

July 22, 1941.

R. M. BERGSTEIN

2,250,249

CONTAINER

Filed Feb. 4, 1936

3 Sheets—Sheet 1

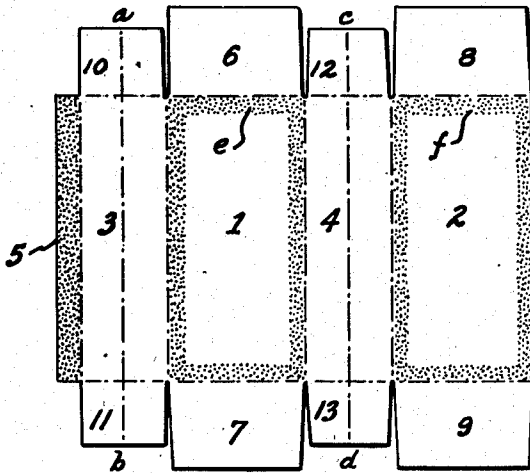


FIG. 1.

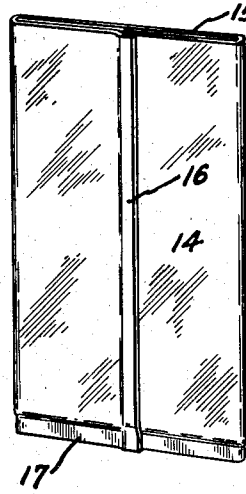


FIG. 2.

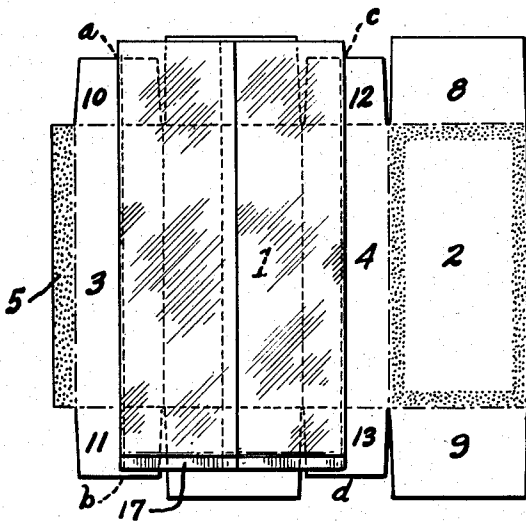


FIG. 3.

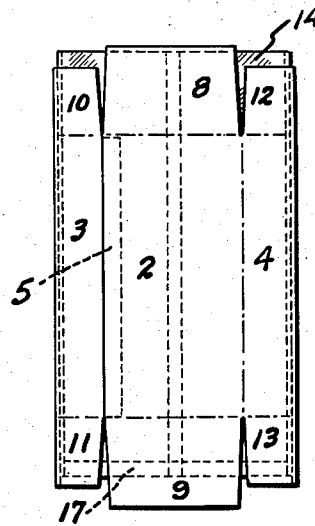


FIG. 4.

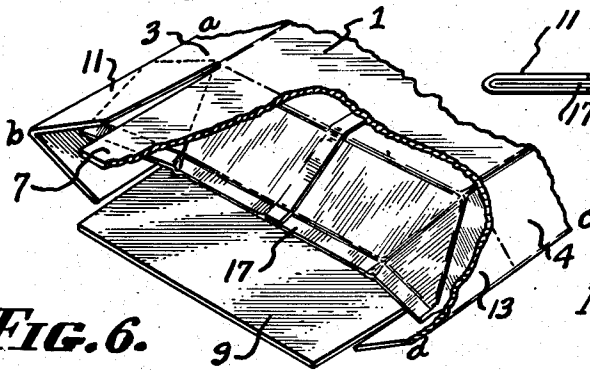


FIG. 6.

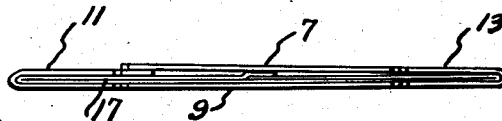


FIG. 5.

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3 Sheets-Sheet 2

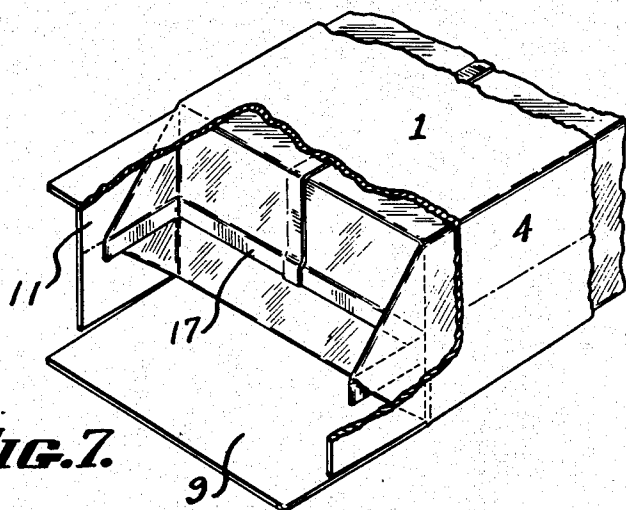


FIG. 7.

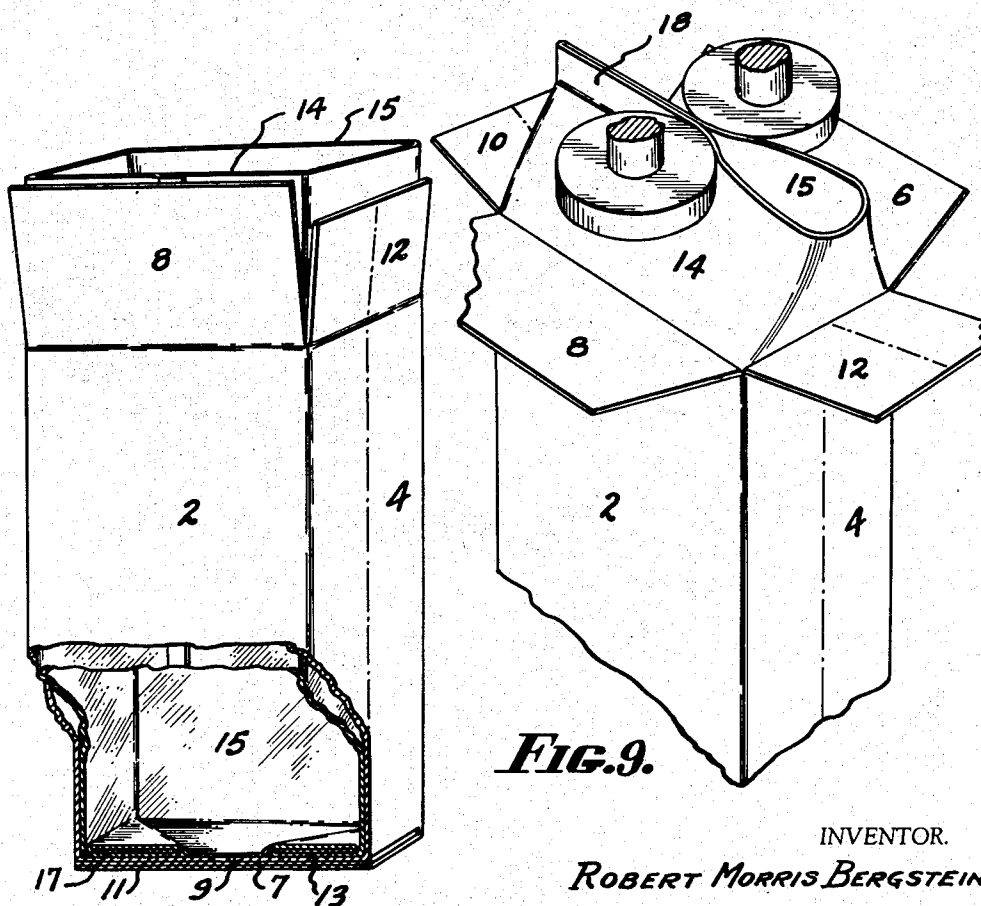


FIG. 8.

FIG. 9.

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3 Sheets—Sheet 3

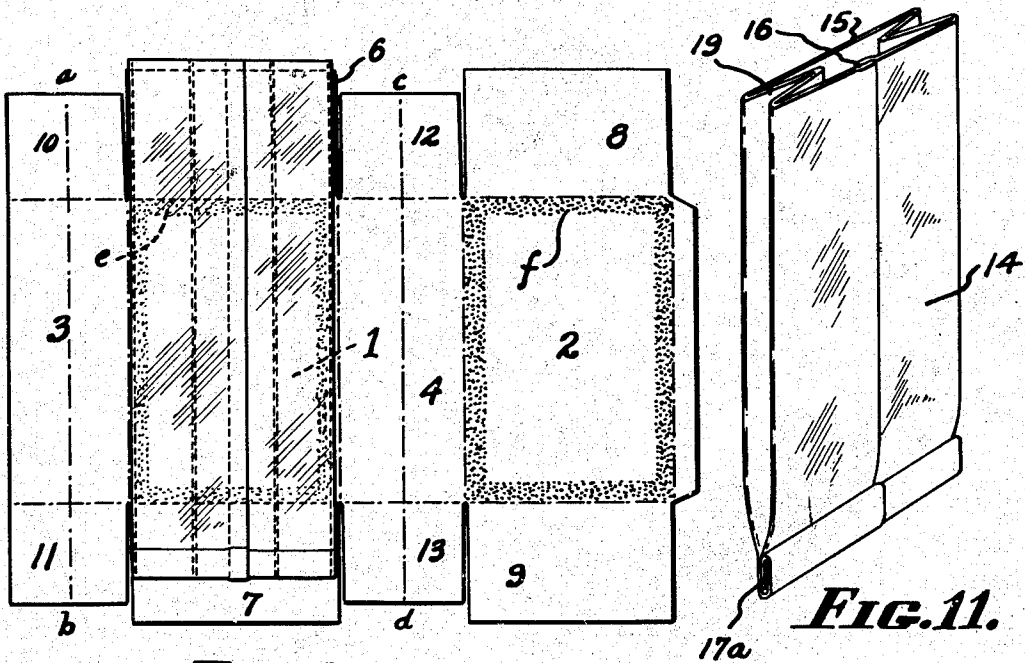


FIG. 10.

FIG. 11.

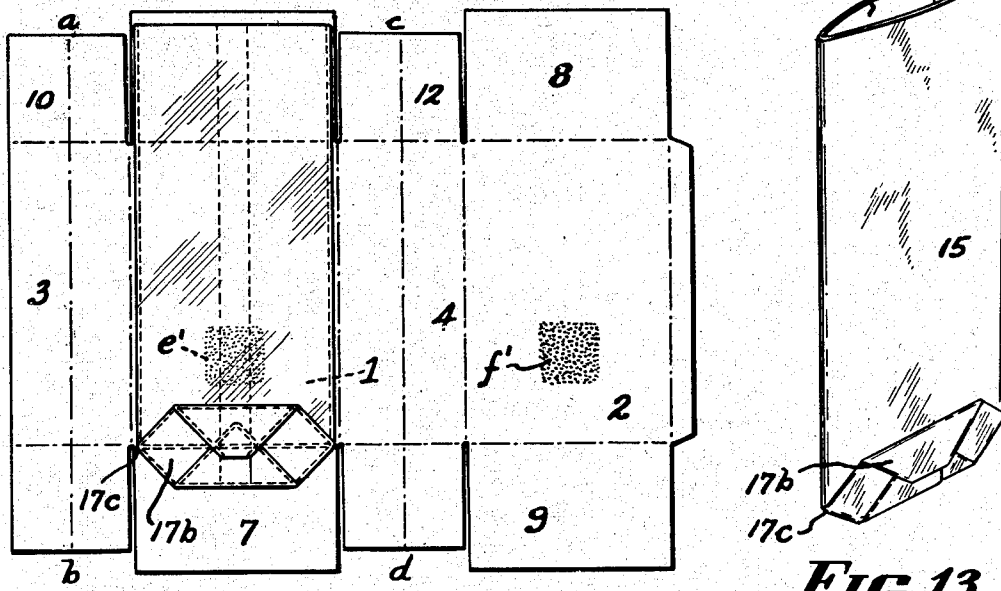


FIG. 12.

FIG. 13.

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UNITED STATES PATENT OFFICE

2,250,249

CONTAINER

Robert Morris Bergstein, Cincinnati, Ohio, assignor, by means assignments, to himself, and Frank David Bergstein, as trustees

Application February 4, 1936, Serial No. 62,324

9 Claims. (Cl. 229-14)

My invention relates to the provision of containers and cartons having enclosed bags or tubular linings adapted particularly for use where air-tight packaging is required.

In my application, Serial No. 43,570, I have disclosed a bag or tubular liner to be inserted within a carton, preferably during the folding and sealing of the carton, in which the bag is formed from a tube sealed without folds therein, by combining opposite faces of ends of the tube to form a flat area, which makes the bag particularly adaptable as a liner for a carton which is shipped folded flat.

In my application, Serial No. 43,569, I have disclosed a carton comprising a four wall folding structure having a liner formed of heat sealable material therein, formed of a lapped seam tube adhesively secured to walls of the structure so that when the carton is opened up the liner is also opened.

It is the object of my invention as described herein to provide improvements in the constructions referred to in the aforementioned co-pending applications.

It is the object of my invention to provide a carton having six parallel score lines instead of the usual four, and which may be folded midway of the two opposite panels instead of being folded in the manner disclosed in my application Serial No. 43,569.

It is further my object to provide such a carton in knocked-down form in which the folding thus described is preferably done on two opposed narrow panels of the carton rather than on the wide ones, thus making it possible for the two wide panels to be in alignment, each with the other, when in knocked-down condition.

When a bag, regardless of its construction, is inserted and adhesively fastened to the inner walls of the six parallel score lined carton, the securing being done preferably on the two opposite wide panels, when the carton is thereafter squared up, the walls of the bag are also squared up because the two opposed wide panels of the carton move apart in parallel planes at right-angles to the surfaces of the wide panels thereby causing the opposed walls of the bag to open up with even tension on the bottom. The carton as disclosed in my application, Serial No. 43,569, has a bag liner the bottom of which does not accommodate itself to any predetermined fold line of the carton and presents a twisted crinkled bottom which requires a puff of compressed air or other gas to square out to conform to the bottom walls of the carton.

There is a tendency in my new type carton for the two opposite narrow panels to collapse, due to the fact that they are creased and folded in the middle. However, when the end flaps of the carton are interfolded and fastened, the retention of the square shape of the container is insured, which prevents the collapsing of the carton at the center folds of the two opposite narrow panels.

It is an object of my invention to place the bottom of the bag, if it has a flat sealed bottom, about one-sixteenth of an inch beyond the half-way dimension of the wide panel closure flaps, and to make the bag of slightly larger dimensions than the carton, so that the resistance to the external expansion of the carton will be borne by the carton itself rather than by the bag. It is an object to provide a carton and bag liner, in which squaring up of the carton causes a flat sealed bag to conform to the shape of the carton. It is also an object to provide a carton in which, regardless of whether the bag is of the bellows-folding or satchel bottom this same thing occurs, thus making a container readily available for contents requiring air or liquid tightness. A flat bag is preferable because the top and bottom seals can be made more air and liquid tight.

It is broadly the object of my invention to provide a carton having a bag liner, whether such liner has a flat sealed bottom or whether it has a satchel bottom or infolding bellows-fold sides, wherein the squaring up of the walls of the carton will cause the bag bottom to conform immediately to the shape of the bottom of the carton, and so that the carton will be immediately ready to receive the contents whether it be a non-oxidizing gas content, or the actual material which is to be packed therein.

It is my object to provide such a carton having closure flaps which interlock frictionally or by tucking-in, or to have closure flaps of the usual type which may be sealed by overlapping one flap relative to another. My invention therefore is not to be limited to a carton having any particular type of end closure flaps, as the principle of aligning the seal at the end of the bag with the normal fold lines of the carton walls is the particular feature of my invention, which is an improvement over my hereinbefore referred to co-pending applications.

Referring to the drawings, in which I have illustrated a preferred modification of my invention:

Fig. 1 is a plan view of the preferred type of

carton having six parallel score lines instead of the usual four.

Fig. 2 is a perspective view of my preferred type of inner bag or liner.

Fig. 3 is a plan view of the carton blank after the bag has been inserted in position on the blank.

Fig. 4 is a plan view of the blank after the first folding and sealing operation.

Fig. 5 is an enlarged end view of the folded blank shown in Fig. 4.

Fig. 6 is a perspective view showing the position which the bag bottom assumes with the initial opening up or squaring up of the carton walls.

Fig. 7 is a perspective view of an end of a carton after the walls have been squared up.

Fig. 8 is a perspective view of a set-up carton with portions cut away to illustrate the condition of the bag relative to the carton when it is ready to have the contents placed therein.

Fig. 9 is a perspective view of a carton after the contents have been placed therein showing the manner in which the top seal of the bag may be made.

Fig. 10 is a plan view of a carton blank having one specific type of bag serving as a link which bag has infolding bellows-fold sides.

Fig. 11 is a perspective view of a bag such as is shown as a liner in Fig. 10.

Fig. 12 is a plan view of a carton blank having a bag liner with a satchel bottom.

Fig. 13 is a perspective view of the bag shown in Fig. 12.

The blank shown in Fig. 1 has opposed side walls 1 and 2, with intermediate end walls 3 and 4, which end walls are subdivided by means of fold lines *ab*, *cd*, which extend down medially of the end walls lengthwise of the carton. Areas of adhesive *ef*, are preferably placed on the side walls 1, 2, for securing opposed walls of the bag to said side walls. With the flat bottom type of bag adhesive may be used to secure the bag walls to all of the walls of the carton. Ordinarily such adhesive is not necessary. The carton has a sealing flap 5 coated with adhesive on one surface which overlaps and is sealed against the inner surface of the side walls 2, and retains the carton in tubular shape when the walls are folded.

The side walls 1, 2, have end closure flaps 6, 7, 8, and 9 respectively and the end walls 3, 4, have end closure flaps 10, 11, 12, 13, respectively.

Aside from the application of the adhesive to areas of the inner surface of the side walls, the carton blank illustrated is of conventional type, and as has been stated, the particular type of end closure flaps 6 to 13, forms no part of my invention.

The tubular bag has opposed walls 14, 15 and a lap sealed joint 16. One end of the tube has a flat end seal 17. In the manufacture of the carton the sealing apparatus used may be similar to that shown in Fig. 1 of my application, Serial No. 43,569, which is not reproduced herein, as it forms no part of the subject matter of this invention.

The blank shown in Fig. 3 shows the tube after its application to one of the carton blank walls. It will be noted that the side edges of the tube extend slightly beyond the fold lines *ab*, *cd*, so that when the carton is opened up the strain from internal pressure will be borne by the carton walls rather than by the bag walls.

Fig. 4 shows the blank after it has been folded and sealed in knocked-down condition. The

folding of the carton from the position shown in Fig. 3, to the position shown in Fig. 4, is accomplished by folding the blank along the lines *cd* and *ab*.

Fig. 6 shows the knocked-down carton during the first operation of setting up the walls. The flat sealed bottom 17 of the bag, it will be noted, extends across between the fold lines *cd*, *ab*.

Fig. 7 shows the carton after it has been squared up, in which position the bag bottom sealed portion 17 folds over so that it lies flatly across the bag. By the adhesion of the sides 14, 15, to the adhesive coated portions of the side walls 1, 2, the bag is pulled out so that it has a flat squared bottom conforming to the shape of the carton.

After the contents of the bag have been inserted, the upper edges of the bag may be sealed with heated rollers by running the carton with the carton flaps folded out flatwise, and the rollers engaging the walls 14, 15, of the tube, thereby providing a sealed joint 18 which may be tucked into the carton with a flat fold prior to the folding down and final securing of the end closure flaps 10, 12, 6, 8.

Figures 10 and 12 show cartons similar to the carton illustrated in Figure 1 and having the same numbered parts. Figures 11 and 13 show different types of bags combined with the carton. In Figure 11 the bag has an overlapped longitudinal seam 16 but the sides of the bag have in-turned bellows-folded portions 19. The bottom of the bag has a doubly folded end 17a. In the positioning of this type of bag within the carton (shown in Figure 10) the actual bottom of the bag is positioned slightly beyond half the thickness of the carton so that when the carton is opened up and the walls 1 and 2 separate in parallel lines at right-angles to the said walls the side walls of the bag will be pulled apart evenly causing the bottom 17a to extend across the carton bottom slightly beyond the bottom of the carton so that the pressure on the bag bottom will be exerted against the carton walls and not against the bag walls.

In Figure 13 the bag has a satchel bottom 17b with corner portions 17c. In positioning this type of bag within the carton the corners 17c should lie slightly beyond the line of articulation of the wall 1 and the sealing flap 7 so that when the carton is set up we will again have the strain not on the bag but on the carton walls. I have further shown in Figure 12 a slightly different application of adhesive which it will be noted is in square patches *e* and *f*. As long as there is substantial adhesion of the opposed bag walls to those walls of the carton, which when the carton is opened up move apart along parallel lines at right-angles to the surfaces of these walls, the bag, regardless of its construction will be squared up and opened.

The tendency of bags within cartons is to shift up and down relative to the carton walls and adhesion of the bag to opposed walls of the carton prevents this.

The inner dimensions of the bag, as has been stated, are slightly greater than the enclosing walls of the carton, so that there will be no strain on the bag walls themselves. The fact that the flat sealed end of the tube is pulled into shape by the squaring up of the carton walls, provides a container into which the contents may be placed with a minimum likelihood of rupture of the tube due to crinkling of the bag bottom, causing undue pressure on certain portions thereof.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A container in flat folded form capable of being erected or squared up, comprising a carton having closing flaps at each end and collapsed on medial fold lines in two opposed walls thereof and having other opposed walls in registry, and a bag within said carton having its longitudinal edges parallel with said medial fold lines and lying between them, and its open end projecting free of the closing flaps of the carton at one end thereof, sufficiently for closure independent thereof, said bag being adhesively secured in place within the carton, to the registering walls at least.

2. A container in flat folded form capable of being erected or squared up, comprising a carton having closing flaps at each end and collapsed on medial fold lines in two opposed walls thereof, and a bag within said carton having its closed end extending across between said fold lines, and its open end projecting free of the closing flaps of the carton at one end, said bag being placed in the carton so that its closed end extends beyond the juncture of the closing flaps with the carton at the other end of the carton, said bag being adhesively secured in place within the carton, so as to open and close therewith.

3. A container in flat folded form capable of being erected or squared up, comprising a carton having closing flaps at each end and collapsed on medial fold lines in two opposed walls thereof, and a bag within said carton having its closed end extending across between said fold lines, and its open end projecting free of the closing flaps of the carton at one end thereof, said bag having its inside at least integrally united at all seams, as by heat fusing, and adhesively secured to the carton so as to open and close therewith.

4. A container in flat folded form capable of being erected or squared up, comprising a carton having closing flaps at each end and collapsed on medial fold lines in two opposed walls thereof, and a bag within said carton having its closed end extending across substantially the entire space between said fold lines, and its open end projecting free of the closing flaps of the carton at one end thereof, the closed end of the bag being a uniting of the faces of the side walls of the same.

5. A flat folded carton having six parallel fold lines, two of which are medial lines on two opposite panels, said panels being folded outwardly on the two medial lines, said carton having a tubular liner with a closed end, fastened so as to move together with two other opposed panels when said panels are moved apart during erection of said carton, whereby when the carton is

erected it results in a rectangular shaped container.

6. A flat folded supporting shell of relatively rigid material having six parallel fold lines, two of which are medial lines on two opposite panels, said panels being folded outwardly on the medial lines, said shell having a tubular liner with a closed end, fastened so as to move together with two other opposed panels when said panels are moved apart during erection of said shell, whereby when the shell is erected it results in a rectangular shaped container.

7. A container in knocked down form comprising a flexible bag with a carton folded outwardly thereabout on medial lines of fold in an opposite pair of panels, the remaining pair of panels being secured to opposite walls of said bag, whereby when said remaining pair of opposite panels are moved apart, the wall portions of the bag secured thereto will likewise move apart, the closed bottom of said bag projecting sufficiently beyond the ends of the panels of said carton to be pulled up into a plane substantially coincident with said ends when said container is erected.

8. A container comprising a flat folded supporting shell of relatively rigid material and an inner liner having a closed end, said shell having six parallel fold lines, two of which are medial lines on two opposite panels and being folded outwardly on the medial lines, the liner being secured to the shell whereby when the shell is erected it results in a rectangular-shaped container and opens up the liner, said closed end of said liner projecting sufficiently beyond the ends of the panels of said shell to be pulled up into a plane substantially coincidental with the plane of said ends when said shell is erected.

9. A flat folded carton having body panels and closure flaps, two opposite panels having medial fold lines on which the carton is folded, giving a flat tubular structure, and a flat tubular liner in said carton, capable of being squared up with said carton, said liner being adhered to two opposite panels of said carton, projecting sufficiently beyond the ends of said panels at one end of the carton to permit the formation of an independently sealed closure after filling, and having an end closure at its other end, said end closure projecting sufficiently beyond the ends of said panels to permit the projecting closed end of said liner to be pulled up into a bottom substantially coincident with the plane of the ends of said panels when said carton is erected, said bottom as so erected having two ears foldable inwardly with closure flaps on said panels which have medial fold lines.

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