

(19) **DANMARK**



Patent- og  
Varemærkestyrelsen

(10) **DK/EP 3604151 T3**

(12) **Oversættelse af  
europæisk patentskrift**

- 
- (51) Int.Cl.: **B 65 D 5/06 (2006.01)**                      **B 65 D 5/02 (2006.01)**                      **B 65 D 5/40 (2006.01)**  
**B 65 D 5/46 (2006.01)**                      **B 65 D 5/74 (2006.01)**
- (45) Oversættelsen bekendtgjort den: **2022-09-12**
- (80) Dato for Den Europæiske Patentmyndigheds bekendtgørelse om meddelelse af patentet: **2022-08-24**
- (86) Europæisk ansøgning nr.: **18775103.7**
- (86) Europæisk indleveringsdag: **2018-03-27**
- (87) Den europæiske ansøgnings publiceringsdag: **2020-02-05**
- (86) International ansøgning nr.: **JP2018012448**
- (87) Internationalt publikationsnr.: **WO2018181321**
- (30) Prioritet: **2017-03-31 JP 2017070072**
- (84) Designerede stater: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**
- (73) Patenthaver: **Nippon Paper Industries Co., Ltd., 4-1, Oji 1-chome , Kita-ku, Tokyo 114-0002, Japan**
- (72) Opfinder: **NAKAMURA, Kouya, c/o NIPPON PAPER INDUSTRIES CO. LTD., 21-1 Oji 5-chome, Kita-ku, Tokyo 114-0002, Japan**  
**ONOMURA, Kazuhide, c/o NIPPON PAPER INDUSTRIES CO. LTD., 21-1 Oji 5-chome, Kita-ku, Tokyo 114-0002, Japan**  
**ASOI, Eiichi, c/o NIPPON PAPER INDUSTRIES CO. LTD., 21-1 Oji 5-chome, Kita-ku, Tokyo 114-0002, Japan**
- (74) Fuldmægtig i Danmark: **NORDIC PATENT SERVICE A/S, Bredgade 30, 1260 København K, Danmark**
- (54) Benævnelse: **PAPIRBEHOLDER**
- (56) Fremdragne publikationer:  
**EP-A1- 2 392 517**  
**EP-A2- 1 732 814**  
**WO-A1-2009/101029**  
**WO-A1-2014/010613**  
**CN-Y- 2 853 632**  
**DE-A1-102007 004 427**  
**DE-U1- 29 602 975**  
**JP-A- 2013 043 686**  
**JP-A- 2015 110 440**  
**JP-U- H0 571 123**  
**US-A- 3 390 827**  
**US-A- 4 846 396**  
**US-A- 5 000 375**

Fortsættes ...



# DESCRIPTION

## Technical Field

**[0001]** The present invention relates to a paper container having a flat top-type top portion (including a brick-type paper container) and a paper container having a gable top-type top portion, which are configured to store a liquid beverage such as milk or juice.

## Background Art

**[0002]** Hitherto, a flat top-type paper container and a gable top-type paper container have been widely used. The flat top-type paper container includes four body panels. On a body formed into a quadrangular tubular shape through sealing with a vertical direction sealing panel, the flat top-type paper container has a top portion formed of a pair of top panels and a pair of side panels folded on an inner side of the top panels. Below the body, the flat top-type paper container has a bottom portion formed of a pair of bottom panels and a pair of inner panels folded on an inner side of the bottom panels. The gable top-type paper container has a top portion formed of a pair of gable top forming panels and a pair of gable wall forming panels folded on an inner side of the gable top forming panels. Below the body, the gable top-type paper container has a bottom portion formed of a pair of bottom panels and a pair of inner panels folded on an inner side of the bottom panels.

**[0003]** In the above-mentioned types of paper container, each of the body panels of the body formed in the quadrangular tubular shape generally has a flat surface. Thus, the body does not have any portion that is to be caught by fingers when the body of the paper container is grabbed. Therefore, it is unstable and difficult to keep holding the paper container. Especially when a volume of the paper container is large or water droplets are present on a surface of the paper container due to dew condensation, there is a fear in that the paper container slips and falls out of the hand.

**[0004]** As a paper container capable of coping with the circumstances described above, there has been proposed a paper container having a ridge, which is formed on each of body panels of a body so as to be parallel to a bottom portion. A region continuous with the ridge at a corner portion at which the body panels adjacent to each other intersect with each other, specifically, in a ridgeline portion and the vicinity thereof is formed as a recess (see, for example, Patent Literature 1).

**[0005]** The paper container described in Patent Literature 1 is easy to grab and can be held without slippage owing to the ridge formed on each of the body panels of the body.

## Citation List

**Patent Literature**

[0006] [PTL 1] JP 2007-55637 A. Also of relevance are EP2392517 and US5000375.

**Summary of Invention****Technical Problem**

[0007] The paper container described in Patent Literature 1 is easy to grab and can be held without slippage owing to the ridge formed on each of the body panels of the body. However, the ridges project from the body of the paper container, and hence there is a problem in that the ridges may be damaged during storage and conveyance of the paper container.

[0008] Further, prevention of the slippage is influenced by a projecting height of the ridge. When the height of each of the ridges is low, the paper container is liable to be more slippery when being grabbed. Thus, in order to more reliably enhance the prevention of the slippage, it is inevitably required that the height of each of the ridges be increased. However, in a case in which the height of each of the ridges is increased, for example, when the paper containers are arranged side by side, a large gap is formed between the paper containers. Thus, the amount of storage of paper containers and the amount of conveyance of paper containers are reduced. As a result, there arises a problem in that, for example, the storage and conveyance of paper containers are adversely affected.

[0009] An object of the present invention is to provide a paper container, which is capable of preventing slippage at the time of grabbing the paper container to provide ease of holding and is less liable to adversely affect, for example, storage and conveyance of the paper container.

**Solution to Problem**

[0010] In order to achieve the object described above, according to the invention described in claim 1, there is provided a paper container, which is made of a paper material having a thermoplastic resin laminated on each of a front surface and a back surface thereof, the paper container including: a body front panel, a body right side panel, a body left side panel, a body back panel, which are contiguous through body vertical folding lines; a vertical direction sealing panel configured to form a quadrangular tubular body; a pair of top panels contiguous with an upper end of the body front panel and an upper end of the body back panel so as to be opposed to the body front panel and the body back panel through top portion horizontal folding

lines, respectively; a pair of side panels contiguous with an upper end of the body right side panel and an upper end of the body left side panel so as to be opposed to the body right side panel and the body left side panel through top portion horizontal folding lines, respectively, the pair of top panels and the pair of side panels being folded inward and sealed so as to be tightly closed to form a top portion; and a pair of bottom panels contiguous with a lower end of the body front panel and a lower end of the body back panel so as to be opposed to the body front panel and the body back panel through bottom portion horizontal folding lines, respectively; and a pair of inner panels contiguous with a lower end of the body right side panel and a lower end of the body left side panel so as to be opposed to the body right side panel and the body left side panel through bottom portion horizontal folding lines, the pair of bottom panels and the pair of inner panels being folded inward and sealed so as to be tightly closed to form a bottom portion, wherein the body vertical folding line through which the body front panel and the body right side panel are contiguous with each other and the body vertical folding line through which the body front panel and the body left side panel are contiguous with each other are approximately symmetrical bent lines bent toward a center of the body front panel, and the body vertical folding line through which the body back panel and the body right side panel are contiguous with each other and the body vertical folding line through which the body back panel and the body left side panel are contiguous with each other are approximately symmetrical bent lines bent toward a center of the body back panel.

**[0011]** Furthermore, bent top portions of the body vertical folding lines are located above a center of the body front panel and a center of the body back panel in a vertical direction.

**[0012]** Furthermore, the body right side panel and the body left side panel have ridge portions formed at respective center portions so as to extend along a vertical direction, and the ridge portions are formed of mountain-folded vertical folding lines.

**[0013]** In one form the body back panel, one of the top panels, which is contiguous with the upper end of the body back panel, and one of the bottom panels, which is contiguous with the lower end of the body back panel, are divided into two at a center position of each of surfaces of the body back panel, the one top panel, and the one bottom panel in the vertical direction, wherein the vertical direction sealing panel is contiguous with division edges of one divided piece of the body back panel, one divided piece of the one top panel, and one divided piece of the one bottom panel, and wherein the vertical direction sealing panel is sealed to division edges of another divided pieces to form the quadrangular tubular body.

#### **Advantageous Effects of Invention**

**[0014]** With the paper container described in claim 1, the body vertical folding line through which the body front panel and the body right side panel are contiguous with each other and the body vertical folding line through which the body front panel and the body left side panel are contiguous with each other are the approximately symmetrical bent lines bent toward the center of the body front panel, and the body vertical folding line through which the body back

panel and the body right side panel are contiguous with each other and the body vertical folding line through which the body back panel and the body left side panel are contiguous with each other are the approximately symmetrical bent lines bent toward the center of the body back panel. Thus, in the tubular body formed of the body front panel, the body right side panel, the body left side panel, and the body back panel, which are contiguous through the body vertical folding lines being the bent lines therebetween, each of the body front panel and the body back panel has a projecting surface on a region between the bent top portions of the body vertical folding lines opposed to each other, which is bent outward in accordance with a bent angle of each of the body vertical folding lines. Each of the body left side panel and the body right side panel has a recessed surface on a region between the bent top portions of the body vertical folding lines opposed to each other, which is bent inward in accordance with the bent angle of each of the body vertical folding lines.

**[0015]** At the time of holding the paper container, the body right side panel and the body left side panel forming the recessed surfaces of the tubular body are grabbed. As a result, the paper container is locked in such a manner that upper-side surfaces of the recessed surfaces of the body right side panel and the body left side panel are placed on the fingers. Thus, slippage of the paper container at the time of grabbed can be reliably prevented. Accordingly, the paper container can easily be held without being strongly grabbed.

**[0016]** Further, even in a case in which the body right side panel and the body left side panel forming the recessed surfaces are pushed out to deform the center portion of the body right side panel and the center portion of the body left side panel along the vertical direction into an approximately linear shape due to, for example, pressing on the body front panel and the body back panel of the tubular body from an outer side or an internal pressure of the tubular body, when the region of the body right side panel, which is located between the bent top portions of the body vertical folding lines opposed to each other, and the region of the body left side panel, which is located between the bent top portions of the body vertical folding lines opposed to each other, are grabbed so as to be pressed, the body right side panel and the body left side panel are elastically deformed to form the recessed surfaces. Accordingly, the paper container can easily be held.

**[0017]** Further, the tubular body does not have ridges as those formed on a paper container described in Patent Literature 1. Thus, there is no fear of, for example, adversely affecting storage and conveyance of the paper container.

**[0018]** Furthermore, the bent top portions of the body vertical folding lines are located above the center of the body front panel and the center of the body back panel in the vertical direction. Thus, the paper container can be held in a stable state.

**[0019]** Furthermore, the body right side panel and the body left side panel have the ridge portions formed at respective center portions so as to extend along the vertical direction, and the ridge portions are formed of mountain-folded vertical folding lines. Thus, the ridge portions serve as ribs to prevent bulge of the body due to a weight of a liquid beverage stored therein.

**[0020]** At the time of holding the paper container, the ridge portion in the region of the body right panel of the tubular body, which is located between the bent top portions of the body vertical folding lines opposed to each other, and the ridge portion in the region of the body left panel, which is located between the bent top portions of the body vertical folding lines opposed to each other, are grabbed so as to be pressed inward. As a result, the body right panel and the body left panel are elastically deformed to form the recessed surfaces. Thus, the paper container can easily be held.

**[0021]** According to the invention described in claim 2, the body back panel, one of the top panels, which is contiguous with the upper end of the body back panel, and one of the bottom panels, which is contiguous with the lower end of the body back panel, are divided into two at a center position of each of surfaces of the body back panel, the one top panel, and the one bottom panel in the vertical direction. The vertical direction sealing panel is contiguous with division edges of one divided piece of the body back panel, one divided piece of the one top panel, and one divided piece of the one bottom panel. The vertical direction sealing panel is sealed to division edges of another divided pieces to form the quadrangular tubular body. Accordingly, the quadrangular tubular body can easily be formed.

### **Brief Description of Drawings**

#### **[0022]**

FIG. 1 is a perspective view for illustrating a first example of a paper container helpful for understanding construction of the present invention.

FIG. 2 is a front view of the paper container of the first example.

FIG. 3 is a side view of the paper container of the first example.

FIG. 4 is a partially omitted enlarged sectional view taken along the line A-A of FIG. 2.

FIG. 5 is a front view for illustrating a state in which a body right panel and a body left panel of the paper container of the first example, which have been in a recessed surface shape, are pushed out to deform center portions of the body right panel and the body left panel along a vertical direction into an approximately linear shape.

FIG. 6 is a developed view of a carton blank for assembling the paper container of the first example.

FIG. 7 is a perspective view for illustrating a second example of paper container embodying the present invention.

FIG. 8 is a front view of the paper container of the second example.

FIG. 9 is a side view of the paper container of the second example.

FIG. 10 is a partially omitted enlarged sectional view taken along the line B-B of FIG. 8.

FIG. 11 is an explanatory enlarged sectional view for illustrating a state in which a body left panel and a body right panel of the paper container of the second example are pushed inward to be deformed into a recessed surface shape.

FIG. 12 is a developed view of a carton blank for assembling the paper container of the second example.

### Detailed Description

[0023] Now, a paper container is described in detail with reference to the drawings. FIG. 1 to FIG. 6 are illustrations of a first example of paper container, in which FIG. 1 is a perspective view of the paper container of the first example. FIG. 2 is a front view of the paper container of the first example. FIG. 3 is a side view of the paper container of the first example. FIG. 4 is a partially omitted enlarged sectional view taken along the line A-A of FIG. 2. FIG. 5 is a front view for illustrating a state in which a body right panel and a body left panel of the paper container of the first example, which have been in a recessed surface shape, are pushed out to deform center portions of the body right panel and the body left panel along a vertical direction into an approximately linear shape. FIG. 6 is a developed view of a carton blank for assembling the paper container of the first example.

[0024] The paper container of the first example is a container having a flat top-type top portion, and is assembled with use of a carton blank having a development structure illustrated in FIG. 6.

[0025] The carton blank for assembling the paper container of the first example is made of a paper material having a thermoplastic resin laminated on each of a front surface and a back surface thereof. A body front panel 5, a body left side panel 6, a body back panel 7, and a body right side panel 8 are contiguous through body vertical folding lines 1, 2, 3, and 4.

[0026] A pair of top panels 11 and 12 are contiguous with an upper end of the body front panel 5 and an upper end of the body back panel 7 so as to be opposed to the body front panel 5 and the body back panel 7 through a top portion horizontal folding line 9 and a top portion horizontal folding line 10, respectively. A pair of side panels 15 and 16 are contiguous with an upper end of the body left side panel 6 and an upper end of the body right side panel 8 so as to be opposed to the body left side panel 6 and the body right side panel 8 through a top portion horizontal folding line 13 and a top portion horizontal folding line 14, respectively.

[0027] Further, a pair of bottom panels 19 and 20 are contiguous with a lower end of the body front panel 5 and a lower end of the body back panel 7 so as to be opposed to the body front

panel 5 and the body back panel 7 through a bottom portion horizontal folding line 17 and a bottom portion horizontal folding line 18, respectively. A pair of inner panels 23 and 24 are contiguous with a lower end of the body left side panel 6 and a lower end of the body right side panel 8 so as to be opposed to the body left side panel 6 and the body right side panel 8 through a bottom portion horizontal folding line 21 and a bottom portion horizontal folding line 22, respectively.

**[0028]** Further, each of the top panel 12 contiguous with the upper end of the body back panel 7 and the bottom panel 20 contiguous with the lower end of the body back panel 7 is divided into two in a vertical direction at a center position of each of surfaces of the panels. A vertical direction sealing panel 25 to be sealed on division edges of another body back panel 7b, another top panel 12b, and another bottom panel 20b is contiguous with division edges of one body back panel 7a, one top panel 12a, and one bottom panel 20a, which are formed by the division.

**[0029]** Further, the body vertical folding line 1 through which the body front panel 5 and the body right side panel 8 are contiguous with each other and the body vertical folding line 2 through which the body front panel 5 and the body left side panel 6 are contiguous with each other are approximately symmetrical bent lines bent in an approximately doglegged shape toward a center of the body front panel 5. Similarly, the body vertical folding line 3 through which the body back panel 7 and the body left side panel 6 are contiguous with each other and the body vertical folding line 4 through which the body back panel 7 and the body right side panel 8 are contiguous with each other are approximately symmetrical bent lines bent in an approximately doglegged shape toward a center of the body back panel 7.

**[0030]** In the first example, bent top portions T of the body vertical folding lines 1, 2, 3, and 4 being the bent lines are located above a center of the body front panel 5 and a center of the body back panel 7 in the vertical direction.

**[0031]** For assembly of the paper container of this example with use of the carton blank having the development structure described above, the carton blank is first mountain-folded along the body vertical folding lines 1, 2, 3, and 4. Then, the vertical direction sealing panel 25 contiguous with the division edges of the one body back panel 7a, the one top panel 12a, and the one bottom panel 20a, which are formed by the division, is sealed to the division edges of the another body back panel 7b, the another top panel 12b, and the another bottom panel 20b to form a quadrangular tubular body 26.

**[0032]** Next, the pair of bottom panels 19 and 20, which are respectively contiguous with the lower end of the body front panel 5 and the lower end of the body back panel 7, and the pair of inner panels 23 and 24, which are respectively contiguous with the lower end of the body left side panel 6 and the lower end of the body right side panel 8 of the tubular body 26, are folded inward and sealed so as to be tightly closed to form a bottom portion 27.

**[0033]** Then, after a liquid beverage is filled in, the pair of top panels 11 and 12, which are

respectively contiguous with the upper end of the body front panel 5 and the upper end of the body back panel 7, and the pair of side panels 15 and 16, which are respectively contiguous with the upper end of the body left side panel 6 and the upper end of the body right side panel 8, are folded inward and sealed so as to be tightly closed to form a top portion 28.

**[0034]** In the paper container assembled as described above, the body vertical folding line 1 through which the body front panel 5 and the body right side panel 8 are contiguous with each other and the body vertical folding line 2 through which the body front panel 5 and the body left side panel 6 are contiguous with each other are the approximately symmetrical bent lines, which are bent toward the center of the body front panel 5, and the body vertical folding line 3 through which the body back panel 7 and the body left side panel 6 are contiguous with each other and the body vertical folding line 4 through which the body back panel 7 and the body right side panel 8 are contiguous with each other are the approximately symmetrical bent lines, which are bent toward the center of the body back panel 7. Thus, in the tubular body 26 formed of the body front surface 5, the body left side panel 6, the body right side panel 8, and the body back panel 7, which are contiguous through the body vertical folding lines 1, 2, 3, and 4, the body front panel 5 has a projecting surface X formed on a region between the bent top portions T of the body vertical folding lines 1 and 2, which is bent outward in accordance with bent angles of the body vertical folding lines 1 and 2. The body back panel 7 has a projecting surface X formed on a region between the bent top portions T of the body vertical folding lines 3 and 4, which is bent outward in accordance with bent angles of the body vertical folding lines 3 and 4 (see FIG. 3).

**[0035]** Further, the body left side panel 6 forms a recessed surface Y on a region between the bent top portions T of the body vertical folding lines 2 and 3, which is bent inward in accordance with the bent angles of the body vertical folding lines 2 and 3. The body right side panel 8 forms a recessed surface Y on a region between the bent top portions T of the body vertical folding lines 1 and 4, which is bent inward in accordance with the bent angles of the body vertical folding lines 1 and 4 (see FIG. 2).

**[0036]** As described above, each of the body left side panel 6 and the body right side panel 8 of the tubular body 26 forms the recessed surface Y. Thus, at the time of holding the paper container is held, the body left side panel 6 and the body right side panel 8 forming the recessed surfaces Y of the tubular body 26 are grabbed. As a result, the paper container is locked in such a manner that upper-side surfaces of the recessed surfaces Y of the body left side panel 6 and the body right side panel 8 are fingers are placed on the fingers. Thus, slippage of the paper container at the time of being grabbed can be reliably prevented.

**[0037]** Further, even in a case in which the body left side panel 6 and the body right side panel 8 forming the recessed surface Y are pushed out to deform the center portion of the body left side panel 6 and the center portion of the body right side panel 8 along the vertical direction into an approximately linear shape due to, for example, external pressing on the body front panel 5 and the body back panel 7 of the tubular body 26 or an internal pressure of the tubular body 26 (see FIG. 5), when the region of the body left side panel 6, which is located between

the bent top portions T of the body vertical folding lines 2 and 3, and the region of the body right side panel 8, which is located between the bent top portions T of the body vertical folding lines 1 and 4 are grabbed so as to be pressed, the body left side panel 6 and the body right side panel 8 are elastically deformed to form the recessed surfaces Y. Accordingly, the paper container can easily be held.

**[0038]** Further, in the first example, the bent top portions T of the body vertical folding lines 1, 2, 3, and 4 being the bent lines are located above the center of the body front panel 5 and the center of the body back panel 7 in the vertical direction. Thus, the paper container can be held in a stable state.

**[0039]** FIG. 7 to FIG. 12 are illustrations of a second example according to the claimed invention. FIG. 7 is a perspective view for illustrating the paper container of this example. FIG. 8 is a front view of the paper container of the second example. FIG. 9 is a side view of the paper container of the second example. FIG. 10 is a partially omitted enlarged sectional view taken along the line B-B of FIG. 8. FIG. 11 is an explanatory enlarged sectional view for illustrating a state in which a body left panel and a body right panel of the paper container of the second example are pushed inward to be deformed in a recessed surface shape. FIG. 12 is a developed view of a carton blank for assembling the paper container of the second example.

**[0040]** The same configurations of the paper container of the second example as those of the first example are denoted by the same reference symbols, and the description thereof is omitted. Only configurations different from those of the first example are described.

**[0041]** The paper container of the second example is a container having a flat top-type top portion similarly to the first example, and is assembled with use of a carton blank having a development structure illustrated in FIG. 12. On the carton blank for assembling the paper container of the second example, the body left side panel 6 has a vertical folding line 30 formed at a center portion along the vertical direction, which is continuous with the top portion horizontal folding line 13 and the bottom portion horizontal folding line 21. The vertical folding line 30 forms a ridge portion 29 when the carton blank is mountain-folded along the vertical folding line 30. Similarly, the body right side panel 8 has a vertical folding line 32 formed at the center portion thereof along the vertical direction, which is continuous with the top portion horizontal folding line 14 and the bottom portion horizontal folding line 22. The vertical folding line 32 forms a ridge portion 31 when the carton blank is mountain-folded along the vertical folding line 32.

**[0042]** The other configurations are the same as those of the carton blank of the first example, which is illustrated in FIG. 6.

**[0043]** For the assembly of the paper container of this example with use of the carton blank having the development structure described above, the carton blank is mountain-folded along the vertical folding line 30, which is continuous with the top portion horizontal folding line 13

and the bottom portion horizontal folding line 21 of the body left side panel 6, to thereby form the ridge portion 29 at the center portion of the body left side panel 6 along the vertical direction. Similarly, the carton blank is mountain-folded along the vertical folding line 32, which is continuous with the top portion horizontal folding line 13 and the bottom portion horizontal folding line 21 of the body right side panel 8, to thereby form the ridge portion 31 at the center portion of the body right side panel 8 along the vertical direction.

**[0044]** The other configurations are the same as those of the carton blank of the first example, which is illustrated in FIG. 6.

**[0045]** Next, similarly to the first example, the carton blank is mountain-folded along the body vertical folding lines 1, 2, 3, and 4. The vertical direction sealing panel 25 contiguous with the division edges of the one body back panel 7a, the one top panel 12a, and the one bottom panel 20a, which are formed by the division, is sealed to the division edges of the another body back panel 7b, the another top panel 12b, and the another bottom panel 20b to form the quadrangular tubular body 26.

**[0046]** Next, the pair of bottom panels 19 and 20, which are respectively contiguous with the lower end of the body front panel 5 and the lower end of the body back panel 7, and the pair of bottom panels 23 and 34, which are respectively contiguous with the lower end of the body left side panel 6 and the lower end of the body right side panel 8 of the tubular body 26, are folded inward and sealed so as to be tightly closed to form the bottom portion 27.

**[0047]** Then, after a liquid beverage is filled in, the pair of top panels 11 and 12, which are respectively contiguous with the upper end of the body front panel 5 and the upper end of the body back panel 7, and the pair of side panels 15 and 16, which are respectively contiguous with the upper end of the body left side panel 6 and the upper end of the body right side panel 8, are folded inward and sealed so as to be tightly closed to form the top portion 28.

**[0048]** In the paper container assembled as described above, the body vertical folding line 1 through which the body front panel 5 and the body right side panel 8 are contiguous with each other and the body vertical folding line 2 through which the body front panel 5 and the body left side panel 6 are contiguous with each other are the approximately symmetrical bent lines bent toward the center of the body front panel 5. The body vertical folding line 3 through which the body back panel 7 and the body left side panel 6 are contiguous with each other and the body vertical folding line 4 through which the body back panel 7 and the body right side panel 8 are contiguous with each other are the approximately symmetrical bent lines bent toward the center of the body back panel 7. Thus, in the tubular body 26 formed of the body front surface 5, the body left side panel 6, the body right side panel 8, and the body back panel 7, the body front panel 5 forms the projecting surface X on the region between the bent top portions T of the body vertical folding lines 1 and 2, which is bent outward in accordance with the bent angles of the body vertical folding lines 1 and 2. The body back panel 7 forms the projecting surface X formed on the region between the bent top portions T of the body vertical folding lines 3 and 4, which is bent outward in accordance with the bent angles of the body vertical

folding lines 3 and 4 (see FIG. 9).

**[0049]** Further, the body left side panel 6 has an approximately linear center portion along the vertical direction because of the ridge portion 29 formed by the body left side panel 6 mountain-folded along the vertical folding line 30. The body left side panel 8 has an approximately linear center portion in the vertical direction because of the ridge portion 31 formed by the body right side panel 8 mountain-folded along the vertical folding line 32 (see FIG. 8).

**[0050]** As described above, the ridge portion 29 formed at the center portion of each of the body left side panel 6 and the body right side panel 8 along the vertical direction serves as a rib to prevent bulge of the tubular body 26, which is caused by a weight of the stored liquid beverage.

**[0051]** At the time of holding the paper container, the region of the body left panel 6, which is located between the bent top portion T of the body vertical folding line 2 and the bent top portion T of the body vertical folding line 3 and the region of the body right panel 8, which is located between the bent top portion T of the body vertical folding line 1 and the bent top portion T of the body vertical folding line 4 are grabbed so as to press the regions. As a result, the body left panel 6 and the body right panel 8 are elastically deformed to form the recessed surfaces Y (see FIG. 11). Thus, the paper container can easily be held.

**[0052]** Each of the paper container of the first example and the paper container of the second example is a paper container having a flat top-type top portion. The present invention can also be carried out for a gable top-type paper container.

### Reference Signs List

**[0053]**

- 1, 2, 3, 4  
body vertical folding line
- 5  
body front panel
- 6  
body left side panel
- 7  
body back panel
- 7a  
one divided body back panel
- 7b  
another divided body back panel
- 8

body right side panel  
9, 10 top portion horizontal folding line  
11, 12 top panel  
12a one top panel  
12b another top panel  
13, 14 top portion horizontal folding line  
15, 16 side panel  
17, 18 bottom portion horizontal folding line  
19, 20 bottom panel  
20a one bottom panel  
20b another bottom panel  
21, 22 bottom portion horizontal folding line  
23, 24 inner panel  
25 vertical direction sealing panel  
26 tubular body  
27 bottom portion  
28 top portion  
29 ridge portion  
30 vertical folding line  
31 ridge portion  
32 vertical folding line  
T bent top portion  
X

projecting surface  
Y  
recessed surface

## REFERENCES CITED IN THE DESCRIPTION

### Cited references

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

### Patent documents cited in the description

- [JP2007055637A \[0006\]](#)
- [EP2392517A \[0006\]](#)
- [US5000375A \[0006\]](#)

**PATENTKRAV**

1. Papirbeholder, der er fremstillet af et papirmateriale med en termoplastisk harpiks lamineret på hver af en frontflade og en bagflade deraf, hvilken papirbeholder omfatter:

5 et legemes frontpanel (5), et legemes højre sidepanel (8), et legemes venstre sidepanel (6), et legemes bagpanel (7), der er sammenhængende via legemets vertikale foldelinjer (1, 2, 3, 4); et forseglingspanel (25) i vertikal retning, der er konfigureret til at danne et firkantet rørlegeme (26);

10 et par toppaneller (11, 12), der er sammenhængende med en øvre ende af legemets frontpanel (5) og en øvre ende af legemets bagpanel (7) for således at være modsat henholdsvis legemets frontpanel (5) og legemets bagpanel (7) via topdelens horisontale foldelinjer (9, 10);

et par sidepaneller (15, 16), der er sammenhængende med en øvre ende af legemets højre sidepanel (8) og en øvre ende af legemets venstre sidepanel (6) for således at være modsat henholdsvis legemets højre sidepanel (8) og legemets venstre sidepanel (7) via topdelens

15 horisontale foldelinjer (13, 14), hvor parret af toppaneller (11, 12) og parret af sidepaneller (15, 16) er foldet indad og forseglet for at være tæt lukket for at danne en topdel (28); og

et par bundpaneller (19, 20), der er sammenhængende med en nedre ende af legemets frontpanel (5) og en nedre ende af legemets bagpanel (7) for således at være modsat henholdsvis legemets frontpanel (5) og legemets bagpanel (7) via bunddelens horisontale foldelinjer (17, 18), og

20 et par indvendige paneller (23, 24), der er sammenhængende med en nedre ende af legemets højre sidepanel (8) og en nedre ende af legemets venstre sidepanel (6) for således at være modsat legemets højre sidepanel (8) og legemets venstre sidepanel (6) via bunddelens horisontale foldelinjer (21, 22), hvor parret af bundpaneller (19, 20) og parret af indvendige paneller (23, 24) er foldet indad og forseglet for således at være tæt lukket for at danne en bunddel (27);

25 hvor legemets vertikale foldelinje (1), hvorigennem legemets frontpanel (5) og legemets højre sidepanel (8) er sammenhængende, og legemets vertikale foldelinje (2), hvorigennem legemets frontpanel (5) og legemets venstre sidepanel (6) er sammenhængende, er omtrent symmetriske, bøjede linjer bøjet mod en midte af legemets frontpanel (5), og legemets vertikale foldelinje (4), hvorigennem legemets bagpanel (7) og legemets højre sidepanel (8) er sammenhængende, og

30 legemets vertikale foldelinje (3), hvorigennem legemets bagpanel (7) og legemets venstre sidepanel (6) er sammenhængende, er omtrent symmetriske, bøjede linjer, der er bøjet mod en midte af legemets bagpanel (7); **kendetegnet ved, at**

bøjede topdele (T) af legemets vertikale foldelinjer (1, 2, 3, 4), der er foldelinjerne, er placeret over en midte af legemets frontpanel (5) og en midte af legemets bagpanel (7) i en vertikal

retning; og **ved, at** legemets højre sidepanel (8) og legemets venstre sidepanel (6) har højderygsdele (29, 31) dannet ved tilsvarende midterdele for således at strække sig lang en vertikal retning, og højderygsdelene (29, 31) er dannet af bjergfoldede, vertikale foldelinjer (30, 32).

5

**2.** Papirbeholder ifølge krav 1,

hvor legemets bagpanel (7), ét af toppanelerne (11, 12), der er sammenhængende med den øvre ende af legemets bagpanel, og ét af bundpanelerne (19, 20), der er sammenhængende med den nedre ende af legemets bagpanel (7), er opdelt i to ved en midterposition af hver af fladerne af

10 

legemets bagpanel, det ene toppanel og det ene bundpanel i den vertikale retning,

hvor forseglingspanelet (25) i den vertikale retning er sammenhængende med delekanter af ét opdelt stykke af legemets bagpanel (7), ét opdelt stykke af det ene toppanel og ét opdelt stykke af det ene bundpanel, og

15 

hvor forseglingspanelet (25) i den vertikale retning er forseglet til delekanter af andre opdelt stykker for at danne det firkantede rørlegeme.

## DRAWINGS

FIG. 1

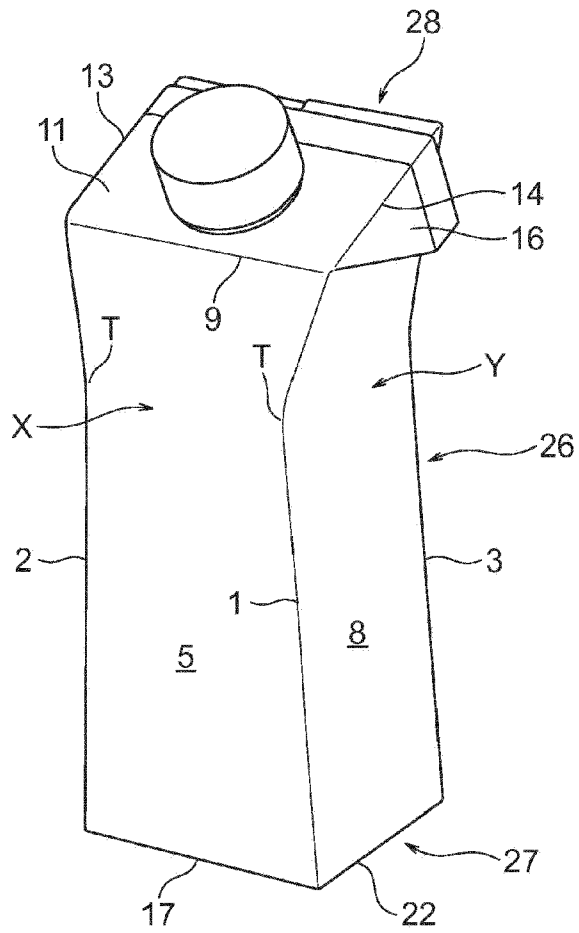




FIG. 3

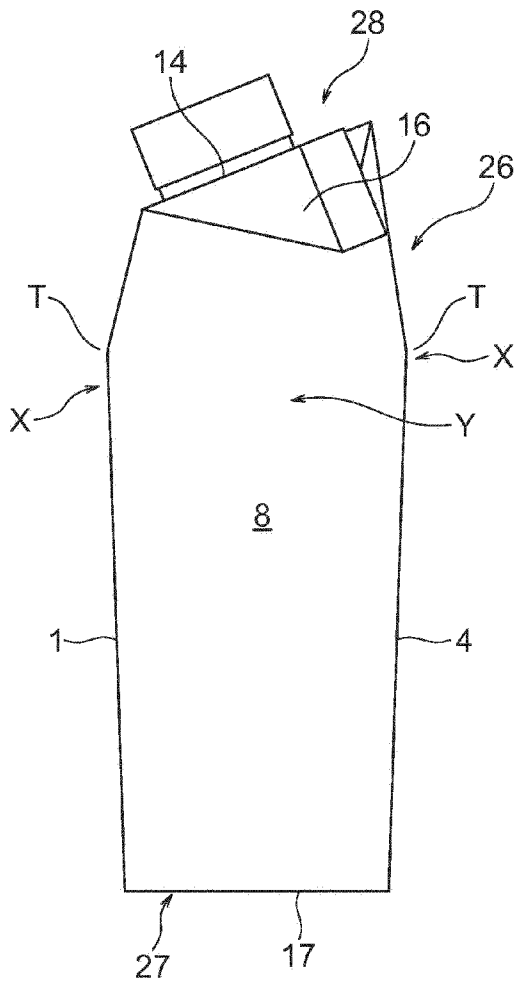


FIG. 4

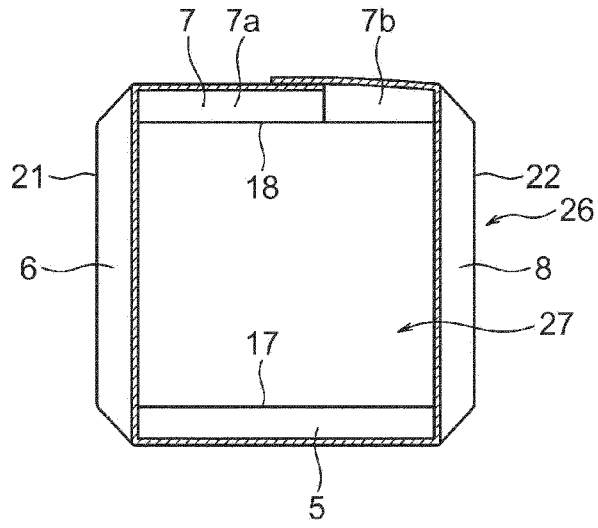


FIG. 5

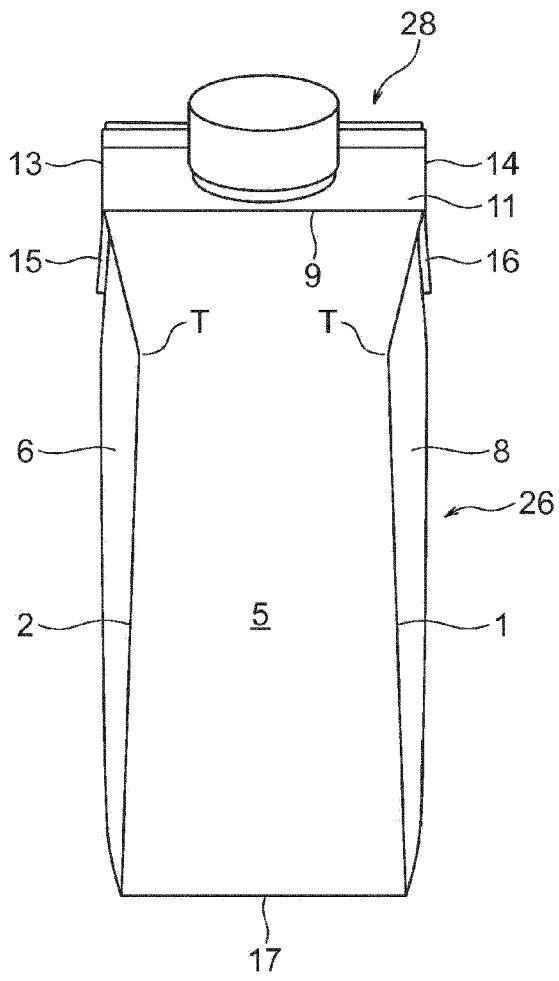


FIG. 6

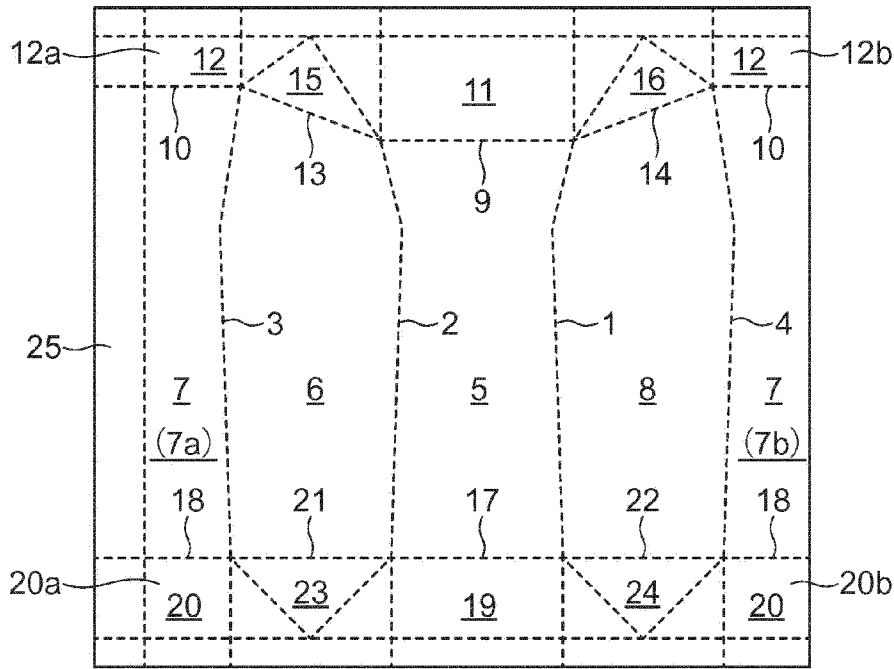




FIG. 8

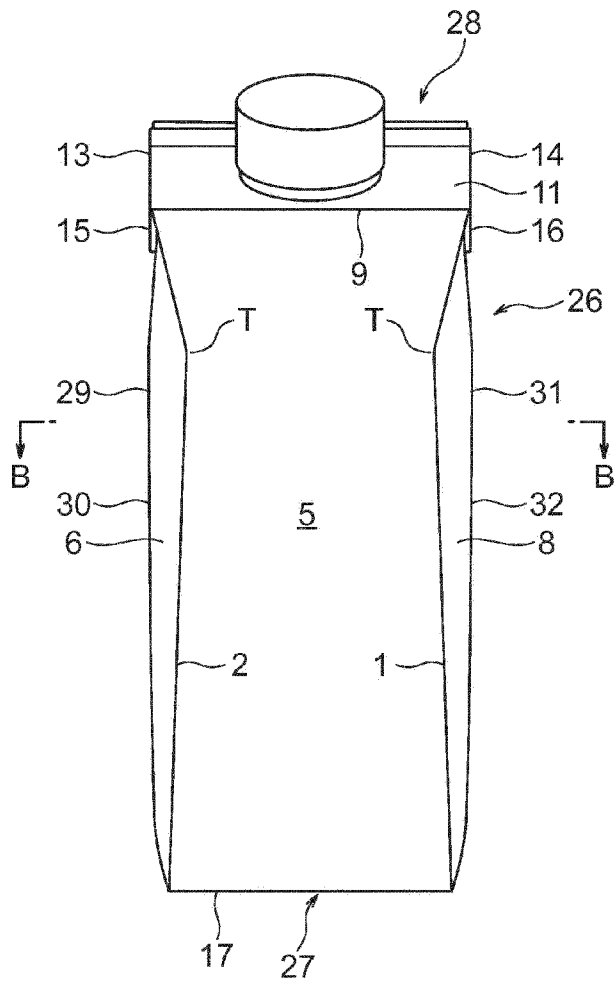


FIG. 9

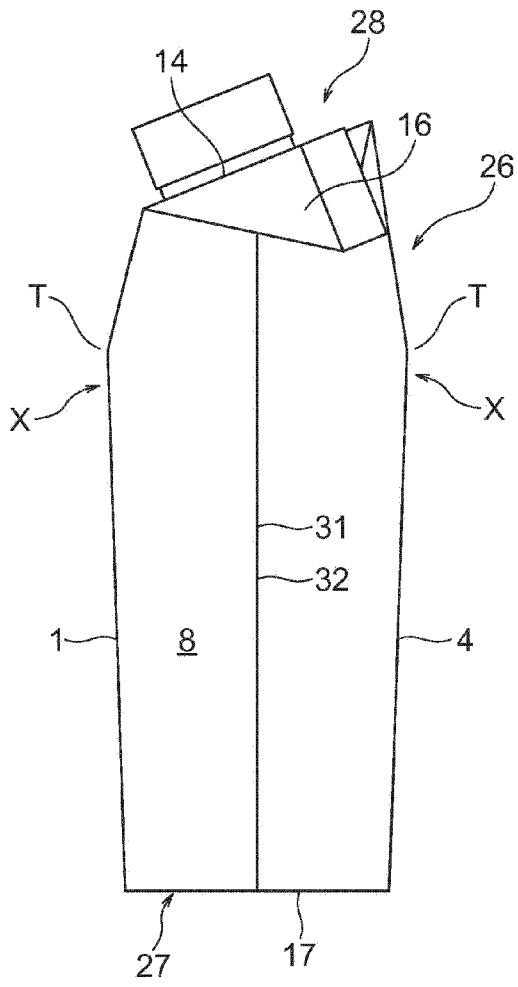


FIG. 10

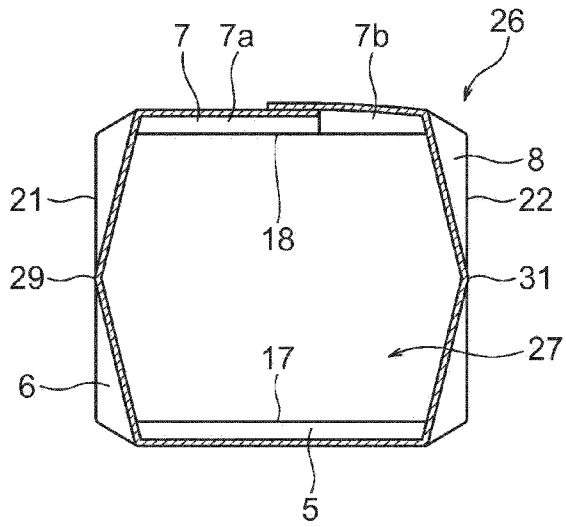


FIG. 11

