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Tanaka

(54) **STRUCTURE OF AIR PASSAGE OF SEALABLE BAG, SEALABLE BAG, AND METHOD OF MANUFACTURING THE SEALABLE BAG**

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(57) **ABSTRACT**

A structure of an air passage of a sealable bag is provided wherein bag sheets **11**, **12** and a valve body sheet **31** layered between the bag sheets **11**, **12** are used. The valve body sheet **31** comprises a front piece **31***a* and a rear piece **31***b*, and a air passing space is formed between the front bag sheet **11** and the front piece **31***a*, as well as between the rear bag sheet **12** and the rear piece **31***b*, while a dead-end space is formed between the front piece **31***a* and the rear piece **31***b*. In said valve body, at one side based on the direction of flow of air in the air passage **3**, said dead-end space is closed by said front piece **31***a* and rear piece **31***b* that are joined together, while on the other side, said dead-end space is opened by said front piece **31***a* and the rear piece **31***b* that are separated from each other.

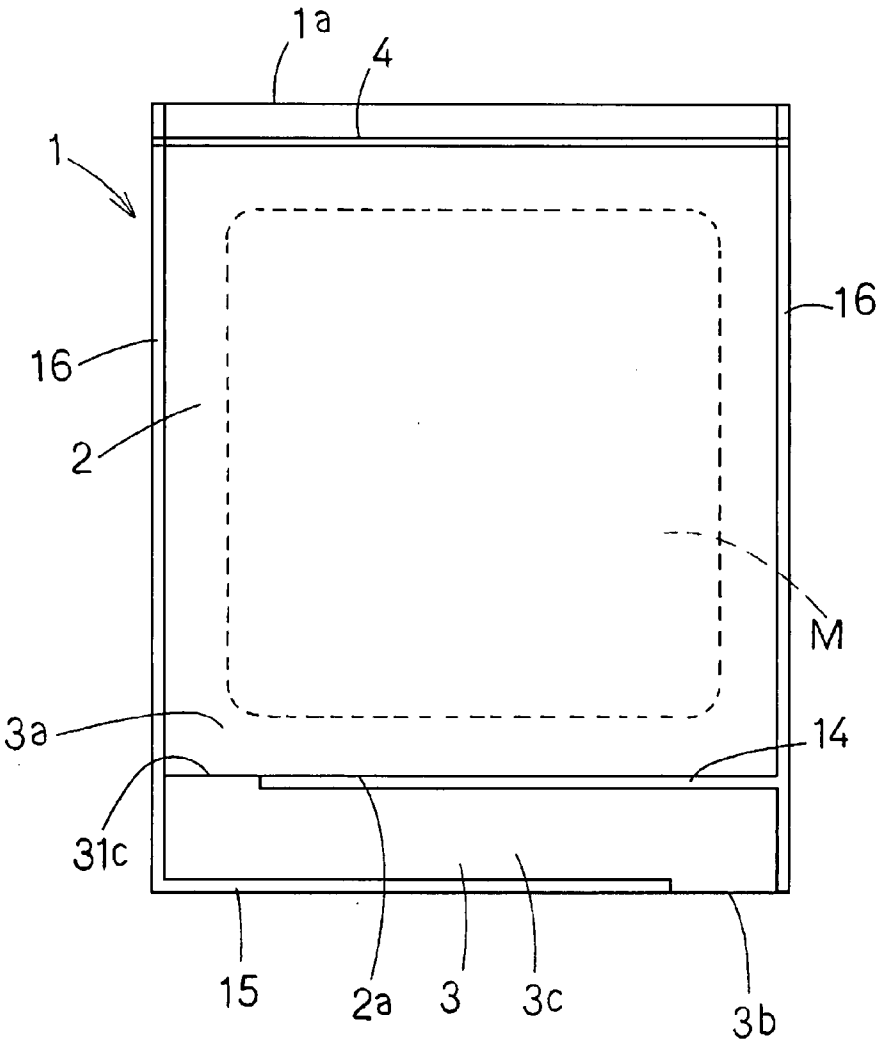


FIG 1

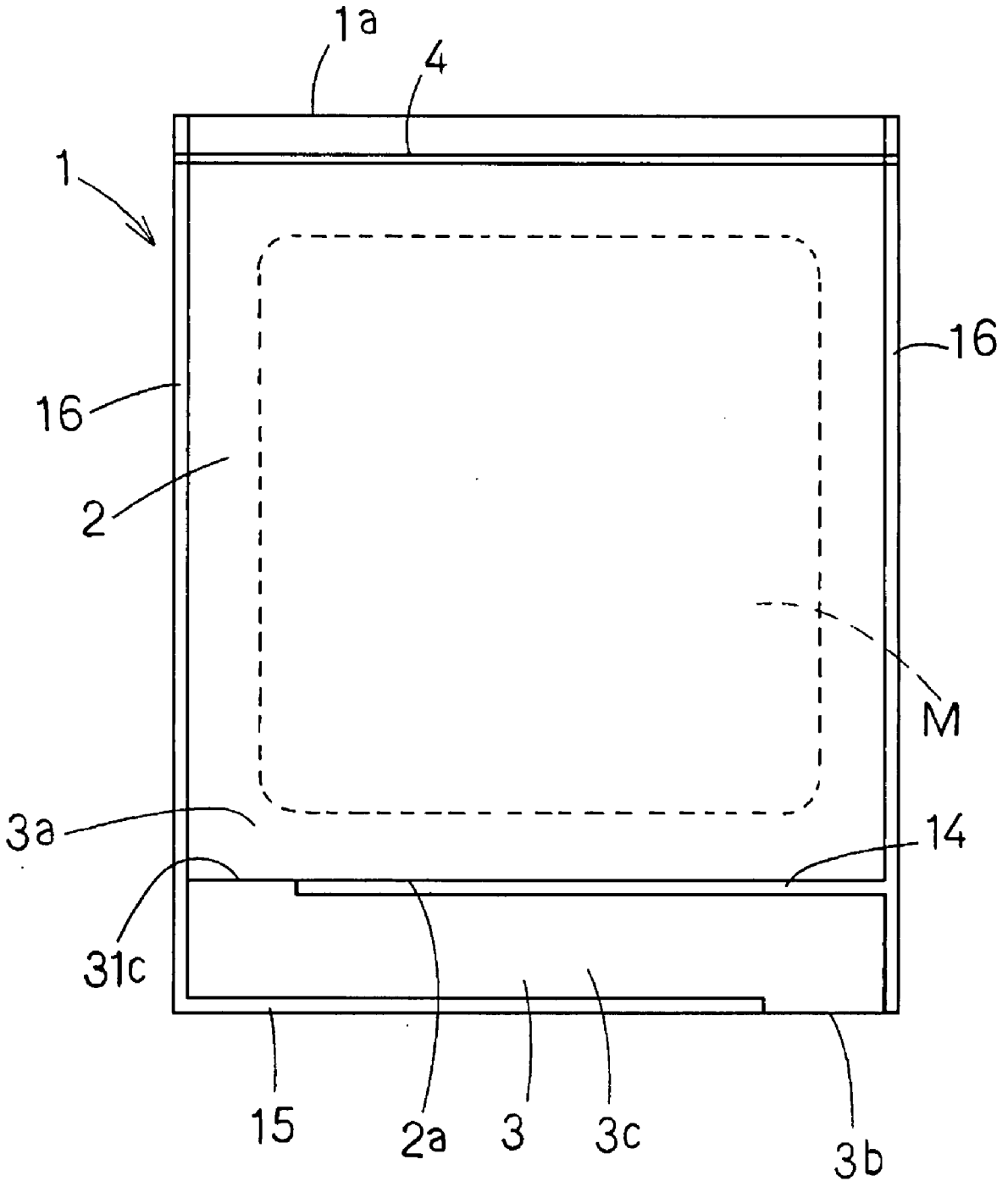


FIG 2

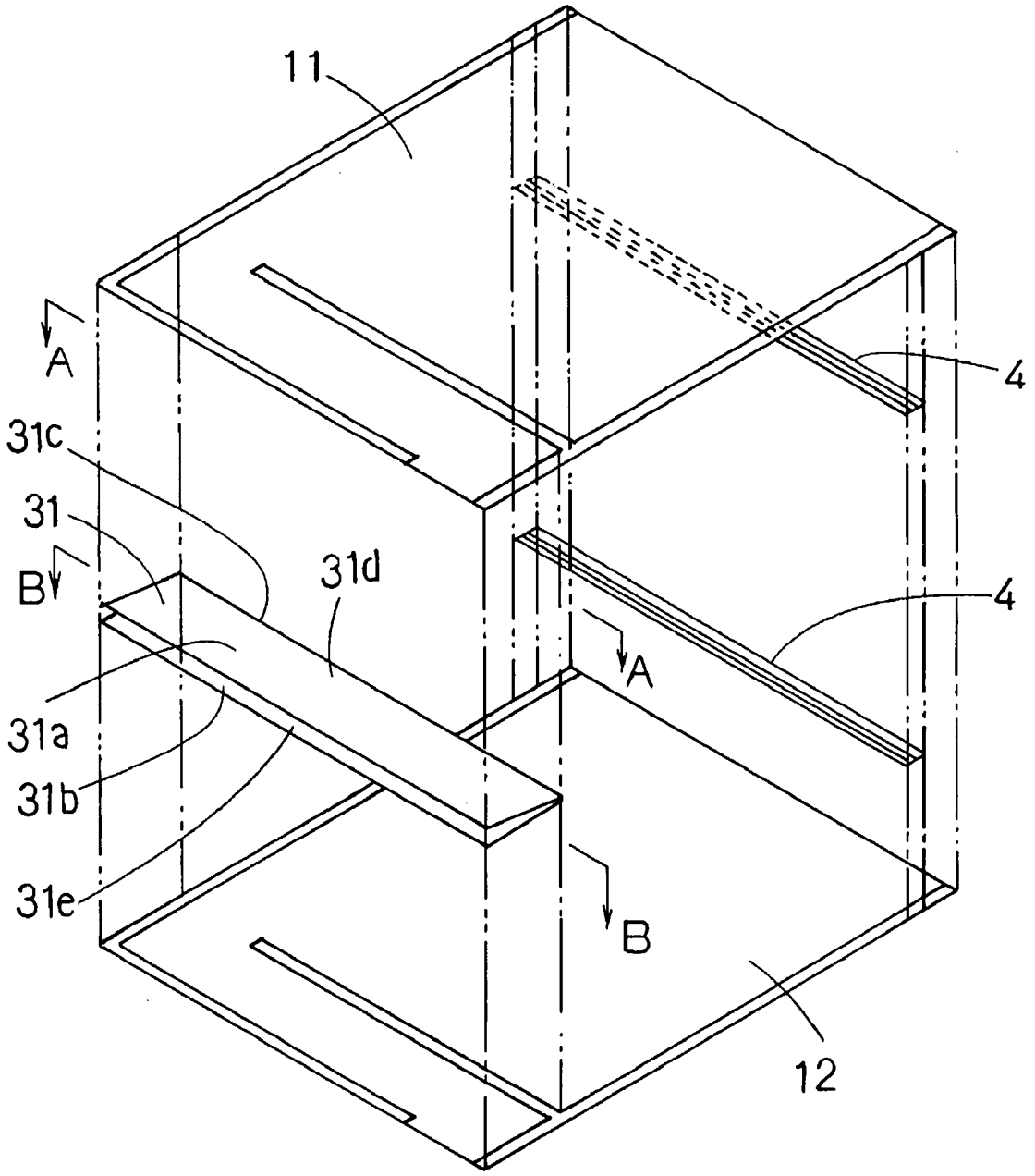


FIG 3 (A)

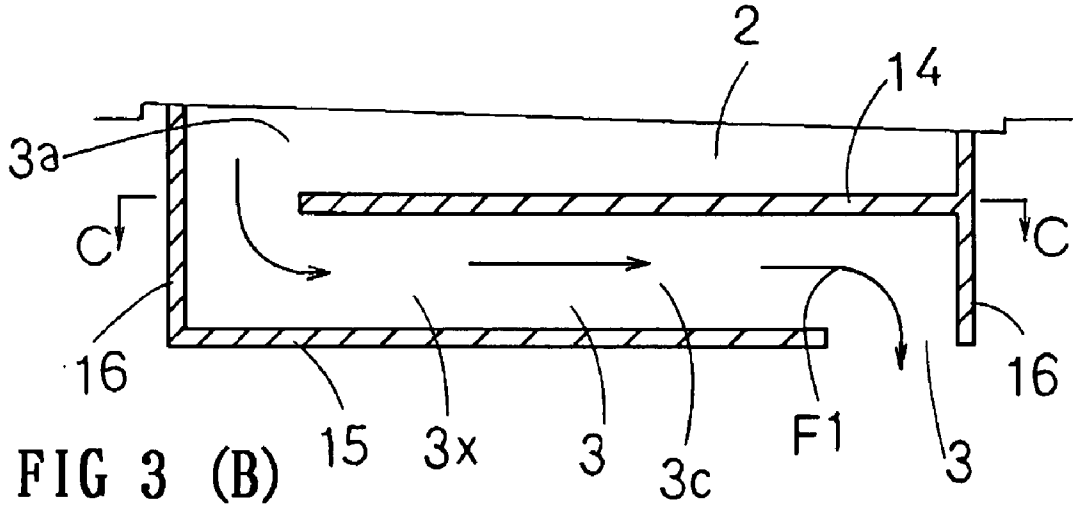


FIG 3 (B)

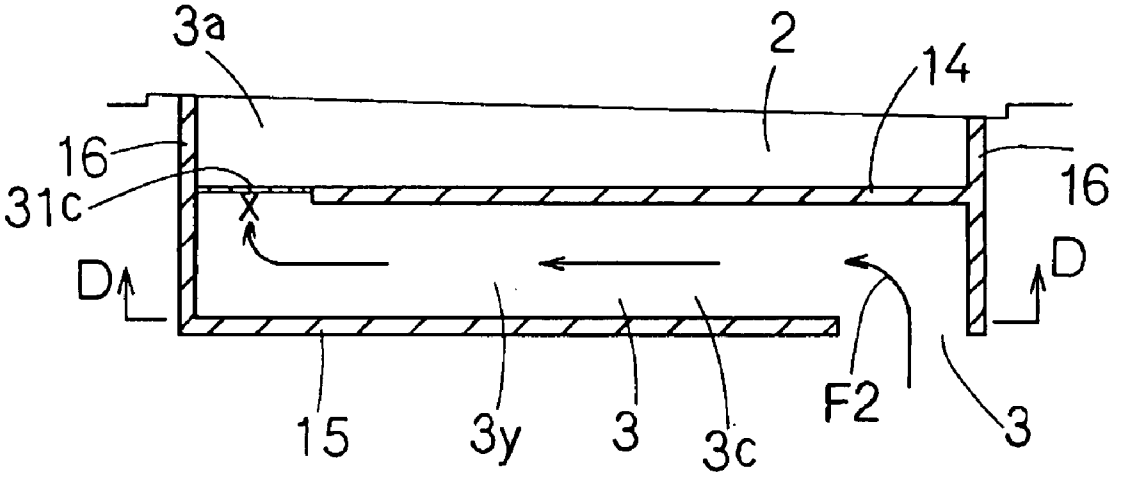


FIG 3 (C)

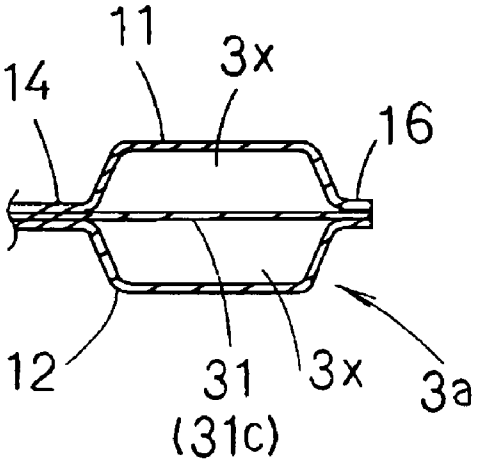


FIG 3 (D)

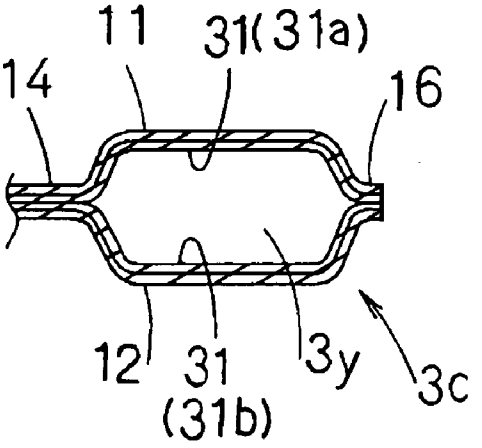


FIG 4 (A)

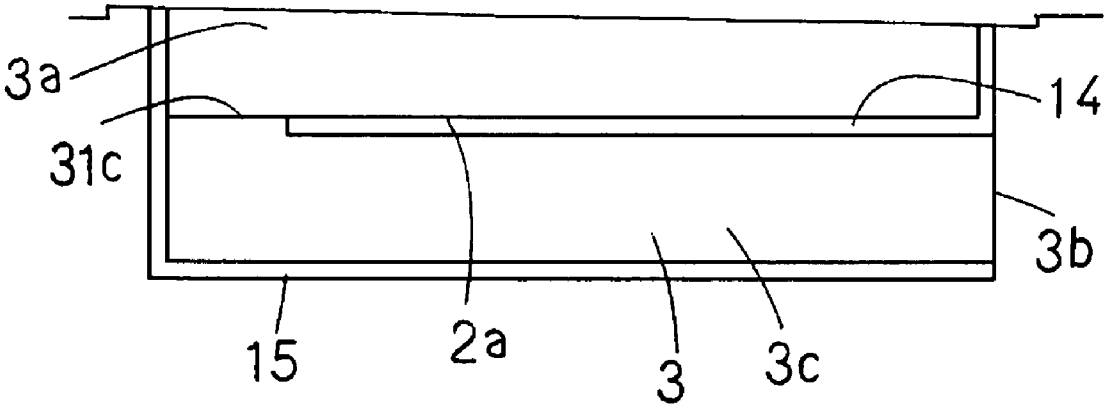


FIG 4 (B)

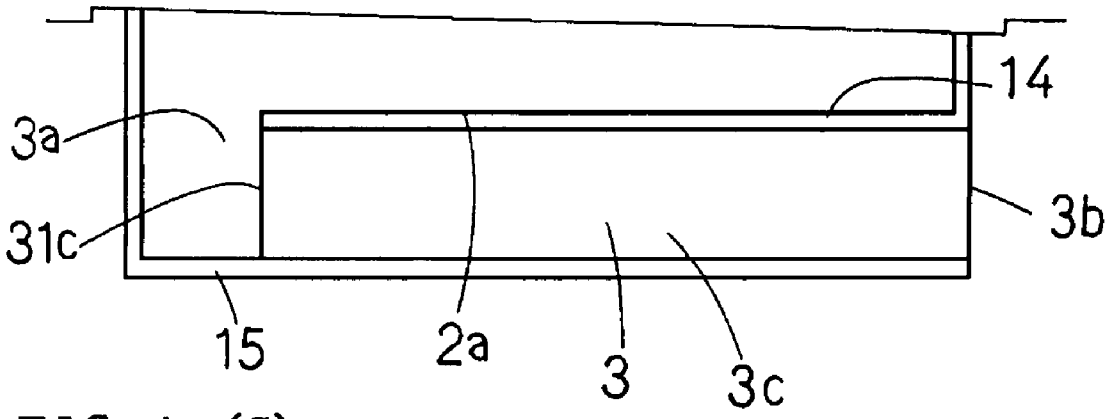


FIG 4 (C)

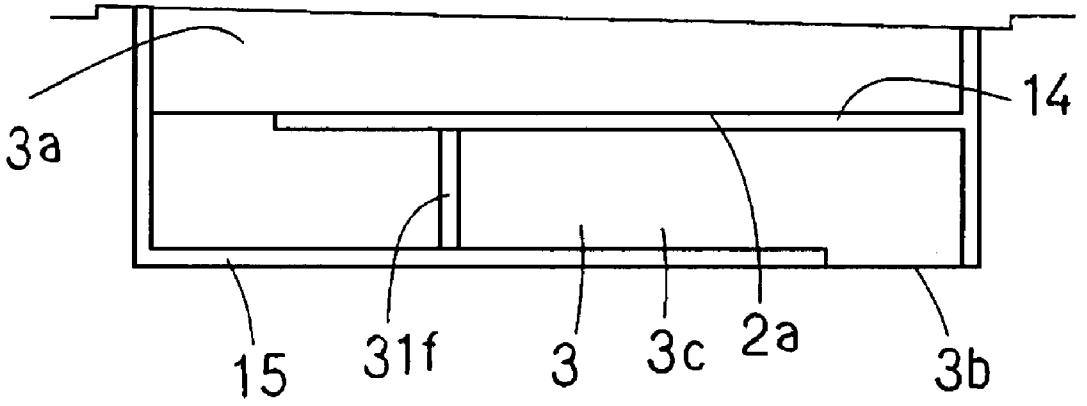


FIG 5

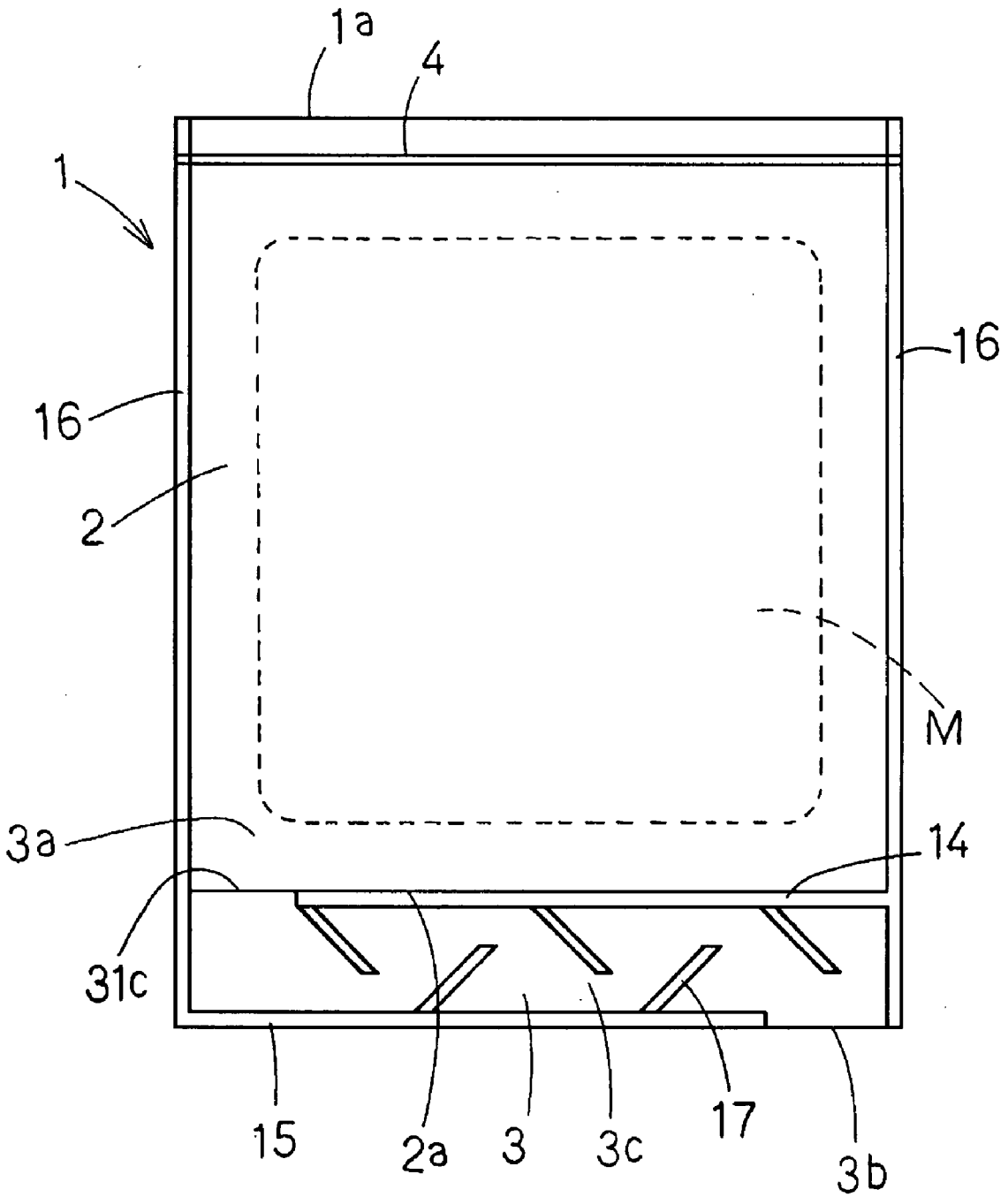


FIG 6 (A)

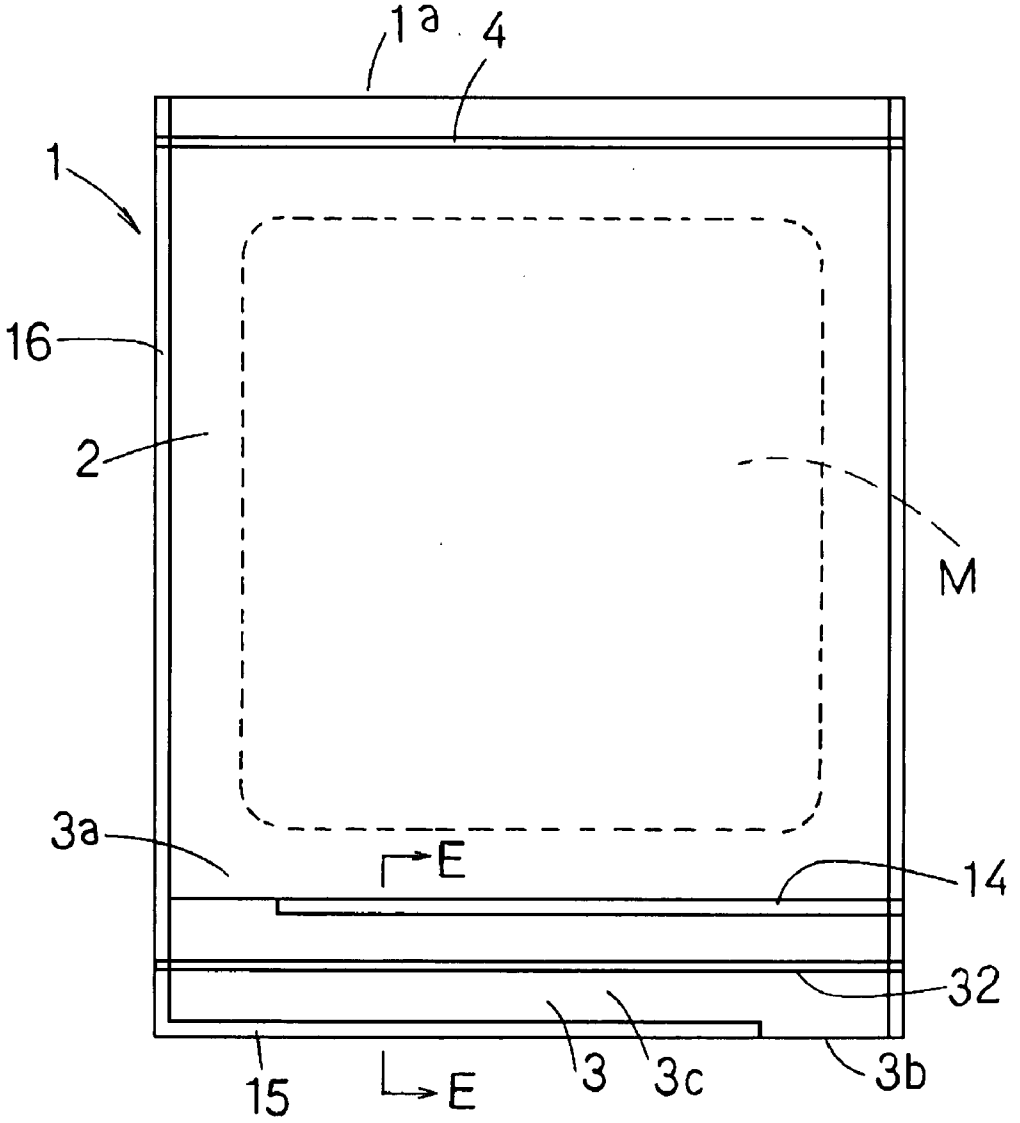


FIG 6 (B)

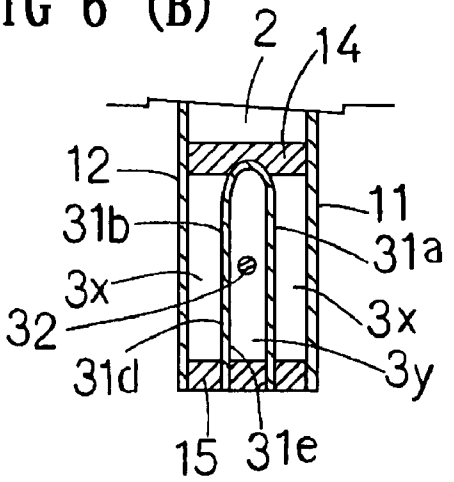


FIG 6 (C)

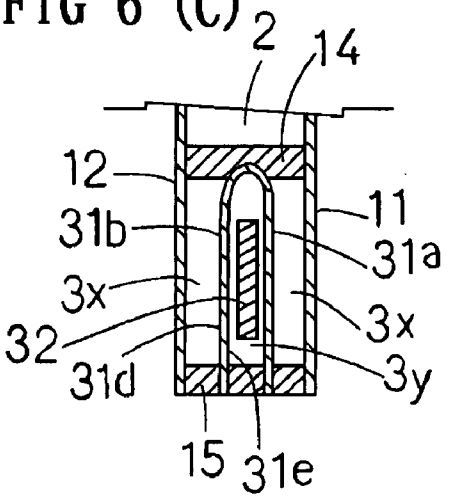
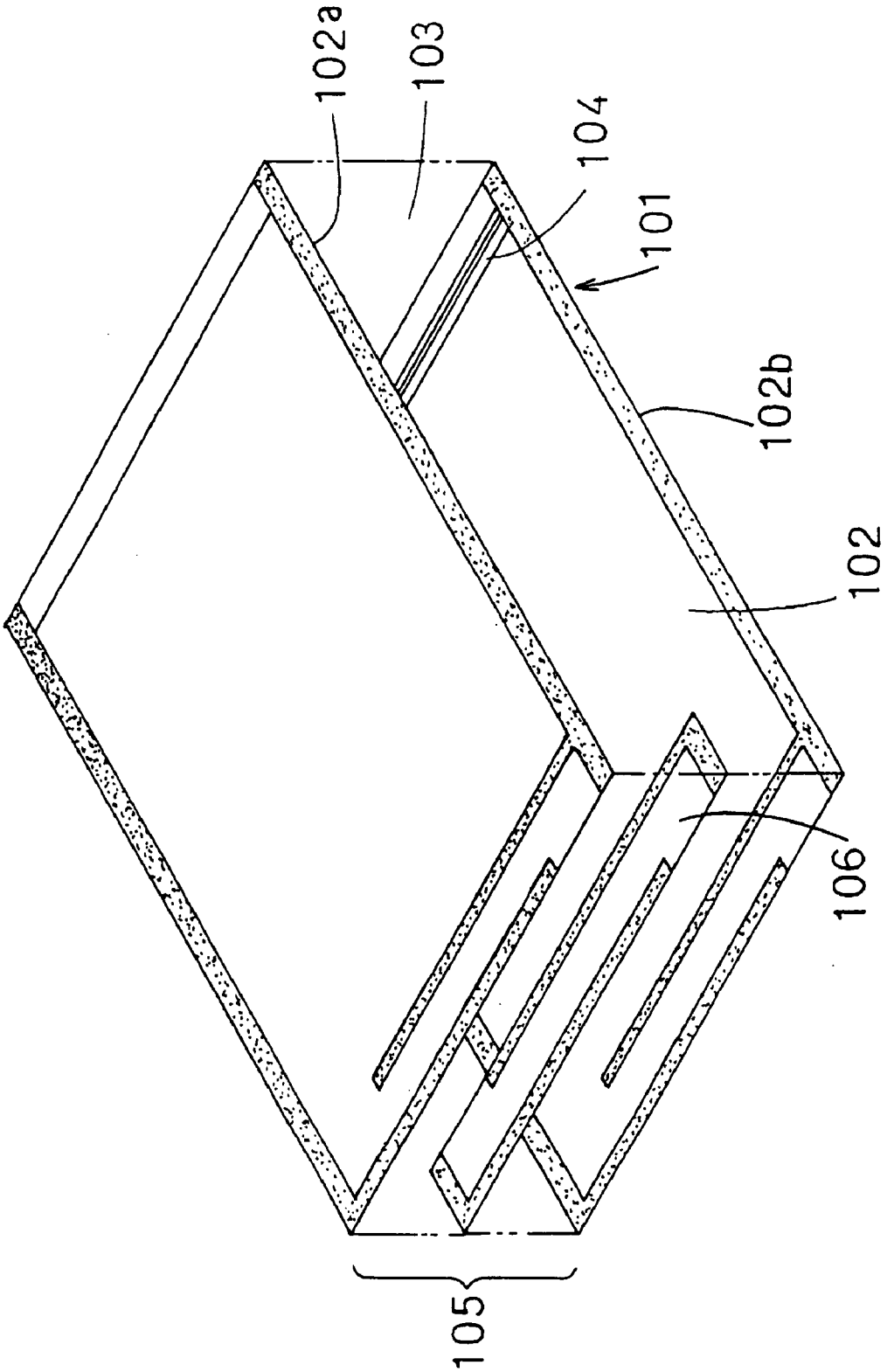


FIG 7 PRIOR ART



STRUCTURE OF AIR PASSAGE OF SEALABLE BAG, SEALABLE BAG, AND METHOD OF MANUFACTURING THE SEALABLE BAG

TECHNICAL FIELD

[0001] The present invention relates to a sealable bag that can be hermetically sealed thereinside.

BACKGROUND ART

[0002] Patent Document 1: Japanese Laid-Open Patent Application No. 2004-531435

[0003] A sealable bag has conventionally been used, wherein a sealable zone can be hermetically sealed and is connected to the outside of the bag in order to be able to discharge air or other various gasses in the zone to outside the bag then maintain the discharged state, or in order to fill the zone with air or other various gasses then maintain the charged state, and a flow of air in one direction is allowed and flow of air in the other direction is prevented when air and gas are discharged or filled as mentioned above.

[0004] Among such sealable bags, extensive use is made of a compression bag **101** comprising a bag having a sealable zone **102** configured by flexible resin sheets adhered together, for example, by heat-sealing in required locations to form a space confined by the sheets, allowing air and gas in the sealable zone **102** to discharge to the outside of the bag then maintain the discharged state. The compression bag **101** is provided with an opening **103** to take an item M in and out of the sealable zone **102**. The opening **103** is also provided with a closing means **104** such as a slide fastener for closing the opening **103**.

[0005] Various types of these compression bags have been used, and one embodiment is described in Patent Document 1. Such a bag is illustrated in FIG. **7** as compression bag **101**. In the present embodiment, an intermediate sheet **106** is inserted between two opposing sheets **102***a* and **102***b*, to form a check valve **105** with a space for air discharging passage between the bag sheets **102***a*, **102***b* where the intermediate sheet **106** is layered. This check valve **105** functions to check air by close contact of the bag sheets **102***a*, **102***b* and the intermediate sheet **106**.

[0006] Since this compression bag **101** is initially formed with said check valve **105** together, an advantage is a single series of manufacturing processes of the compression bag, compared to a conventional series of processes of providing a check valve of a separately formed member from the bag body, with the bag body afterward. However, the intermediate sheet **106** in the compression bag **101** is simply placed between the bag sheets **102***a* and **102***b*. Therefore, if the bag sheets **102***a*, **102***b* or the intermediate sheet **106** rupture, a leak will occur, and checking effects are incompletely done and difficult to maintain the sealable zone **102** in a deaerated state.

[0007] The present invention aims to provide a structure of an air passage of a sealable bag, a sealable bag, and a method of manufacturing a sealable bag, wherein a simple series of manufacturing processes and cost reduction can be achieved, and the sealable zone can be maintained in an airtight state more reliably compared to conventional bags.

DISCLOSURE OF THE INVENTION

[0008] In order to solve said problems, a first aspect of the present invention according to Claim **1** provides a structure of an air passage of a sealable bag used for a sealable bag (**1**) in which a sealable zone (**2**) can be hermetically sealed, and the sealable zone (**2**) is connected to the outside of the bag in order to be able to discharge air and gas in the zone (**2**) to outside the bag then maintain the discharged state, or in order to be able to fill the zone (**2**) with air and gas then maintain the charged state. An inner connecting part (**3***a*) leading to the sealable zone (**2**) and an outer connecting part (**3***b*) leading to the outside of the bag are provided thereby allowing a flow of air in one direction while preventing in the other direction when air and gas are discharged or filled as mentioned above. Bag sheets (**11**, **12**) and a valve body sheet (**31**) that are made of resin and thus flexible are used. The bag sheets (**11**, **12**) is placed facing each other, and the valve body sheet (**31**) is layered between the bag sheets (**11**, **12**) and has at least a front piece (**31***a*) and a rear piece (**31***b*) that are overlapped. An air passing space (**3***x*) is formed between the front bag sheet (**11**) and the front piece (**31***a*), as well as between the rear bag sheet (**12**) and the rear piece (**31***b*) in a manner to be able to pass and shut off air and gas, while a dead-end space (**3***y*) is formed between the front piece (**31***a*) and the rear piece (**31***b*). An inner connecting part (**3***a*) that is provided at least at one part between the sealable zone (**2**) and air passage (**3**) allows air and gas pass between them. An outer connecting part (**3***b*) that is provided at least at one part between the air passage (**3**) and the outside of the bag allows air and gas pass between them. A horizontal flowinging section (**3***c*) is provided between the inner connecting part (**3***a*) and the outer connecting part (**3***b*) to pass a flow of air via the air passing space (**3***x*). In the valve sheet (**31**), based on the direction of the flow of air through the air passage **3**, one side of the dead-end space (**3***y*) is closed by the portion where the front piece (**31***a*) and the rear piece (**31***b*) are joined together, while the other side of the dead-end space (**3***y*) is opened by the front piece (**31***a*) and the rear piece (**31***b*) separated from each other.

[0009] A second aspect of the present invention according to Claim **2** provides a structure of an air passage of a sealable bag according to Claim **1**, wherein the valve body sheet (**31**) is configured by folding one sheet; one side of the valve body sheet (**31**) sandwiching a folding portion (**31***c*) running in the longitudinal direction is the front piece (**31***a*), and the other side thereof is the rear piece (**31***b*); and part of the folding part (**31***c*) is disposed in the outer connecting part (**3***b*).

[0010] A third aspect of the present invention according to Claim **3** provides a structure of an air passage of a sealable bag according to Claim **1**, wherein the valve body sheet **31** is formed by folding one sheet; one side of the valve body sheet (**31**) sandwiching a folding portion (**31***c*) running in the longitudinal direction is the front piece (**31***a*), and the other side thereof is the rear piece (**31***b*); and part of the folding part (**31***c*) is disposed in the outer connecting part (**3***b*).

[0011] A fourth aspect of the present invention according to Claim **4** provides a structure of an air passage of a sealable bag according to any of Claims **1** to **3**, wherein a contacting surface (**31***d*) of the valve body sheet (**31**) contacting to each bag sheet (**11**, **12**), is provided with weak adhesion.

[0012] A fifth aspect of the present invention according to Claim **5** provides a sealable bag with bag sheets (**11**, **12**) and a valve body sheet (**31**) that are made of resin and thus flexible. The bag comprises a sealable zone (**2**) that is formed between the front bag sheet (**11**) and can be hermetically sealed; and an air passage (**3**) formed in a manner to be along at least one side (**2***a*) of the sealable zone (**2**). The valve body sheet (**31**) that is disposed in the air passage (**3**) in a manner to

be layered between the bag sheets (**11**, **12**) has at least a front piece (**31***a*) and a rear piece (**31***b*) that are overlapped. An air passing space (**3***x*) is formed between the front bag sheet (**11**) and the front piece (**31***a*), as well as between the rear bag sheet (**12**) and the rear piece (**31***b*) in a manner to be able to pass and shut off air and gas, while a dead-end space (**3***y*) is formed between the front piece (**31***a*) and the rear piece (**31***b*). An inner connecting part (**3***a*) that is provided at least at one part between the sealable zone (**2**) and air passage (**3**) allows air and gas pass between them. An outer connecting part (**3***b*) that is provided at least at one part between the air passage (**3**) and the outside of the bag allows air and gas pass between them. A horizontal flowinging section (**3***c*) is provided between the inner connecting part (**3***a*) and the outer connecting part (**3***b*) to pass a flow of air via the air passing space (**3***x*). In the valve sheet (**31**), based on the direction of the flow of air through the air passage **3**, one side of the dead-end space (**3***y*) is closed by the portion where front piece (**31***a*) and the rear piece (**31***b*) are joined together, while the other side of the dead-end space (**3***y*) is opened by the front piece (**31***a*) and the rear piece (**31***b*) separated from each other.

[0013] A sixth aspect of the present invention according to Claim **6** provides a sealable bag according to Claim **5**, wherein the valve body sheet (**31**) is configured by folding one sheet; one side of the valve body sheet (**31**) sandwiching a folding portion (**31***c*) running in the longitudinal direction is the front piece (**31***a*), and the other side thereof is the rear piece (**31**); and part of the folding part (**31***c*) is disposed in the inner connecting part (**3***a*)

[0014] A seventh aspect of the present invention according to Claim **7** provides a sealable bag according to Claim **5**, wherein the valve body sheet (**31**) is configured by folding one sheet; one side of the valve body sheet (**31**) sandwiching a folding portion (**31***c*) running in the longitudinal direction is the front piece (**31***a*), and the other side thereof is the rear piece (**31**); and part of the folding part (**31***c*) is disposed in the outer connecting part (**3***b*).

[0015] A eighth aspect of the present invention according to Claim **8** provides a sealable bag according to any of Claims **5** to **7**, wherein the sealable zone (**2**) is a space defined by a sealable zone defining seal (**14**) that extends laterally and is a portion where at least said bag sheets (**11**, **12**) are adhered together, and defined by side seals (**16**) that defines the left and right sides of the sealable bag (**1**), and the space is above the sealable zone defining seal (**14**). The air passage (**3**) is a space defined by the sealable zone defining seal (**14**), bag side seals (**16**), and a bottom seal (**15**) that is a portion where at least said beg sheets (**11**, **12**) are adhered together and defines the lower end of the sealable bag (**1**), and the space is below the sealable zone defining seal (**14**). The sealable zone dividing seal (**14**) is not provided in said inner connecting part (**3***a*); and the bottom seal (**15**) or the bag side seal (**16**) is not provided in said outer connecting part (**3***b*). The inner connecting part (**3***a*) and the outer connecting part (**3***b*) are not provided in a position where the two vertically coincide with each other.

[0016] A ninth aspect of the present invention according to Claim **9** provides a sealable bag according to any of Claims **5** to **8**, wherein a spacer member **32** is disposed between the front piece (**31***a*) and the rear piece (**31***b*) in a manner to be sandwiched by the pieces.

[0017] A tenth aspect of the present invention according to Claim **10** provides a sealable bag according to Claims **9**, wherein the interval spacer member (**32**) is selected among a filament substance, unwoven fabrics, nets, woven fabrics, paper, and resin sheet without breathability.

[0018] An eleventh aspect of the present invention according to Claim **11** provides a method of manufacturing a sealable bag (**1**) in which a sealable zone (**2**) can be hermetically sealed and discharge air and gas in the sealable zone (**2**) to the outside of the bag then maintain the discharged state, or fill the sealable zone (**2**) with air and gas then maintain the charged state, and an air passage (**3**) is provided adjacent to the sealable zone (**2**) to communicating the sealable zone (**2**) to outside the bag to be able to allow air and gas pass through. The air passage (**3**) includes an inner connecting part (**3***a*) leading to the sealable zone (**2**) and an outer connecting part (**3***b*) leading to the outside the bag, and allows a flow of air in one direction while preventing in another direction when air and gas are discharged or filled as mentioned above. At least bag sheets (**11**, **12**) and a valve body sheet (**31**) that are made of resin and thus flexible, and continuously supplied in the longitudinal direction, are used. The valve body sheet (**31**) is supplied after having been folded in two along a folding portion (**31***c*) running in the longitudinal direction. Then, in the double-folded state, its vertical dimension being a dimension in the widthwise direction is smaller than the bag sheets (**11**, **12**). The manufacturing method comprising the following steps. A process is that the valve body sheet (**31**) is disposed in a manner to be layered between the front bag sheet (**11**) and the rear bag sheet (**12**) in the location where the air passage (**3**) is formed. Then, a process is that a sealable zone defining seal (**14**) and a bottom seal (**15**) that are along the longitudinal direction of the valve body sheet (**31**), and bag side seals (**16**) that cross in the widthwise direction of each of the sheets, are provided. Finally, a process is that the sheets (**11**, **12**, **31**) are cut in a manner to divide the bag side seals (**16**) in two

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] FIG. **1** is a plan view of a compression bag of an embodiment of the invention of the present application.

[0020] FIG. **2** is an exploded perspective view to show the structure of a compression bag of an embodiment of the invention of the present application.

[0021] FIG. **3** (A) is an end view of the core part seen in the arrowed direction A-A in FIG. **2** to indicate flow of air in the air passage, FIG. **3**(B) an end view of the core part seen in the arrowed direction B-B in FIG. **2** to indicate the flow of air in the air passage, FIG. **3**(C) an end view of the core part seen in the arrowed direction CC in FIG. **3**(A) to show an inner connecting part, and FIG. **3**(D) an end view of the core part seen in the arrowed direction D-D in FIG. **3**(B) to show an outer connecting part.

[0022] FIGS. **4**(A) to **4**(C) are plan views of the core part of different embodiments of a compression bag in which a configuration of the air passage is changed.

[0023] FIG. **5** is a plan view showing another embodiment of a compression bag in which a configuration of the air passage is changed.

[0024] FIG. **6**(A) is a plan view showing an embodiment of a compression bag in which a spacer member is disposed in the air passage, FIG. **6**(B) an end view of the core part seen in the arrowed direction E-E of FIG. **6**(A), and FIG. **6**(C) an end view of the core part when a sheet-shaped material is used for the spacer member.

[0025] FIG. **7** is an exploded perspective view to show the structure of a conventional compression bag.

BEST MODE FOR CARRYING OUT THE INVENTION

[0026] A compression bag that is used after a sealable zone inside of it is deaerated is described hereafter as an embodiment of the invention of the present application. Meanwhile, the positional and directional expressions such as "transverse direction", "vertical and horizontal", and "height and width" in the claims and specification of the invention of the present application are used to specify positions according to the states shown in figures for convenience. However, it is understood that the positional relations as explained are not restrictive.

[0027] For the compression bag **1** in the present embodiment, as shown in FIGS. **1** and **2**, rectangular bag sheets (a front bag sheet **11** and a rear bag sheet **12**) that are vertically elongated in the figures, and a rectangular valve body sheet **31** that is horizontally elongated in the figures and smaller than the bag sheets **11** and **12** in height are used as structural members.

[0028] Longitudinally continuous long sheets of flexible nature are used for the sheets **11**, **12**, **31**, which are adhered at certain positions by, for example, heat-sealing as described later and then cut into a bag with a partitioned sealable zone **2** and air passage **3**. For each sheet **11**, **12**, **31**, a resin sheet is used. Exemplified are resin sheets that include a laminate of multiple resin films such as multiple polyethylene films, or a laminate of polyethylene film and nylon film. A laminate sheet of multiple resin films is generally more common to be used than a sheet made of uniform material. Since polyethylene film is heat-sealable, while nylon film is not, polyethylene films of a resin sheet need to face each other for a later described heat-sealing operation.

[0029] As shown in FIG. **2**, the bag sheets **11** and **12** facing each other constitute the exterior of the compression bag **1**. The sealable zone **2** is formed between the front bag sheet **11** and the rear bag sheet **12** providing a space to store an item M. The air passage **3** has an air passing space **3***x* that communicates from the sealable zone **2** to the outside of the bag so that the deaerating gas (air) passes through from the interior space of the sealable zone **2** to the outside of the bag (See FIGS. **3**(A) and **3**(C)). Thereby, while air in the sealable zone **2** is discharged to the outside of the bag, the air passage **3** connects the sealable zone **2** to the outside of the bag for air passage for the purpose of deaeration.

[0030] The sealable zone **2** of the present embodiment is defined by a sealable zone defining seal **14** that extends laterally shown in FIG. **1**, and by bag side seals **16** that extend vertically in the figure and define the left and right sides of the sealable bag **1**. The sealable zone defining seal **14** is a portion where the bag sheets **11** and **12** and the valve body sheet **31** are adhered together.

[0031] As for the upper end of the sealable zone **2**, the front and rear bag sheets **11** and **12** are not adhered, remaining open as an opening **1***a*, shown in FIG. **1**. An item M can be taken in and out of the sealable zone **2** through this opening **1***a*. In the present embodiment, the opening **1***a* is provided with a closing means **4** that hermetically closes the opening **1***a*, whereby the sealable zone **2** can be kept in an airtight state. The closing means **4** of the embodiment is a resin fastener comprising a projected portion on one of the bag sheets **11** and **12** and a recessed portion on the other, with the projected and recessed portions being engaged to close the opening **1***a*. The closing means **4** is not limited to this, and various types of closing means may be used. In some cases, the opening **1***a* may be adhered, for example, by heat-sealing not to open after the item M has been taken in the sealable zone **2** through the opening **1***a*. In the case the sealable bag **1** is used with a gas being charged with in the sealable zone **2** through the air passage **3**, an opening **1***a* need not to be initially provided, and only the air passage **3** functions as a space where air can pass through.

[0032] The air passage **3** of the embodiment is a space defined by the sealable zone defining seal **14**, bag side seals **16**, and a bottom seal **15** that extends laterally in the figure and defines the lower end of the sealable bag **1**, and the space is below the sealable zone defining seal **14** in the figure. That is, the air passage **3** is formed along the side of a sealable zone **2** that is a square in a plan view.

[0033] In the structure of the air passage **3** in the present invention, because heated metal molds are not applied for heat-sealing other than the portions for the seals **14**, **15** and **16**, no adhesion due to the heat of the heat-sealing is formed in the air passage **3**. When the bag **1** is used as such a compression bag **1**, resistance during deaeration can be minimized. With a conventional compression bag for which a check valve of a separate component is to be incorporated, part of the check valve is adhered by the heat of heat-sealing of the check valve and the pressure of the heated molds for heat-sealing, leaving the bag to be difficult for deaeration. However, such a problem will not happen in a compression bag in the present invention. In the present invention, when the sealable zone **2** is pressed to discharge air from the sealable zone **2** to outside the compression bag **1** for deaeration, relatively physically weak persons such as children and the elderly can easily discharge air without much resistance. Further, no rupture of the sealable zone **2** is anticipated.

[0034] The sealable zone defining seal **14** is partially provided between the sealable zone **2** and the air passage **3**. In the present embodiment, there is separation between the left end of the sealable zone defining seal **14** and the left side seal **16**. The separate part is an inner connecting part **3***a*. Also, the bottom seal **15** is partially provided between the air passage **3** and the outside of the bag. In the present embodiment, there is separation between the right end of the bottom seal **15** and the right side seal **16**. The separate part is an outer connecting part **3***b*. Accordingly, each space of the sealable zone **2** and the air passage **3** (air passing space **3***x*) can be connected to the outside of the bag through the inner connecting part **3***a* and the outer connecting part **3***b*, thereby enabling discharge of gas (air) in the sealable zone **2** to the outside of the bag. The area between the inner connecting part **3***a* and the outer connecting part **3***b* is a horizontal flowing section **3***c*. The horizontal flowing section **3***c* is provided so that flow of air passes in the direction along the side **2***a* of the sealable zone **2**, and, as described later, has a length along the flow of air direction long enough to reliably close the air passing space **3***x* by close contact of the bag sheet **11** and the valve body sheet **31**, as well as the bag sheet **12** and the valve body sheet **13**.

[0035] As shown in FIG. **1**, the compression bag **1** of the present embodiment is provided with the inner connecting part **3***a* on the lateral upper left end of the air passage **3**, the outer connecting part **3***b* on the lateral lower right end of the air passage **3**, and the horizontal flowing section **3***c* in a manner to extend laterally. This means that the inner connecting part **3***a* and the outer connecting part **3***b* are not provided

in a position where the two vertically coincide with each other in the present embodiment. FIG. **3**(A) shows that, because of the structure of the air passage in such a configuration, flow of air during deaeration passes from the inner connecting part **3***a* into the horizontal flowing section **3***c*, changing directions from downward to the right on the left side of the horizontal flowing section **3***c*, passing through the horizontal flowing section **3***c* from left to right, changing directions from right to downward on the right side of the horizontal flowing section **3***c*, and going outside the bag through the outer connecting part **3***b*. Meanwhile, when the air passage **3** is closed, the front piece **31***a* and the front bag sheet **11** contact closely, as well as the rear piece **31***b* and the rear bag sheet **12** contact closely, over the entire area of the horizontal flowing section **3***c*, and the sealable zone **2** can be securely maintained in an airtight state.

[0036] The positional relations among said inner connecting part **3***a*, outer connecting part **3***b* and horizontal flowing section **3***c* are not limited to one in the present embodiment, but various changes can be applied. As shown in FIG. **4**(A), the outer connecting part **3***b* may be vertically positioned at the right end side of the horizontal flowing section **3***c* in the figure, so that air will be discharged out of the bag without changing the direction of flow of air. A valve body sheet **31**, which is not like the aforementioned continuous elongated sheet extending in the longitudinal direction, may be laterally provided only at part of the air passage **3**. That is, as shown in FIG. **4**(B), the valve body sheet, which is not provided at the left end side of the compression bag **1**, and the inner connecting part **3***a* and outer connecting part **3***b* are vertically positioned in the figure not to change the direction of flow of air through the horizontal flowing section **3***c*. Not shown in the figure, various configurations may be applied, such as one in which both or either of the inner connecting part **3***a* and the outer connecting part **3***b* is positioned at the center of the lateral direction, or one in which a plurality of the same are provided.

[0037] As shown in FIG. **5**, flow of air through the horizontal flowing section **3***c* will be detoured with a set of detouring seals **17** formed by adhering sheets **11**, **12**, **31** in such a manner as to project from the sealable zone defining seal **14** and the bottom seal **15** into the air passage **3**. In the embodiment shown here, a set of alternating seals that are almost diagonally formed toward the direction of the following flow of air passing from the inner connecting part **3***a* to the outer connecting part **3***b* for deaeration. However, it is not and are not limited to the above and various embodiments may be applied.

[0038] A valve body sheet **31** provided on the air passage **3** comprises at least a front piece **31***a* and a rear piece **31***b*, which are overlapped. As shown in FIG. **2**, the valve body sheet **31** in the present embodiment is configured by folding one sheet in half along a folding portion **31***c*. Passing and shutting off of air can be done between the front bag sheet **11** and the front piece **31***a*, and between the rear bag sheet **12***c* and the rear piece **31***b*. When air passes therethrough, the air passing space **3***x* is formed as shown in FIG. **3**(C). When air is shut off, the front bag sheet **11** and the front piece **31***a* closely contact as well as the rear bag sheet **12** and the rear piece **31***b* over the horizontal flowing section **3***c* that is a space between the inner connecting part **3***a* and the outer connecting part **3***b*. As described in Patent Document 1, a structure that shuts off the air passage **3** due to adhesion of the bag sheet **11** and the valve body sheet **31** as well as the bag sheet **12** and the same is conventionally used.

[0039] Unlike a conventional bag described in Patent Document 1, it is characterized in the present invention that the front piece **31***a* and the rear piece **31***b* have an opening against either the inner connecting part **3***a* or outer connecting part **3***b* respectively, while a dead-end space **3***y* where flow of air is prevented between the connecting parts **3***a* and **3***b* is formed. A description regarding the valve body sheet **31** is given below, referring to the surfaces facing each sheet **11** and **12** as a contacting surface **31***d* and the surfaces where the front piece **31***a* and rear piece **31***b* are opposite to each other a separating surface **31***e*.

[0040] The valve body sheet **31** in the present embodiment is configured, as shown in FIG. **2**, by folding along the folding portion **31***c*, which is substantially positioned at the center of the sheet in the longitudinal direction. The front piece **31***a* is a portion above the folding portion **31***c* in the figure, while the rear piece **31***b* is a portion below the same in the figure. As shown in FIG. **1**, part of the folding portion **31***c* is disposed in the inner connecting part **3***a*. Although the valve body sheet **31** in the present embodiment is folded in two, multiple sheets may be used by overlapping each other. In this case, the front and rear pieces **31***a* and **31***b* need to be adhered at a portion corresponding to the folding portion **31***c*.

[0041] In the valve body sheet **31** of the present embodiment, the folding portion **31***c* and the upper side of the bag sheets **11** and **12** is adhered together, except the portion of the inner connecting part **3***a*, by a sealable zone defining seal **14**, and the lower side of the valve body sheet is adhered together, except the portion of the outer connecting part **3***b*, by a bottom seal **15**, and the left and right sides of the valve body sheet are adhered together by side seals **16**. In the present embodiment, the folding portion **31***c* extends over the entire width of the valve body sheet **31** laterally, but where the folding portion **31***c* actually exposes is only at the portion of the inner connecting part **3***a* where the enclosing part defining seal **14** is not provided. Accordingly, a further embodiment may be applied in which the valve body sheet does not include the folding portion **31***c* except the portion that is disposed in the inner connecting part **3***a*, thus leaving the front and rear pieces **31***a* and **31***b* separate, then the zone defining seal **14** is provided. Meanwhile, the present embodiment relates to a compression bag **1** for use by way of deaeration of a sealable zone **2** wherein part of the folding portion **31***c* is disposed in the inner connecting part **3***a* that is located on the upstream side of flow of air during deaeration. When the bag is used with the sealable zone **2** filled with air, part of the folding portion **31***c* is in reverse position on the outer connecting part **3***b*.

[0042] It is not necessary for the folding portion **31***c* of the valve body sheet **31** and the sealable zone defining seal **14** to be positioned identically, and the folding portion **31***c* and the sealable zone defining seal **14** may be separated. However, when the folding portion **31***c* is positioned lower than the sealable zone defining seal **14** in FIG. **1**, close contact between the front and rear bag sheets **11** and **12** partly supports checking effects in the air passage **3**. Conversely, when the folding portion **31***c* is positioned higher than the sealable zone defining seal **14** in FIG. **1**, the surplus portion of the valve body sheet **31** beyond the sealable zone defining seal **14** may hinder flow of air in the inner connecting part **3***a*. Therefore, it is desirable for the folding seal **31***c* and the sealable zone defining seal **14** to be positioned identically, as in the present embodiment.

[0043] The dead-end-space **3***y* in the present embodiment, as shown in FIG. **3**(B), is defined by the sealable zone defining seal **14**, folding portion **31***c*, bottom seal **15**, and side seals **16**, and is a space with limited opening between the front and rear piece **31***a* and **31***b* in the outer connecting part **3***b*. Based on the direction of flow of air through the air passage **3** during deaeration with the compression bag **1** of the present embodiment, the dead-end space **3***y* is closed by the folding portion **31***c* where the front and rear pieces **31***a* and **31***b* of a valve body sheet **31** are joined together in the inner connecting part **3***a* located on the upstream side, while the dead-end space **3***y* is opened by the front and rear pieces **31***a* and **31***b* that are separate from each other in the outer connecting part **3***b* located on the downstream side. In the present embodiment, since the valve body sheet **31** is configured by folding one sheet in half along the folding portion **31***c*, the valve body sheet can be easily formed with a dead-end space **3***y* at lower manufacturing costs of the compression bag **1**.

[0044] As described below, said dead-end space **3***y* strengthens checking effects in the air passage **3** due to the stagnation of air from the outer connecting part **3***b* to the air passage in the horizontal flowing section **3***c*. Thus, as long as the space achieving the air stagnation is formed, another configuration other than the present embodiment may be applied. For example, as shown in FIG. **4**(C), an adhered portion **31***f* is formed by adhering the front and rear pieces **31***a* and **31***b* at the lateral intermediate line of the air passage **3**, and then a dead-end space **3***y* may be provided between the front and rear pieces **31***a* and **31***b* in the right side of the adhered portion **31***f* in the figure.

[0045] In the inner connecting part **3***a* of the present embodiment, the space between the front and rear pieces **31***a* and **31***b* is closed due to the folding portion **31***c*. As shown in FIG. **3**(A), flow of air F**1** in the normal direction in discharging air from the sealable zone **2** to outside the bag during deaeration, is heading between the front bag sheet **11** and the front piece **31***a* as well as between the rear bag sheet **12** and the rear piece **31***b*, not between the front and rear sheets **31***a* and **31***b*. Then, as shown in FIG. **3**(C), the passing flow of air spreads the spaces between the front bag sheet **11** and front piece **31***a* of the valve body sheet **31**, and between the rear bag sheet **12** and rear piece **31***b* of the valve body sheet **31**, letting the air passing space **3***x* open for the flow of air. (FIG. **3**(C) is depicted to emphasize the vertical direction in the figure.)

[0046] Meanwhile, after the aforementioned deaeration, reverse flow of air from outside the bag to the air passage is prevented in the air passage **3**. Specifically, as shown in FIG. **3**(D), the front bag sheet **11** and the contacting surface **31***d* on the front piece **31***a*, and the rear bag sheet **12** and the contacting surface **31***d* on the rear piece **31***b* respectively contact, then closing the air passing space **3***x*. (FIG. **3**(D) is depicted to emphasize the vertical direction in the figure.)

[0047] In the case of a compression bag **1** in the present embodiment, close contact of each sheet **11**, **12**, **31** for closing of the air passing space **3***x* is achieved by the reduced pressure inside the sealable zone **2** during deaeration. That is, a pressure difference is generated between the outside of the bag (positive pressure) and the inside of the sealable zone **2** (negative pressure), producing a sucking force to draw the valve body sheet **31** toward the sealable zone **2** under negative pressure side. Being made of flexible resin, the valve body sheet **31** easily changes its shape by the sucking force, then the front bag sheet **11** and the contacting surface **31***d* of the front piece **31***a* contact, as well as the rear bag sheet **12** and the contacting surface **31***d* of the rear piece **31***b* contact. Simultaneously, as shown in FIG. **3**(B), air form the outside of the bag, illustrated as the flow of air F**2**, enters and remains in the dead-end space **3***y*. With stagnation of the air in the dead-end space **3***y*, the front piece **31***a* of the valve body sheet **31** is pressed against the front bag sheet **11**, as well as the rear piece **31***b* is pressed against the rear bag sheet **12**, respectively. Accordingly, close contact between the bag sheets **11**, **12** and the valve body sheet **31** is achieved more securely than a conventional check valve, providing strong checking effects. It would not occur where flow of air F**2** in the reverse direction toward the sealable zone **2** continues with the air passing space **3***x* leaving unclosed. Thus, the air passing space **3***x* can be closed securely.

[0048] When a sealable bag **1** is used with the sealable zone **2** filled with air, the pressure inside the sealable zone **2** is higher than the outside of the bag in contrast to the above, generating an opposite pressure difference. Under the influence of this pressure difference, the front bag sheet **11** and the contacting surface **31***d* of the front piece **31***a* contact, as well as the rear bag sheet **12** and the contacting surface **31***d* of the rear piece **31***b* contact, respectively, while the air filled in the sealable zone **2**, without flowing back to the outside the bag, remains at the dead-end space **3***y*, thereby securely closing the air passing space **3***x*.

[0049] It is applicable that the separating surface **31***e* of the front and rear pieces **31***a* and **31***b* of the valve body sheet **31**, a reverse side of the contacting surface **31***d*, has adhesion less closely compared to the contacting surface **31***d*, making the front and rear pieces **31***a* and **31***b* easily separate from each other. For example, among a plurality of resin films composing the valve body sheet **31**, a resin film with adhesion inferior to the other resin films may be applied to the separating surface **31***e*. Further, the separating surface **31***e* may be formed rough on its surface with a pearskin finish, or may be coated with a coating material to improve its separation.

[0050] Furthermore, a spacer member **32** may be disposed between the separating surfaces **31***e*. The spacer member **32** is placed in the direction crossing the passage of flow of air through the air passage **3**. As shown in FIGS. **6**(A) and **6**(B), the member in the form of filaments is used in a manner to be positioned parallel to the sealable zone defining seal **14** and bottom seal **15**. Not limited to the filaments, as shown in FIG. **6**(C), a sheet-like material may be applicable. (FIGS. **6**(B) and **6**(C) are depicted to emphasize the lateral direction in the figure.) When filaments are used as the spacer member **32**, it is desirable for the member **32** to employ one that consists of thermoplastic resin fiber with heat-sealability, such as polyester resin fiber. Natural fiber without heat-sealability, such as cotton may be employed. For the sheet-like material to be used, one with or without breathability may be employed, including unwoven fabrics, nets, and woven fabrics of thermoplastic resin with heat-sealability. Further, not limited to a resin sheet, non-heat-sealable materials such as paper can be used as a sheet-like material.

[0051] Installation of the spacer member **32** presses the bag sheets **11**, **12** and the valve body sheet **31** by the spacer member **32**, contacting the sheets **11**, **12**, **31** more closely. Consequently, the contact between each of the inner face of the bag sheets **11** and **12** and the contacting surface **31***a* of the valve body sheet **31** at the portion where the spacer member **32** is positioned achieves easy closing of the air passage **3**. This can prevent a reverse flow of air in the air passage **3**

effectively, thus maintaining the sealable zone part **2** in a state of deaeration for a long period of time.

[0052] As shown in FIGS. **6**(A) and **6**(B), one piece of filament is sandwiched between the front and rear pieces **31***a* and **31***b* as a spacer member **32** of the present embodiment, but a plurality of the spacer members **32** may be consecutively positioned. The same can be applied in the case of a sheet-like material as shown in FIG. **6**(C). The spacer member **32** does not matter whether it is adhered or to the separating surface **31***e* of the valve body sheet **31** or not. As for the position of the spacer member **32** in the air passage **3**, it is acceptable as long as it is placed in the direction crossing the passage of flow of air through the air passage **3**. In addition to the present embodiment, wherein it is positioned parallel to the sealable zone defining seal **14** and bottom seal **15**, respectively, it is also acceptable to be positioned diagonally or in a curving manner like waves, and various changes may be applied. Furthermore, the spacer member **32** is not limited to a continuous material of filament extending laterally, as shown in FIG. **6**(A), but a spacer member **32** intermittently pasted on the separating surface **31***e* is also applicable.

[0053] When a filament is used as a spacer member **32** as in the present embodiment, it is not necessary to feed a long spacer member **32** in parallel in the longitudinal direction against each sheet **11**, **12**, **31** before a process of layering a front bag sheet **11**, rear bag sheet **12**, and valve body sheet **31** in the manufacturing process described later. It can be supplied diagonally or perpendicularly by bending it, which is advantageous in terms of a layout of the manufacturing apparatus.

[0054] In addition to the above, a material which exerts biasing to spread the interval between the inner surfaces **11***a*, **12***a* of the bag sheets **11**, **12** and the separating surface **31***e* of the valve body sheet **31** may be used as a spacer member **32**. Specifically, when the spacer member **32** is in the form of a sheet, a urethane foam sheet with resiliency may be used. Alternatively, the spacer member **32** in the form of a sheet folded in two may be used to exerting the biasing by separating a portion of the spacer member **32** from the other portion along the folding portion. The spacer member **32** with a biasing ability can make the contacting surfaces **31***a* of the valve body sheet **31** contact more closely, and closing the air passage area **3***a* effectively, thus preventing a reverse flow of air in the air passage **3** effectively.

[0055] Contrary to the above, it is desirable for the contacting surface **31***d* to be provided with weak adhesion, i.e. have a easy-to-contact nature, in view of effective closing of the air passage **3**. For example, among a plurality of the resin films composing the valve body sheet **31**, a resin sheet composing the contacting surface **31***d*, which is surfaces opposing to the bag sheets **11**, **12**, may be comprised of a material having strong adhesion superior to the other resin sheets, in other words, with a good blocking nature. Further, an inert liquid such as silicone oil may be provided on the contacting surface **31***d* in amount not to hinder deaeration, thus making the valve body sheet **31** contact closely and prevent a reverse flow of air effectively in the air passage. Also, a valve body sheet **31** that can absorb liquid may be used with an inert liquid such as silicone oil soaked into the valve body sheet **31** for use. In this way, blocking nature can be improved by taking advantage of surface tension of the soaked liquid.

[0056] Next, the manufacturing method is described thereafter, exemplifying the compression bag **1** shown in FIG. **1**. A continuous flexible sheet extending in the longitudinal direction is used for the bag sheets **11**, **12** and the valve body sheet **31** for manufacturing a compression bag **1** of this embodiment, and is supplied in succession to each manufacturing step for processing such as heat-sealing and cutting in sequence.

[0057] First, a closing member **4** is mounted by heat-sealing at the upper end, which forms an opening **1***a* of the compression bag **1** in completion, in the figure of the front and rear bag sheets **11** and **12**. In the present embodiment, the closing member **4** is a sliding fastener with a projected portion attached to one of the bag sheets **11**, **12**, and a recessed portion attached to the other. The closing member **4** is also longitudinally continuous and supplied in succession to each manufacturing step as the sheets **11**, **12**, **31** are.

[0058] Concurrently with the mounting of the closing member **4**, a valve body sheet **31** is placed between the front and rear bag sheets **11** and **12**. In this state, a sealable zone defining seal **14**, bottom seal **15**, and side seals **16** are concurrently formed, and each sheet **11**, **12**, **31** is adhered together. Next, each sheet **11**, **12**, **31**, and the closing means **4** are cut in a manner to divide the side seal **16** equally to complete the compression bag **1**.

[0059] In the method of manufacturing of the compression bag **1** according to the present invention, sheets **11**, **12**, **31** and a closing means **4** that are continuously extending in the longitudinal direction are used and supplied to each manufacturing step in succession for processing such as heat-sealing and cutting in sequence to complete a compression bag **1** one after another. Therefore, a conventional complicated manufacturing process in which a check valve of a separate component is incorporated into a compression bag **1** is eliminated, thereby realizing a relatively simple manufacturing method and reduction of manufacturing costs.

[0060] The invention of the present application provides the following excellent effects. The aspect of the present application according to Claim **1** provides a structure of an air passage of a sealable bag in which an air passing space **3***x* that enables passing and shutting off of air is formed between a front bag sheet **11** and a front piece **31***a*, as well as between a rear bag sheet **12** and a rear piece **31***b* while a dead-end space **3***y* is formed between the front piece and rear pieces **31***a* and **31***b*, whereby air likely to flow back to the dead-end space **3***y* is stagnated, and the pressure of this air makes contact more closely among the bag sheets **11**, **12** and the valve body sheet **31** than conventionally, thereby achieving strong checking effects.

[0061] The aspect of the present application according to Claims **2** and **3** provides, in addition to the effect above, a structure of an air passage of a sealable bag in which a valve body sheet **31**, being configured by folding one sheet, can be easily formed with a dead-end space **3***y* at low manufacturing costs.

[0062] The aspect of the present application according to Claim **4** provides, in addition to the effect above, a structure of an air passage of a sealable bag in which, since a contacting surface **31***d* of the valve body sheet **31** is provided with weak adhesion, the air passage **3** can be closed more effectively.

[0063] The aspect of the present application according to Claim **5** provides a sealable bag in which an air passing space **3***x* that enables passing and shutting off of air is formed between a front bag sheet **11** and a front piece **31***a*, as well as between a rear bag sheet **12** and a rear piece **31***b* while a dead-end space **3***y* is formed between the front piece and rear pieces **31***a* and **31***b*, whereby air likely to flow back to the

dead-end space **3***y* is stagnated, and the pressure of this air makes contact more closely among the bag sheets **11**, **12** and the valve body sheet **31** than conventionally, thereby achieving strong checking effects.

[0064] The aspect of the present application according to Claims **6** and **7** provides, in addition to the effect according to Claim **5**, a sealable bag in which a valve body sheet **31**, being configured by folding one sheet, can be easily formed with a dead-end space **3***y* at low manufacturing costs.

[0065] The aspect of the present application according to Claim **8** provides, in addition to the effect according to any of Claims **5** to **7**, a sealable bag in which an inner connecting part **3***a* and the outer connecting part **3***b* are not provided in a position where the two vertically coincide with each other, and, when the air passage **3** is closed, the front piece **31***a* and the front bag sheet **11** contact closely, as well as the rear piece **31***b* and the rear bag sheet **12** contact closely, over the entire area of the horizontal flowing section **3***c*, whereby the sealable zone **2** can be securely maintained in an airtight state.

[0066] The aspect of the present application according to Claim **9** and **10**, provides, in addition to the effect according to any of Claims **5** to **8**, a sealable bag in which a spacer member **32** is disposed between the front and rear pieces **31***a* and **31***b* in a manner to be sandwiched by them, and the bag sheets **11**, **12** and the valve body sheet **31** are pressed by the spacer member **32**, thereby making contact more closely among the bag sheets **11**, **12** and the valve body sheet **31**, and preventing a reverse flow of air in the air passage **3** effectively, and maintaining the sealable zone **2** in a deaerated state for a long period of time.

[0067] The aspect of the present application according to Claim **11** provides a method of manufacturing a sealable bag in which sheets **11**, **12**, **31** and a closing means **4** that are continuously extending in the longitudinal direction are used and supplied to each manufacturing step in succession for processing such as heat-sealing and cutting in sequence to complete a compression bag **1** one after another, whereby a conventional complicated manufacturing process in which a check valve of a separate component is incorporated into a compression bag **1** is eliminated, thereby realizing a relatively simple manufacturing method and reduction of manufacturing costs.

1. A structure of an air passage of a sealable bag used for a sealable bag (**1**) in which a sealable zone (**2**) can be hermetically sealed, the sealable zone (**2**) being connected to the outside of the bag in order to be able to discharge air and gas in the zone (**2**) to outside the bag then maintain the discharged state, or in order to be able to fill the zone (**2**) with air and gas then maintain the charged state; and an inner connecting part (**3***a*) leading to the sealable zone (**2**) and an outer connecting part (**3***b*) leading to the outside of the bag are provided thereby allowing a flow of air in one direction while preventing in the other direction when air and gas are discharged or filled as mentioned above, wherein

bag sheets (**11**, **12**) and a valve body sheet (**31**), being made of resin and thus flexible, are used; the bag sheets (**11**, **12**) being placed facing each other, the valve body sheet (**31**) being layered between said bag sheets (**11**, **12**) and having at least a front piece (**31***a*) and a rear piece (**31***b*), the pieces being overlapped, wherein

an air passing space (**3***x*) is formed between the front bag sheet (**11**) and the front piece (**31***a*), as well as between the rear bag sheet (**12**) and the rear piece (**31***b*) in a manner to be able to pass and shut off air and gas, while a dead-end space (**3***y*) is formed between the front piece (**31***a*) and the rear piece (**31***b*), and an inner connecting part (**3***a*) provided at least at one part between the sealable zone (**2**) and air passage (**3**) allows air and gas pass therebetween;

an outer connecting part (**3***b*) provided at least at one part between the air passage (**3**) and the outside of the bag allows air and gas pass therebetween;

a horizontal flowinging section (**3***c*) is provided between the inner connecting part (**3***a*) and the outer connecting part (**3***b*) to pass a flow of air via the air passing space (**3***x*), wherein

in the valve sheet (**31**), based on the direction of the flow of air through the air passage **3**, one side of the dead-end space (**3***y*) is closed by the portion where the front piece (**31***a*) and the rear piece (**31***b*) are joined together, while the other side of the dead-end space (**3***y*) is opened by the front piece (**31***a*) and the rear piece (**31***b*) separated from each other.

2. The structure of an air passage of the sealable bag according to Claim **1**, wherein said valve body sheet (**31**) is configured by folding one sheet, thereby one side of the valve body sheet (**31**) sandwiching a folding portion (**31***c*) running in the longitudinal direction is the front piece (**31***a*), and the other side thereof is the rear piece (**31***b*), and part of said folding part (**31***c*) is disposed in said inner connecting part (**3***a*).

3. The structure of an air passage of a sealable bag according to Claim **1**, wherein said valve body sheet (**31**) is configured by folding one sheet, thereby one side of the valve body sheet (**31**) sandwiching a folding portion (**31***c*) running in the longitudinal direction is the front piece (**31***a*), and the other side thereof is the rear piece (**31***b*), and part of said folding part (**31***c*) is disposed in said outer connecting part (**3***b*).

4. The structure of an air passage of a sealable bag according to any of Claim **1**, wherein a contacting surface (**31***d*) of the valve body sheet (**31**) contacting to each bag sheet (**11**, **12**), is provided with weak adhesion.

5. A sealable bag with bag sheets (**11**, **12**) and a valve body sheet (**31**), the sheets being made of resin and thus flexible, the bag comprising a sealable zone (**2**) that is formed between the front bag sheet (**11**) and can be hermetically sealed; and an air passage (**3**) formed in a manner to be along at least one side (**2***a*) of the sealable zone (**2**), further the valve body sheet (**31**) being disposed in the air passage (**3**) in a manner to be layered between the bag sheets (**11**, **12**), wherein;

said valve body sheet (**31**) has at least a front piece (**31***a*) and a rear piece (**31***b*), the pieces being overlapped, wherein

an air passing space (**3***x*) is formed between the front bag sheet (**11**) and the front piece (**31***a*), as well as between the rear bag sheet (**12**) and the rear piece (**31***b*) in a manner to be able to pass and shut off air and gas, while a dead-end space (**3***y*) is formed between the front piece (**31***a*) and the rear piece (**31***b*), wherein

an inner connecting part (**3***a*) provided at least at one part between the sealable zone (**2**) and air passage (**3**) allows air and gas pass therebetween;

an outer connecting part (**3***b*) provided at least at one part between the air passage (**3**) and the outside of the bag allows air and gas pass therebetween;

a horizontal flowinging section (**3***c*) is provided between the inner connecting part (**3***a*) and the outer connecting part (**3***b*) to pass a flow of air via the air passing space (**3***x*), wherein

in the valve sheet (**31**), based on the direction of the flow of air through the air passage **3**, one side of the dead-end space (**3***y*) is closed by the portion where front piece (**31***a*) and the rear piece (**31***b*) are joined together, while the other side of the dead-end space (**3***y*) is opened by the front piece (**31***a*) and the rear piece (**31***b*) separated from each other.

6. The sealable bag according to Claim **5**, wherein said valve body sheet (**31**) is configured by folding one sheet, thereby one side of the valve body sheet (**31**) sandwiching a folding portion (**31***c*) running in the longitudinal direction is the front piece (**31***a*), and the other side thereof is the rear piece (**31**), and part of said folding part (**31***c*) is disposed in said inner connecting part (**3***a*).

7. The sealable bag according to Claim **5**, wherein said valve body sheet (**31**) is configured by folding one sheet, thereby one side of the valve body sheet (**31**) sandwiching a folding portion (**31***c*) running in the longitudinal direction is the front piece (**31***a*), and the other side thereof is the rear piece (**31**), and part of said folding part (**31***c*) is disposed in said outer connecting part (**3***b*).

8. The sealable bag according to any of Claim **5** wherein;

said sealable zone (**2**) is a space defined by a sealable zone defining seal (**14**) that extends laterally and is a portion where at least said bag sheets (**11**, **12**) are adhered together, and defined by side seals (**16**) defining the left and right sides of the sealable bag (**1**), the space being above the sealable zone defining seal (**14**);

said air passage (**3**) is a space defined by said sealable zone defining seal (**14**), said bag side seals (**16**), and a bottom seal (**15**) that is a portion where at least said beg sheets (**11**, **12**) are adhered together and defines the lower end of the sealable bag (**1**), the space being below the sealable zone defining seal (**14**); wherein

the sealable zone dividing seal (**14**) is not provided in said inner connecting part (**3***a*);

the bottom seal (**15**) or the bag side seal (**16**) is not provided in said outer connecting part (**3***b*); wherein

the inner connecting part (**3***a*) and the outer connecting part (**3***b*) are not provided in a position where the two vertically coincide with each other.

9. The sealable bag according to any of Claim **5**, wherein a spacer member (**32**) is disposed between the front piece (**31***a*) and the rear piece (**31***b*) in a manner to be sandwiched by the pieces.

10. The sealable bag according to Claim **9**, wherein said interval spacer member (**32**) is selected among a filament substance, unwoven fabrics, nets, woven fabrics, paper, and resin sheet without breathability.

11. A method of manufacturing a sealable bag, the sealable bag (**1**) in which a sealable zone (**2**) can be hermetically sealed and discharge air and gas in the sealable zone (**2**) to the outside of the bag then maintain the discharged state, or fill the sealable zone (**2**) with air and gas then maintain the charged state, and an air passage (**3**) is provided adjacent to the sealable zone (**2**) to communicating the sealable zone (**2**) to outside the bag to be able to allow air and gas pass through, the air passage (**3**) including an inner connecting part (**3***a*) leading to the sealable zone (**2**) and an outer connecting part (**3***b*) leading to the outside the bag, and allowing a flow of air in one direction while preventing in another direction when air and gas are discharged or filled as mentioned above, wherein

at least bag sheets (**11**, **12**) and a valve body sheet (**31**), being made of resin and thus flexible, and continuously supplied in the longitudinal direction, are used, wherein

the valve body sheet (**31**) is supplied after having been folded in two along a folding portion (**31***c*) running in the longitudinal direction, and, in the double-folded state, its vertical dimension being a dimension in the widthwise direction is smaller than the bag sheets (**11**, **12**), wherein

the manufacturing method comprising the steps of;

a process in which the valve body sheet (**31**) is disposed in a manner to be layered between the front bag sheet (**11**) and the rear bag sheet (**12**) in the location where the air passage (**3**) is formed;

a process in which a sealable zone defining seal (**14**) and a bottom seal (**15**), being along the longitudinal direction of the valve body sheet (**31**), and bag side seals (**16**) crossing in the widthwise direction of each of the sheets are provided;

a process in which the sheets (**11**, **12**, **31**) are cut in a manner to divide said bag side seals (**16**) in two.

12. The structure of an air passage of a sealable bag according to Claim **2**, wherein a contacting surface (**31***d*) of the valve body sheet (**31**) contacting to each bag sheet (**11**, **12**), is provided with weak adhesion.

13. The structure of an air passage of a sealable bag according to Claim **3**, wherein a contacting surface (**31***d*) of the valve body sheet (**31**) contacting to each bag sheet (**11**, **12**), is provided with weak adhesion.

14. The sealable bag according to Claim **6** wherein;

said sealable zone (**2**) is a space defined by a sealable zone defining seal (**14**) that extends laterally and is a portion where at least said bag sheets (**11**, **12**) are adhered together, and defined by side seals (**16**) defining the left and right sides of the sealable bag (**1**), the space being above the sealable zone defining seal (**14**);

said air passage (**3**) is a space defined by said sealable zone defining seal (**14**), said bag side seals (**16**), and a bottom seal (**15**) that is a portion where at least said beg sheets (**11**, **12**) are adhered together and defines the lower end of the sealable bag (**1**), the space being below the sealable zone defining seal (**14**); wherein

the sealable zone dividing seal (**14**) is not provided in said inner connecting part (**3***a*);

the bottom seal (**15**) or the bag side seal (**16**) is not provided in said outer connecting part (**3***b*); wherein

the inner connecting part (**3***a*) and the outer connecting part (**3***b*) are not provided in a position where the two vertically coincide with each other.

15. The sealable bag according to Claim **7** wherein;

said sealable zone (**2**) is a space defined by a sealable zone defining seal (**14**) that extends laterally and is a portion where at least said bag sheets (**11**, **12**) are adhered together, and defined by side seals (**16**) defining the left and right sides of the sealable bag (**1**), the space being above the sealable zone defining seal (**14**);

said air passage (**3**) is a space defined by said sealable zone defining seal (**14**), said bag side seals (**16**), and a bottom seal (**15**) that is a portion where at least said beg sheets

(**11**, **12**) are adhered together and defines the lower end of the sealable bag (**1**), the space being below the sealable zone defining seal (**14**); wherein

the sealable zone dividing seal (**14**) is not provided in said inner connecting part (**3***a*);

the bottom seal (**15**) or the bag side seal (**16**) is not provided in said outer connecting part (**3***b*); wherein

the inner connecting part (**3***a*) and the outer connecting part (**3***b*) are not provided in a position where the two vertically coincide with each other.

16. The sealable bag according Claim **6**, wherein a spacer member (**32**) is disposed between the front piece (**31***a*) and the rear piece (**31***b*) in a manner to be sandwiched by the pieces.

17. The sealable bag according Claim **7**, wherein a spacer member (**32**) is disposed between the front piece (**31***a*) and the rear piece (**31***b*) in a manner to be sandwiched by the pieces.

18. The sealable bag according Claim **8**, wherein a spacer member (**32**) is disposed between the front piece (**31***a*) and the rear piece (**31***b*) in a manner to be sandwiched by the pieces.

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