least one of said bonded first side edge and said bonded second side edge define at least one channel.*

The ostomy bag liner 38 of US patent no. 5,423,782 ("Wolrich") has first and second pairs 52 and 54 of gas vent openings 56 and first and second guards 58 and 60 both formed of a single line (see col. 5, lns. 47-55). Wolrich does not disclose or suggest *bond lines which extend from at least one of a bonded first side edge and a bonded second side edge to define at least one channel* as recited by amended independent claims 1 and 9.

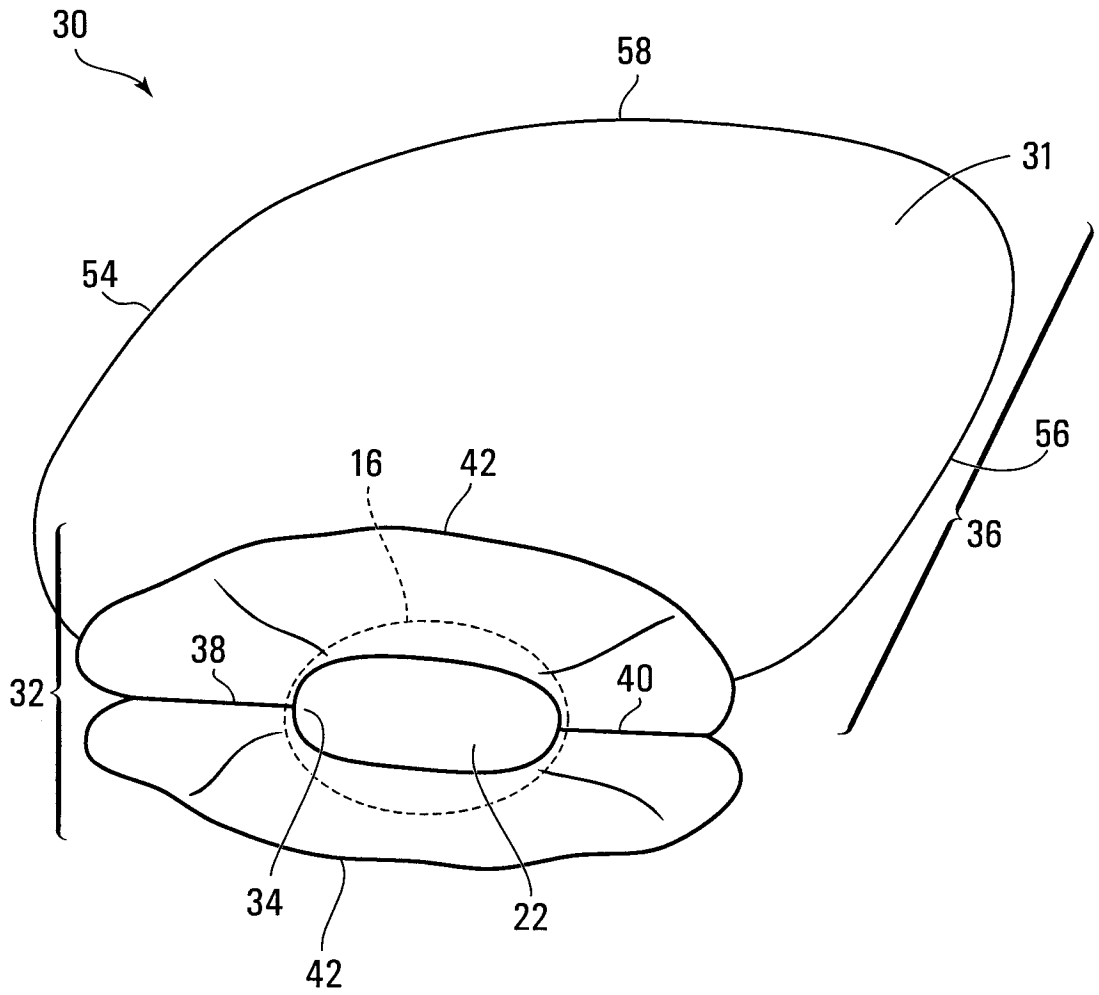
The colostomy bag of 1 CA patent no. 2,622,246 ("Longstaff") is formed from two planar sheets of flexible thermoplastic material heat-sealed around the perimeter thereof and which includes a stoma ring 2 generally disposed in the centre (see pg. 4, lns. 11-16 and Figure 3). Longstaff further discloses "a vertical baffle 15 extending from the heat seal at the upper end 11 of bag 1 to a level slightly below the bottom of the stoma ring" [emphasis added] (see pg. 5, lns. 4-6). However, Longstaff also fails to disclose or suggest *bond lines which extend from at least one of a bonded first side edge and a bonded second side edge to define at least one channel* as recited by amended independent claims 1 and 9.



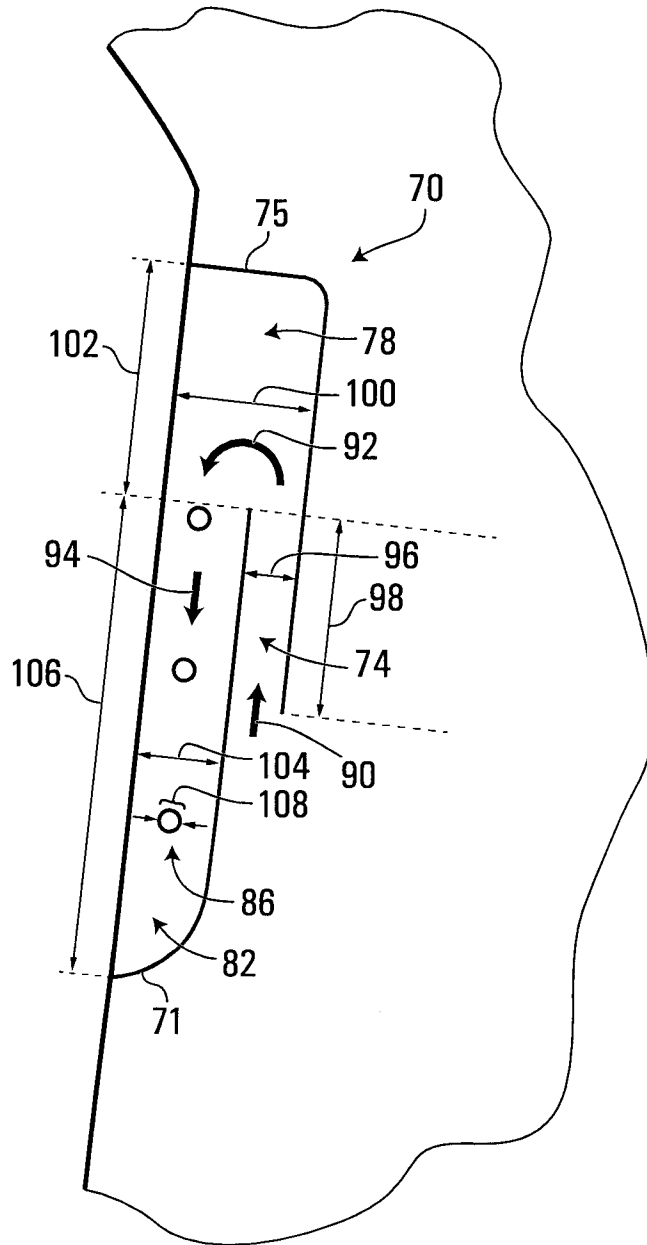
**FIG. 1**



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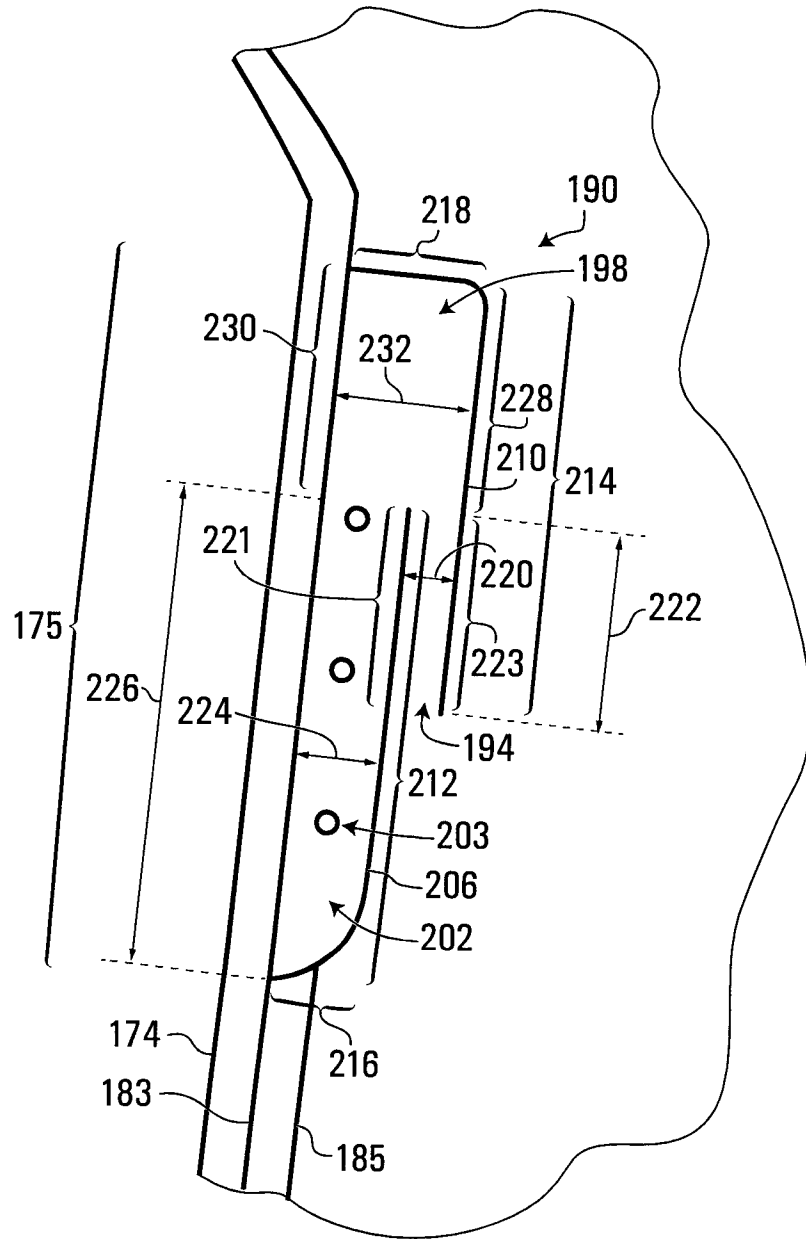
**FIG. 3**



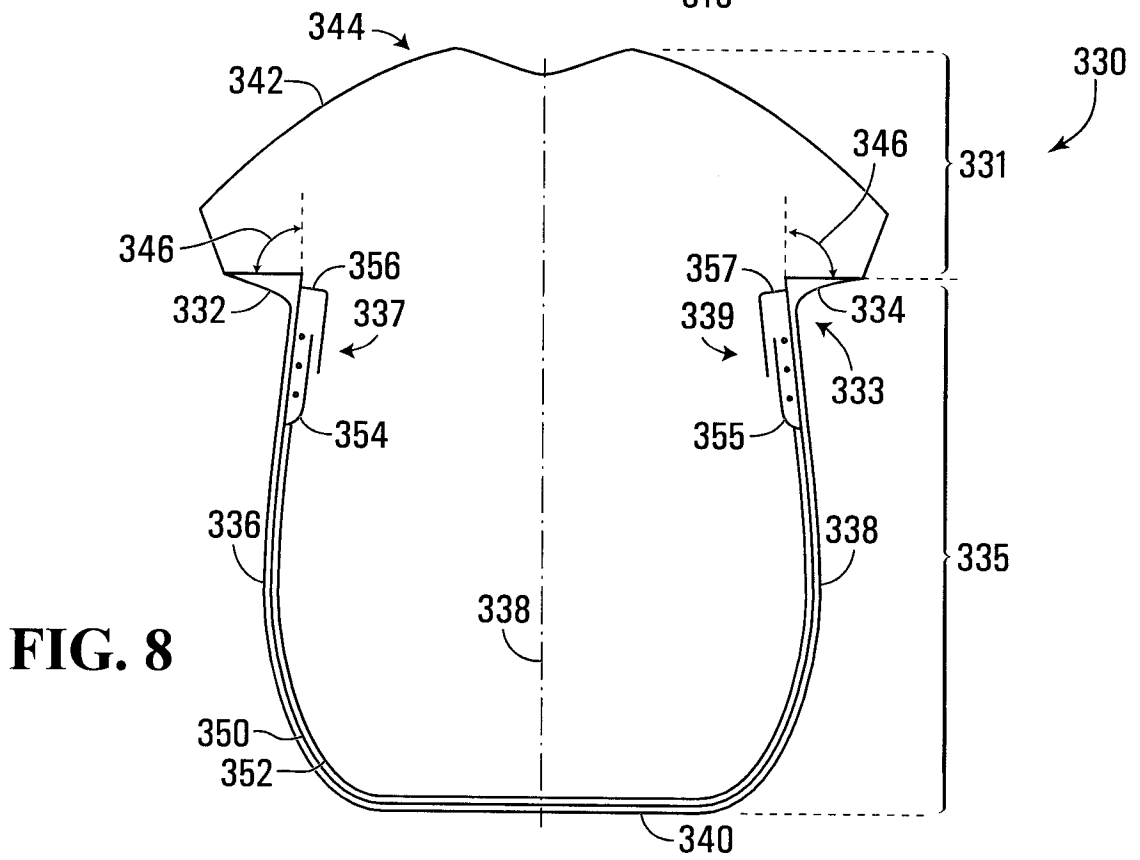
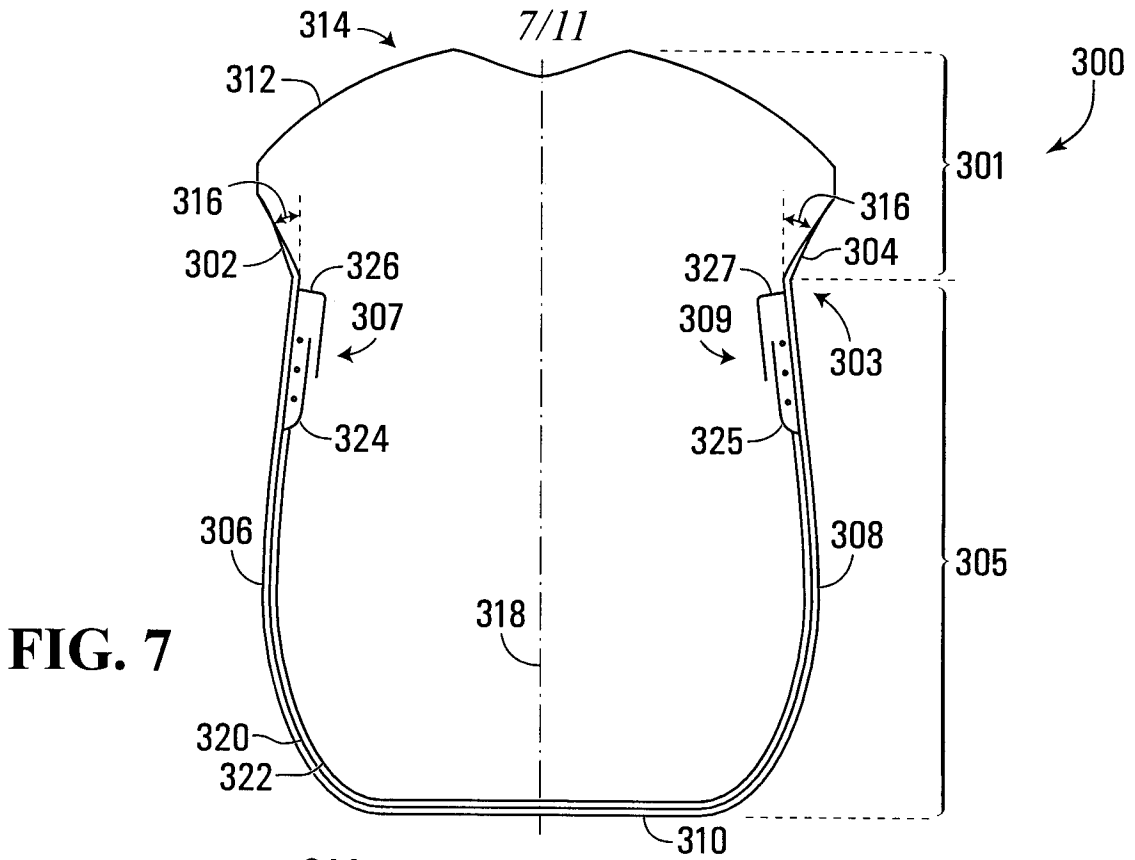
**FIG. 4**

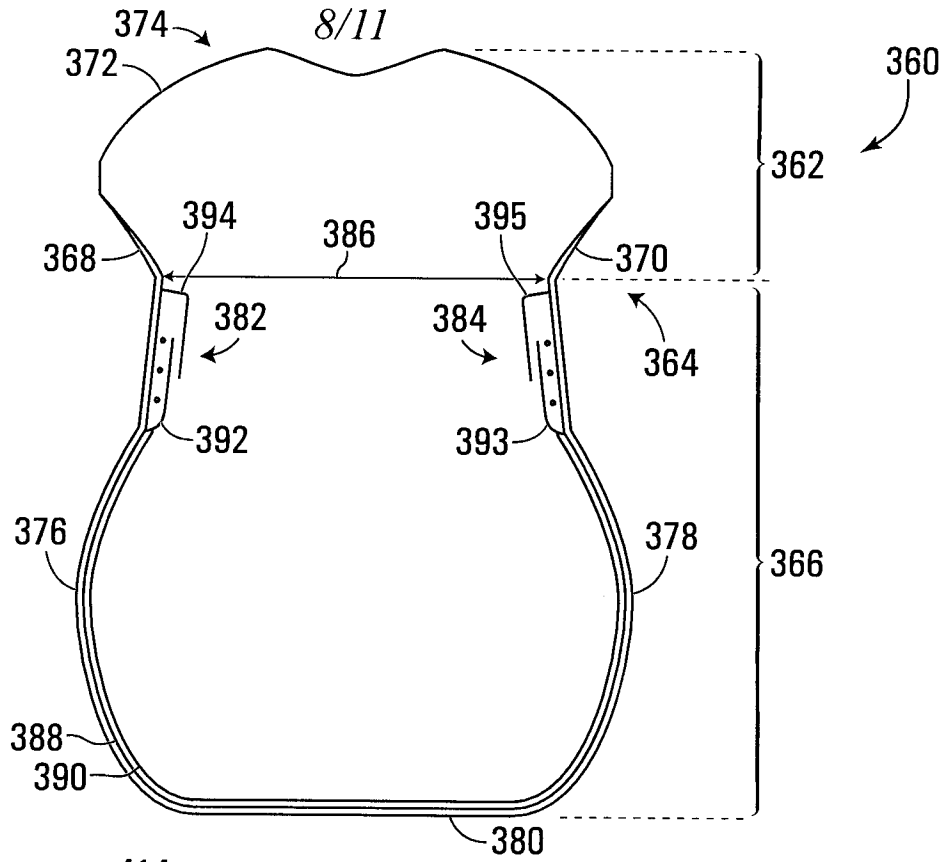




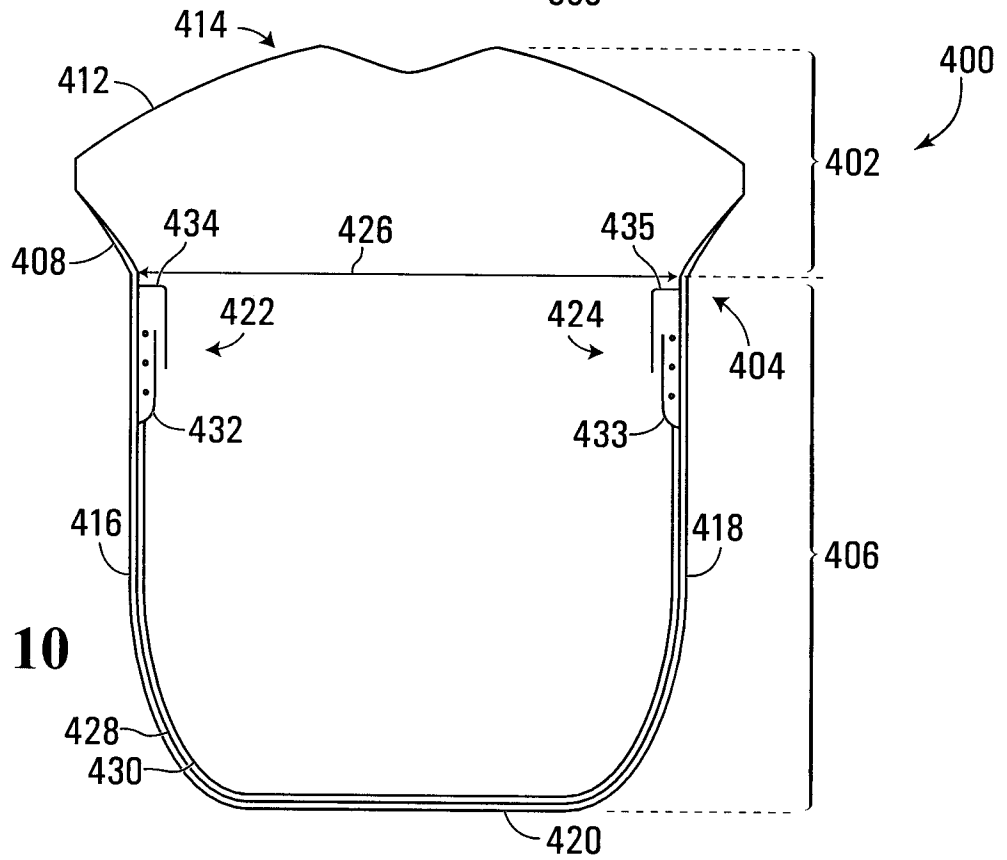


**FIG. 6**

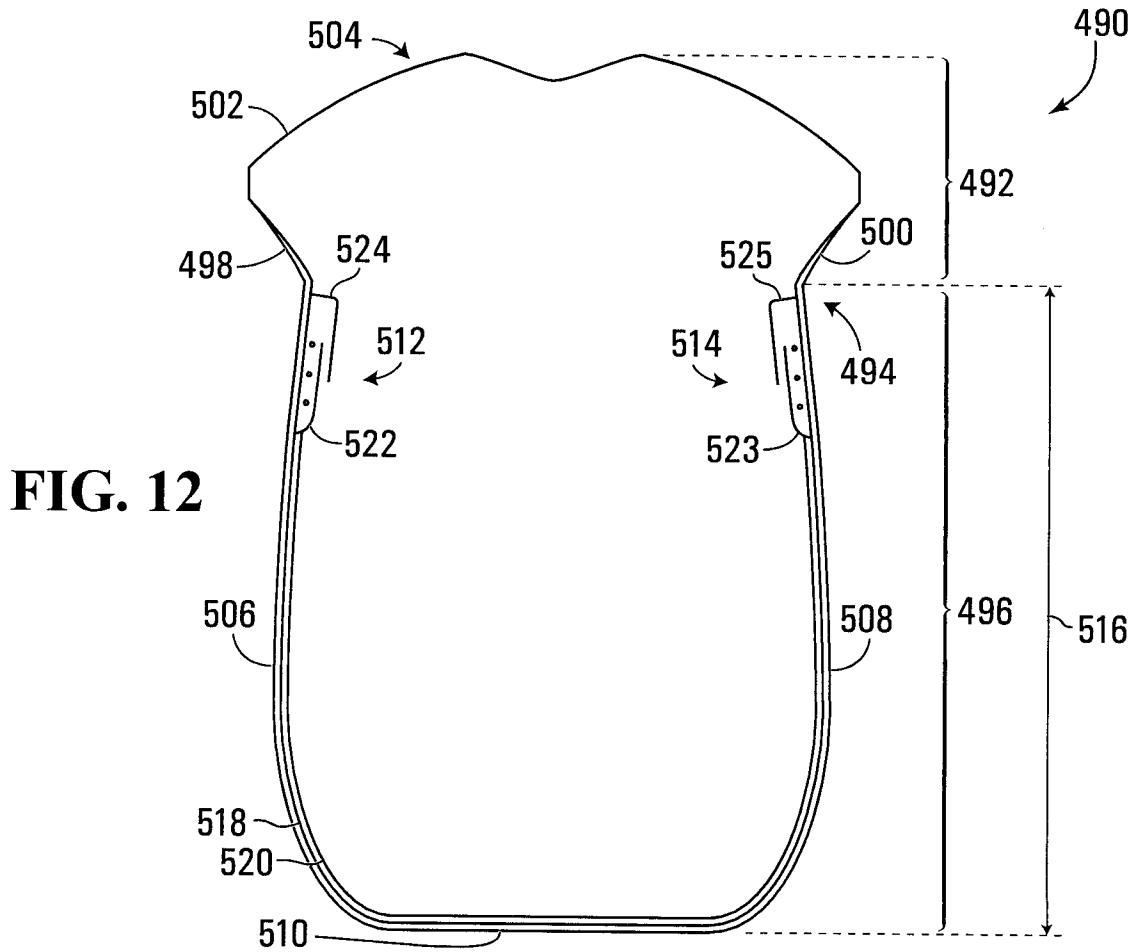
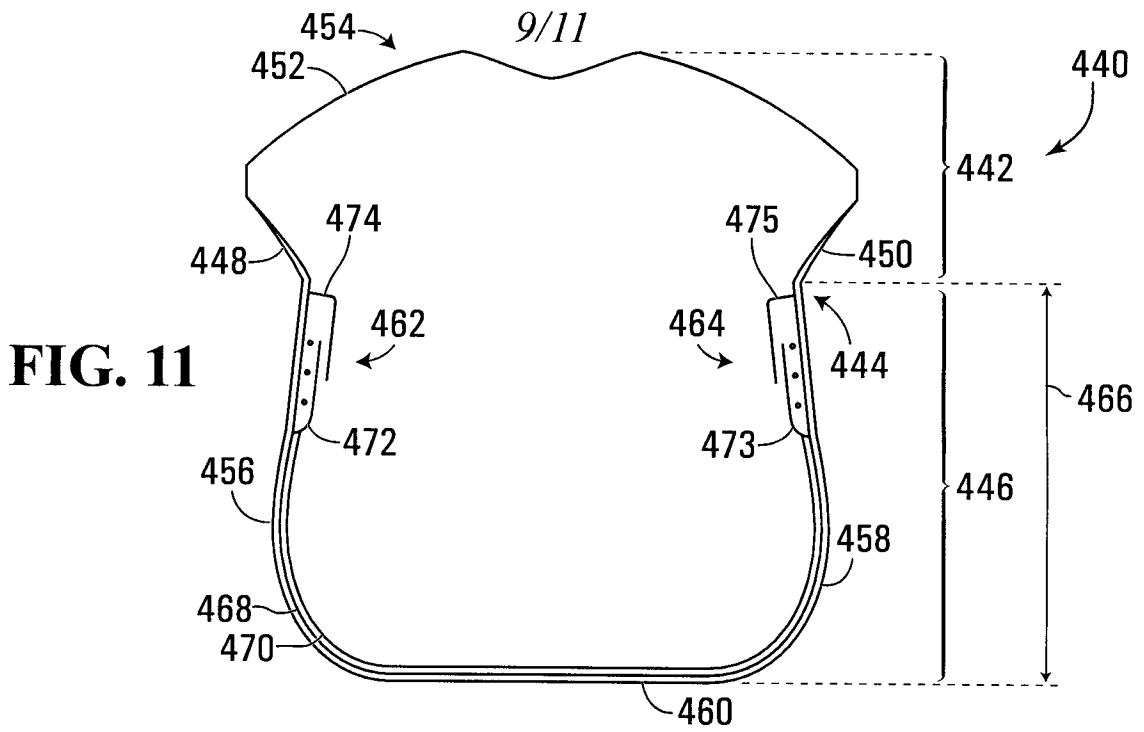




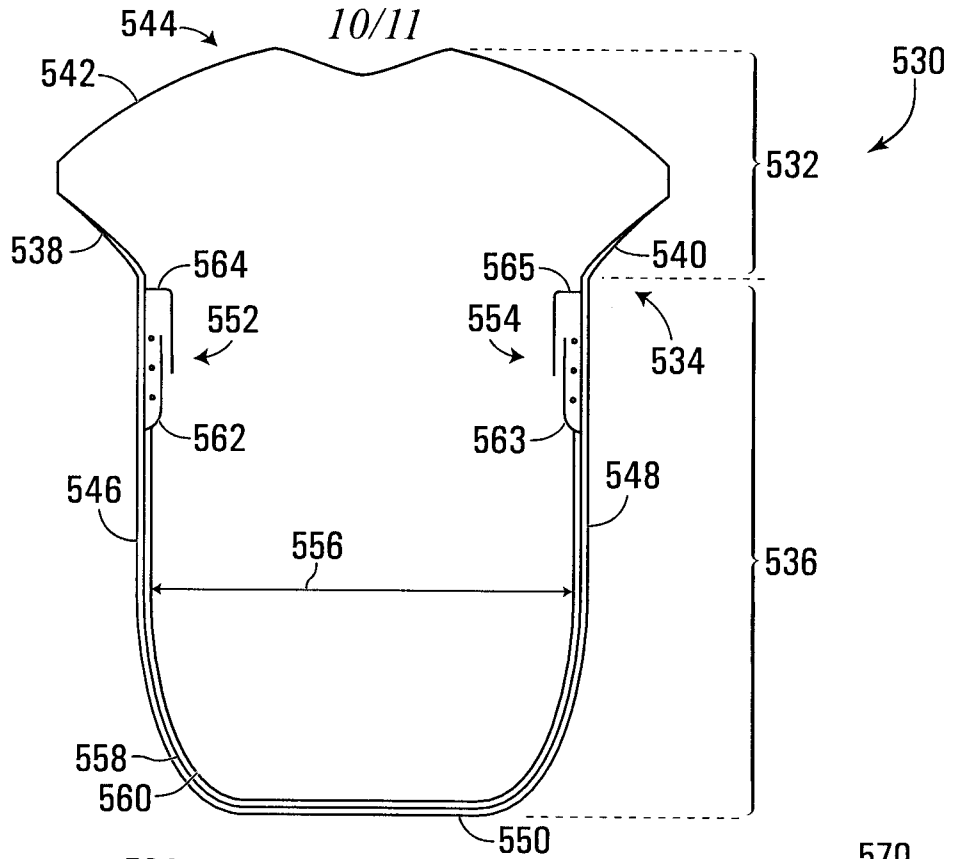
**FIG. 9**



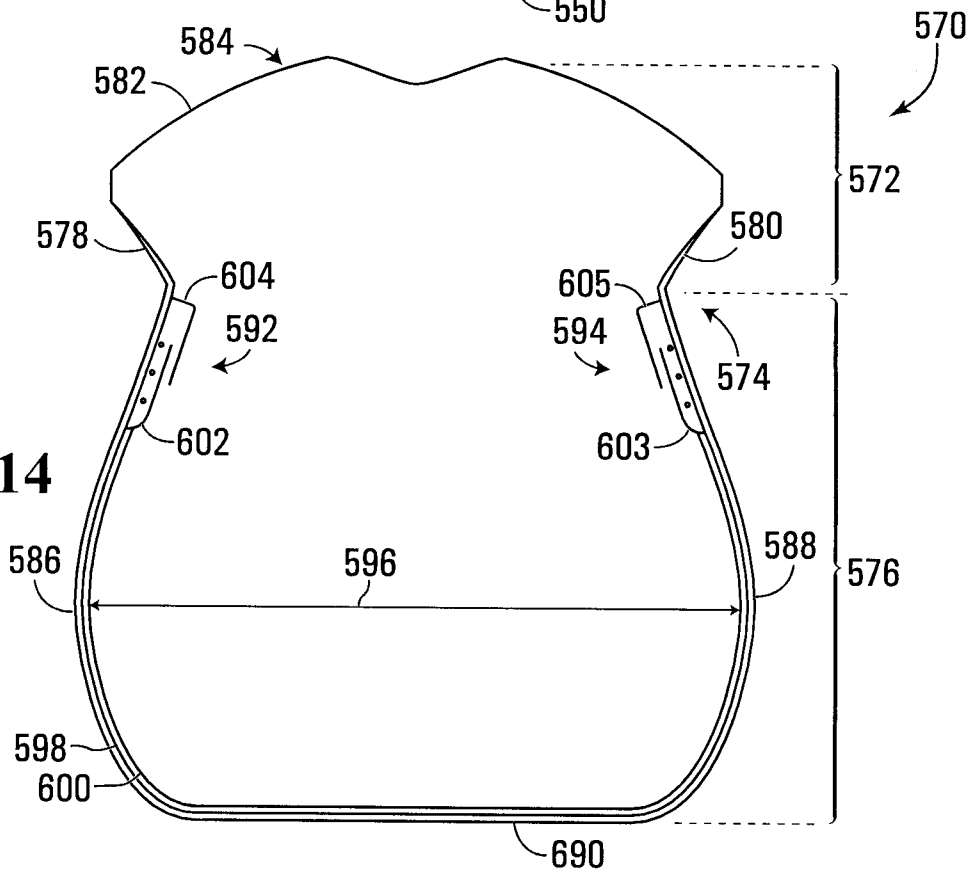
**FIG. 10**

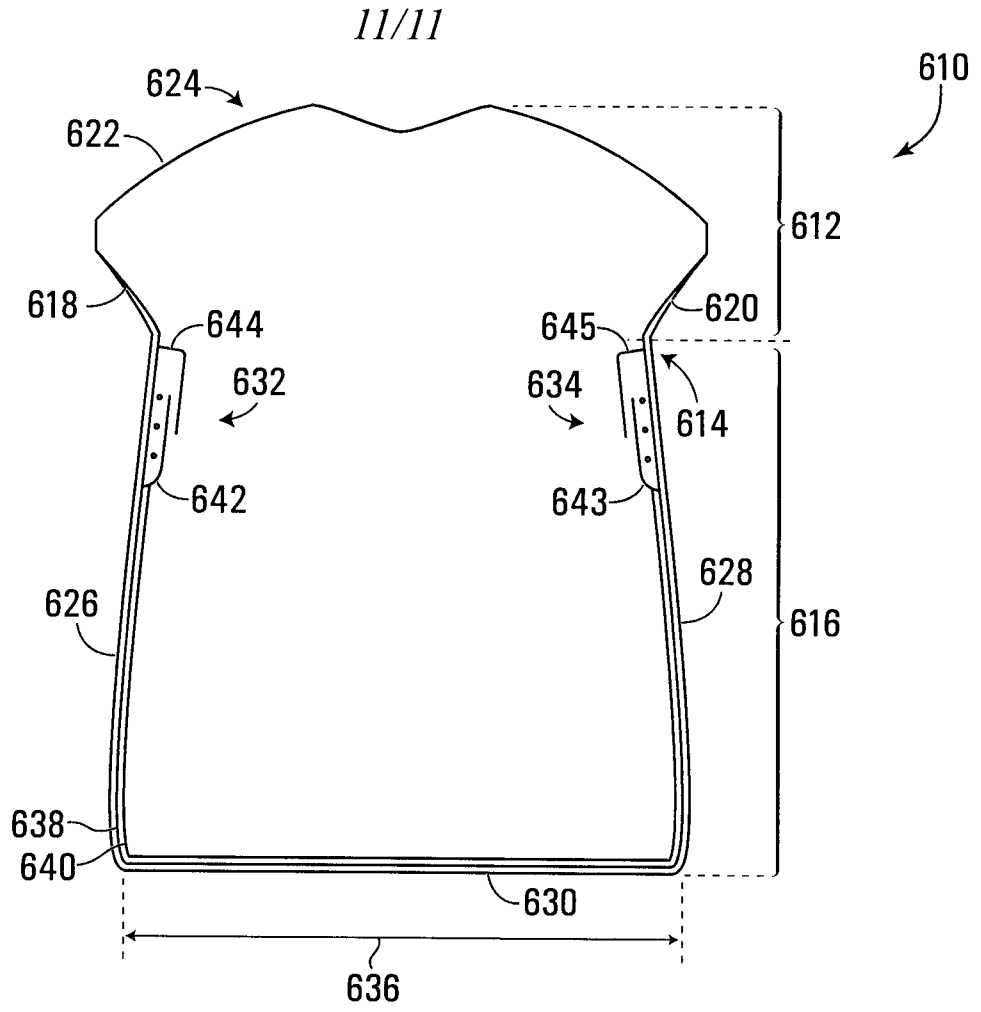


**FIG. 13**



**FIG. 14**





**FIG. 15**

## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/CA2015/000184**A. CLASSIFICATION OF SUBJECT MATTER  
IPC: *A61F 5/445* (2006.01), *A61F 5/44* (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
*A61F 5/44* (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)  
Questel Orbit

Keywords: ostomy, bag, pouch, vent, liner, gas, container, insert

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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 Further documents are listed in the continuation of Box C. See patent family annex.

* "A" "E" "L" "O" "P"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance earlier application or patent but published on or after the international filing date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed	"T" "X" "Y" "&"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art document member of the same patent family
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Date of the actual completion of the international search  
17 April 2015 (17-04-2015)Date of mailing of the international search report  
10 June 2015 (10-06-2015)Name and mailing address of the ISA/CA  
Canadian Intellectual Property Office  
Place du Portage I, C114 - 1st Floor, Box PCT  
50 Victoria Street  
Gatineau, Quebec K1A 0C9  
Facsimile No.: 001-819-953-2476

Authorized officer

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**INTERNATIONAL SEARCH REPORT**  
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