

Feb. 14, 1967

M. W. FORTNEY

3,304,185

PRESSURE CARTON

Filed June 20, 1952

4 Sheets-Sheet 1

Fig. 1.

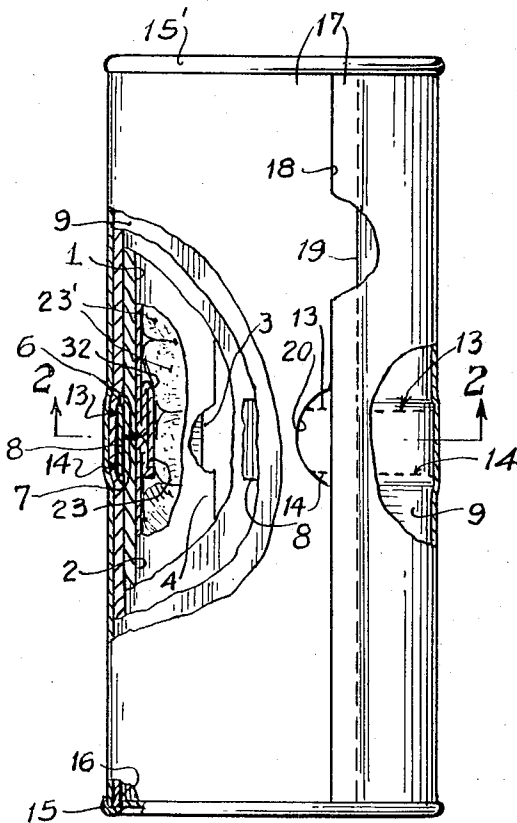


Fig. 3.

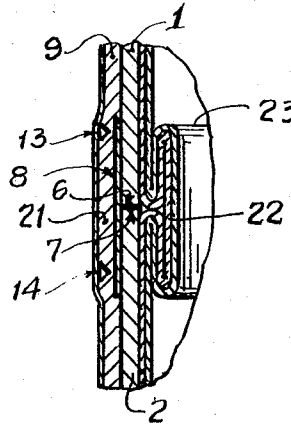


Fig. 4.

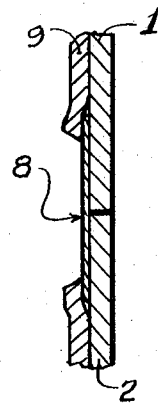


Fig. 5.

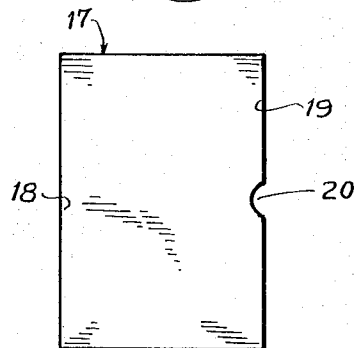
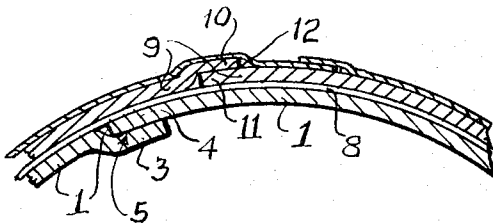


Fig. 2.

INVENTOR,
MAURICE W. FORTNEY
By *Philip Subkow*
ATTORNEY.

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4 Sheets-Sheet 3

Fig. 9.

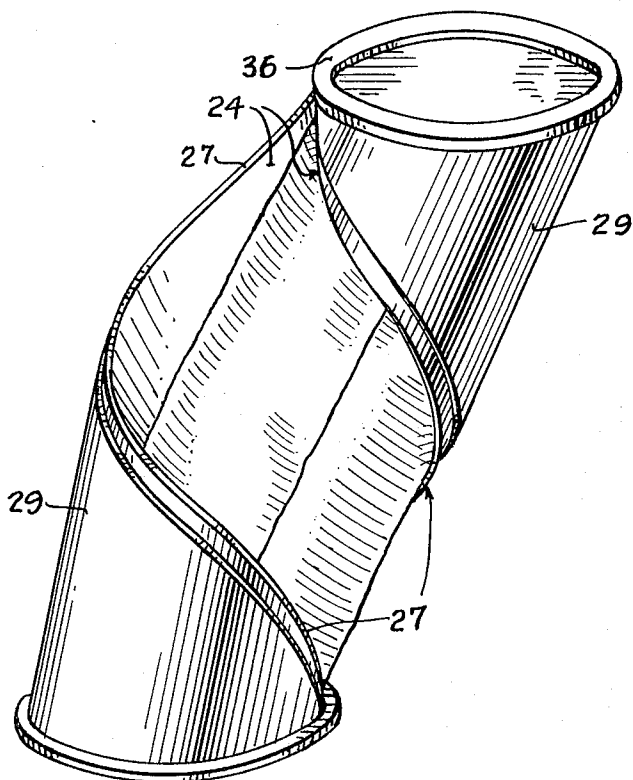
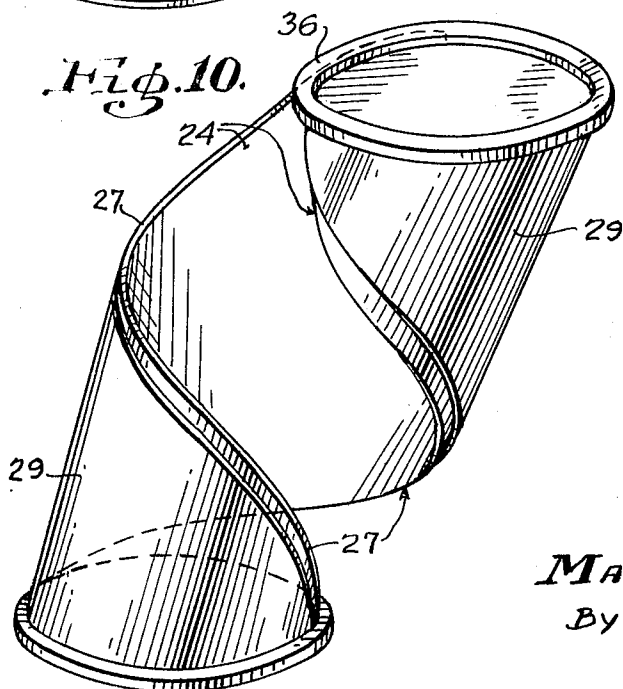


Fig. 10.



INVENTOR.
MAURICE W. FORTNEY
By *Philip Sukow*
ATTORNEY.

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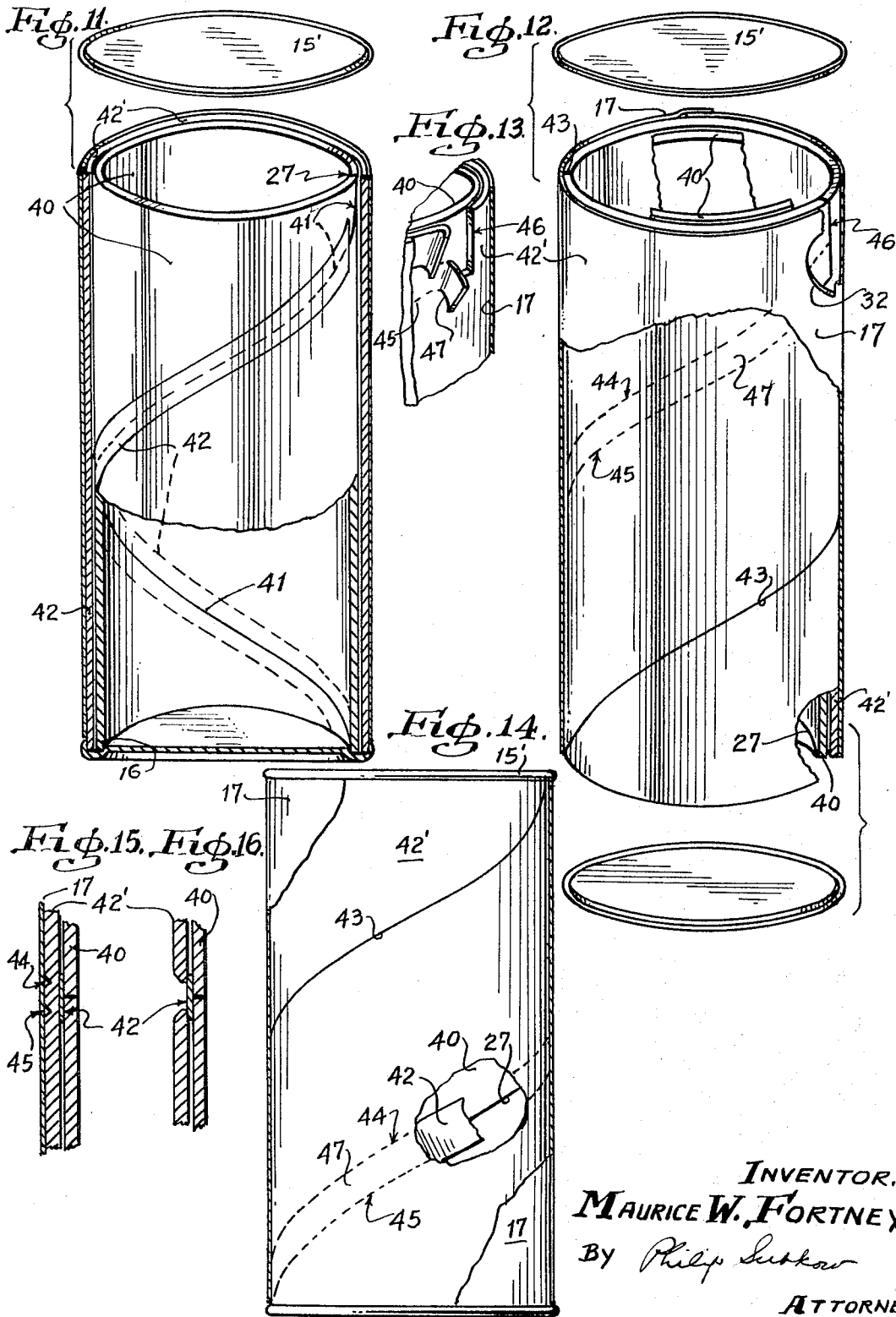
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Filed June 20, 1952

4 Sheets-Sheet 4



INVENTOR,
MAURICE W. FORTNEY
By *Philip Sukow*
ATTORNEY

1

3,304,185

PRESSURE CARTON

Maurice W. Fortney, Compton, Calif., assignor, by mesne assignments, to General Mills, Inc., Minneapolis, Minn., a corporation of Delaware

Filed June 20, 1952, Ser. No. 294,631

24 Claims. (Cl. 99-172)

This invention relates to a carton construction particularly made of paper, cardboard or other easily tearable sheet material of relatively low tensile or shear strength.

It is particularly directed to the type of carton suitable for packaging dry material under superatmospheric pressure.

It is particularly designed for the packaging of dough under the autogeneous superatmospheric pressure of the CO₂ generated by leavening action or introduced into the package in any other manner.

The dough is packaged in kraft paper tubular cartons which are capable of resisting a considerable pressure. The ends of the paper carton are usually in the form of sheet metal caps clinched to the edges of the cardboard tube. In most cases the dough is first wrapped in paper, laminated with aluminum foil, and the wrapped dough inserted in the carton, which carries a sheet metal cover clinched over one end of the tubular carton, the other end being open. After the wrapped dough is inserted in the carton, the open end is closed by a second sheet metal cover clinched over the open end of the carton. The capped tube is allowed to stand for 30 minutes to 4 hours, depending upon the atmospheric temperature. Pressure develops in the carton. The pressure is generated by the carbon dioxide released by the reaction of the acid leavener with the bicarbonate. The dough thus contains considerable CO₂ both as free gas and dissolved in the moisture of the dough.

The development of the gas pressure is termed "proofing period." At the end of the proofing period the package is firm and hard to the grasp and is then passed to refrigerated storage.

The problem of opening such packages has always been a serious difficulty in the distribution of the package to the householder. The usual procedure is to cut the package with a knife to separate the lid or to pry off the lid with a special tool, such as is used to open capped beer bottles. The dough becomes thus exposed to the air and the pressure is vented to atmosphere. The wrapper and the contents of the dough may then be removed.

The common experience with packaged dough, especially dough which is packaged in the form of dough wafers which are suitable for baking as baking powder biscuits, is that the dough squirts out of the cut package, or the dough, especially the end wafer, is considerably mutilated.

The dough is wrapped in a sheet of material, for example, foil laminated paper, and inserted in the carton. The package may then be proofed and stored in the refrigerator or other low temperature storage space.

I have found that, employing the wrappers of the prior art the carton section will not separate even though a high pressure of the order of 15 to 30 pounds per square inch above atmospheric is present inside the carton. In fact, it is virtually impossible for a person of

2

average strength to pull the carton ends off the wrapped biscuit dough even after the label is cut at the joint between the carton sections. It is necessary to cut the wrapper and vent the pressure before the carton ends can be withdrawn over the wrapped dough. When this is done the dough squirts out of the broken wrapper.

While I do not wish to be bound by any theory of why these observed results occur, the following explanation appears valid. In the case of packaged biscuit dough, the pressure developed inside the dough presses the dough and the paper wrapper against the cylindrical surface of the carton. This seals the carton and makes it substantially pressure tight. The leakage of gas through the carton is at a low rate, if any at all. The carton can thus be kept stored under refrigeration for prolonged periods of time. The pressure, however, presses the paper wrapper so tightly against the circumambient wall of the container that the friction thus developed is sufficient so that the pressure of the gas against each of the capped ends of the carton does not separate the carton ends. In fact the friction is so high that a person of average strength cannot, unless he breaks the paper wrapper, pull the carton sections over the wrapper to open the carton by pulling the carton sections apart.

I have found that in order to facilitate the opening of the carton so that even a child or a woman can open the carton without breaking the wrapper it is desirable to lower the pressure in the wrapper. When this is done the carton ends may be drawn readily over the wrapped dough.

I have developed means for reducing the pressure inside the wrapper without breaking the wrapper or otherwise venting the pressure inside the wrapper to atmospheric. I have attained this result by making the wrapper expansible so that the volume of the wrapped dough may expand inside the wrapper as a force is applied to the carton sections to separate them. The increase in volume reduces the pressure in the wrapper and against the wall of the carton and thus reduces the friction opposing the sliding of the carton over the wrapper.

I have accomplished this result in one embodiment of my invention by introducing a pleat or fold into the wrapper, positioned intermediate the ends of the wrapper, the pleat or fold running circumferentially around the carton so that when the circumambient walls of the carton sections are separated from each other the pleat or fold unfolds. Thus, the volume of the wrapper increases, permitting the dough to expand and thereby the pressure of the gas is reduced.

When the label is cut the carton ends separate quite readily, the fold or pleat opening up, as described above, and the carton ends separate quite readily. In fact, if the pressure in the package is sufficiently high as frequently is the case if an excessive amount of dough or leavening agent had been used or if the temperature of the refrigerated storage is allowed to rise unduly, the ends separate under the autogeneous pressure when the label is cut.

This introduces a considerable hazard in storage especially where the packages are displayed in open refrigerated display cases in the retail store. If the labels are usually quite flimsy, mere handling of the package may cause the label to tear at the junction between the two carton halves and if the wrapper carrying the intermediate fold is used the package opens up and is thus not saleable.

3

It is an object of my invention to construct a carton which will not open up even though no label or other cover for the carton is employed and even if the label is torn or mutilated.

It is a further object of this invention to construct a carton which may be opened easily without the use of a knife or special tools or implements.

I accomplish this result by making the carton of two layers joined together by adhesive or other binder. The inner layer is cut so that the inner tube may be opened up at the cut but when assembled with the abutting carton ends at the cut against each other a tight container may be obtained. An outer layer is wound entirely around the inner layer and may and preferably is adhesively connected to the inner layer so that the end cut portions are abutted and held closed. Means is provided to tear the outer layer so as to reveal the cut portion of the inner layer and thus the carton may be opened at the cut portion of the inner layer and the carton thus opened.

These and other objects of my invention will be described in connection with the drawings, in which

FIG. 1 is a vertical view partly in section and with parts broken away for clearer illustration;

FIG. 2 is a section taken along the line 2—2 of FIG. 1;

FIG. 3 is an enlarged fragmentary detail in section of the joint shown in section on FIG. 1;

FIG. 4 is a similar view;

FIG. 5 is a plan view of the label used in FIG. 1;

FIG. 6 is a vertical view partly in section and with parts broken away and other parts in elevation, illustrating a modification of the invention;

FIG. 7 is a perspective view of the package shown in FIG. 6 with parts in section and parts broken away;

FIG. 8 is a section taken on line 8—8 of FIG. 6;

FIG. 9 is a perspective view of the package of FIG. 6 opened and revealing the wrapped dough;

FIG. 10 is a view similar to FIG. 9 but with the contents removed;

FIG. 11 is a perspective view, partially in section, with parts broken away, of another form of the container;

FIG. 12 is another perspective exploded view of the container of FIG. 11, with parts broken away and parts in section;

FIG. 13 is a detail of the container of FIGS. 11 and 12 with parts broken away and parts in section;

FIG. 14 is another view of the container of FIGS. 11 and 12 assembled, with parts broken away and parts in section;

FIG. 15 is a sectional detail of the container of FIGS. 11 and 12; and

FIG. 16 is a detail of FIG. 15 after removal of the strip 47.

In FIG. 1 two equal halves 1 and 2 of an inner convolute wound (spiral wound) tube having overlapping ends 3 and 4, glued together at the overlap 5 and abutting at their ends 6 and 7 are wound around at the joint between 1 and 2 with a ribbon 8 which covers the joint. A second layer wind 9, equal in length to the halves 1 and 2, is wound over the abutting halves 1 and 2 and glued to the under layers 1 and 2, but, as will be explained below, not glued to the ribbon. The outer layer is also convolute wound with the ends 10 and 11 overlapping and glued at the overlap 12.

The outer layer 9 is scored in two parallel circumferential scores 13 and 14 spaced apart equally on either side of the joint between 6 and 7 and overlying the ribbon 8, the ribbon being somewhat wider than the separation between score marks for this purpose. The tube thus formed is closed at one end by a circular sheet cover 15 which is clinched over the end 16 of the tube, the other end being open.

When the contents have been placed inside the package, the carton is closed by a cap 15' similar in form and similarly attached as was explained for cover 15 and a label 17 may be placed on the outside of the outer winding

4

9. As shown, the label has a notch 20 placed on the edge 19 of the label. When the label is placed on the outside of the winding 9, with the edge 18 overlying and lapping the edge 19, the notch overlies the scoring 13 and 14 and reveals the edge 11 of the outer layer 9.

It will thus be seen that a fingernail, or, if desired, a knife blade can be inserted underneath the edge 11 and the strip 21 torn circumferentially, the scoring 13 and 14 making the severance easy. When the strip is torn the label tears readily with it.

As has been stated above, the outer layer 9 at the strip 21 is not glued to the ribbon and thus the strip comes off easily, as does the ribbon.

It has been found that the ribbon, if made of water repellent material, will not be wetted by glue and thus adhesive bond between the ribbon and the paper stock of which the cartons are made is not obtained. Such material is any of the water repellent or water non-absorbent synthetic resin material or treated synthetic resin materials such as water repellent cellophane, polyvinylidene chloride, chlorinated rubber, polyethylene and other similar resin film materials, waxed paper or similar materials, all of which are well known to have such water repellent non-absorbent properties so as not to be wetted by or bonded by glue or other water base adhesive.

After the strip 21 has been removed the carton ends may be separated axially and the contents revealed.

When using the carton to package biscuit dough wafers, I may use the expedient of introducing a fold or pleat circumferentially into the wrapper, one form of such pleat or fold is illustrated in FIGS. 1 and 3. The wrapper 23 illustrated as formed of laminated paper and aluminum foil is pleated with a box pleat 22 intermediate the ends of the wrapper.

The biscuit wafers 23' are placed in the wrapper and stacked and the wrapper is folded over the biscuit wafer with longitudinal edges of the wrapper and the ends of the wrapper folded over the biscuits so as to completely enclose the biscuits. The stacked and wrapped biscuits are placed in the container and the cap 15' is placed in position and the carton labeled.

It may then be opened in the manner described above and the severed ends of the carton will then separate easily, the pleat unfolding as the carton sections separate. The wrapped dough may then be withdrawn from the container.

It will be observed that the carton prior to tearing off of the strip 21 is securely held in an integral structure. The scoring is insufficient to weaken the material of the outer wrapper, sufficient hoop and tensile strength is present to hold the package integral even with rough handling and even if no label is used or if used even when the label is torn or removed.

Instead of placing the joints 6 and 7 and the scores 13 and 14 circumferentially of the tubular carton wall, I may place them helically around the carton wall, as is illustrated in FIGS. 6 and 7.

The inner convolute wound tube 24 has overlapping ends 25 and 26 adhesively secured. A spiral cut 27 extends substantially, entirely through the tube 24, i.e., substantially in 360° helix. A ribbon 28 of the same kind as ribbon 8 is helically wound so as to overlie the cut 27. The outer convolute layer 29 with overlapping ends 30 and 31 is adhesively secured (except at the ribbon 28) to the inner convolute layer 24. The outer convolute layer is scored in two spaced parallel helical scorings 33 and 34 from edge 32 substantially 360° around the outer layer from one end of the outer layer. The score marks are equally spaced on both sides of the helical cut 27 and overlay the ribbon, which is just a little wider than the distance between the spaced score marks for this purpose.

The tube is capped with cap 35 at one end and is open on the other end until the contents are placed inside the tube when the second similar cap 36 is placed on the

5

top. These caps are clinched on in the same manner as caps 15 and 15'.

A label may be placed over the outer layer, the label being notched, as is shown in FIG. 4, similar to the notch 20 in the label 17 and for like purpose but in this case the notch 37 is placed so as to reveal the upper end of the spiral at 38.

In order to open the container, a finger nail or knife edge is placed under the edge 32 at the place 38 and the strip 39 between the score marks 33 and 34 torn helically from point 38 to point 39 substantially 360° around. The strip 39 comes off easily since it is not glued to the ribbon. The ribbon 28 will thus be revealed and since it is not adherent to either 39 or 24, is easily removed. The ends of the carton are held securely in the caps in circular conformation so that if the capped ends are twisted the carton will open up as is illustrated in FIGS. 9 and 10.

It will be seen that the contents are easily removed. Thus if the contents be wrapped and stacked biscuit dough wafers, the package is placed in the condition shown in FIG. 9, is completely vented and the wrapped dough readily removed. The form of the open package with the contents removed appears in FIG. 10.

While, as I have disclosed, I prefer to employ a convolute wound tube for the outer tube of FIG. 1, the inner tube of any of the forms illustrated may be helically wound as may the outer tube in all of the forms.

In FIGS. 11, 12 and 13 the inner layer 40 may be a helically wound strip of kraft paper so as to make a helical joint 41, between adjacent forms of the helix, which is equivalent to the cut 27 in the form of FIGS. 6 and 7. The helix as shown is a 360° helix, but it may be of more than one revolution. The joint 41 starts at one end of the inner winding and terminates at the opposite end. A ribbon 42, similar to ribbon 28, is helically wound over the helical cut or joint 41. The outer layer 42' is also helically wound and is positioned over the inner layer so that the helix or the joint 43 is 180° out of phase with the helical joint 41. The layers are adhesively connected except at the ribbon which is clinched between the two layers and is not adhesively connected either to the outer layer 42' or the inner layer 40, being of the nature of the ribbons of the form shown in FIGS. 1 and 6. The outer layer is scored with two parallel helical score marks 44 and 45 which go substantially 360° around the outer wall and are equally spaced on both sides of the helical joint 41 and overlie the ribbon which is just wider than the distance between 44 and 45. A vertical cut 46 parallel to the axis of the tube is made in the wall of the outer layer 42' only, and intersects the line of the score marks 44 and 45.

The tubes are capped and filled in the same manner as was described for FIG. 6. The label 17 is mounted so that the notch 32 reveals the vertical cut 46. While the vertical cut 46 intersects the cut 41, the wrapper, expanded by gas pressure in the proofed dough, will seal this opening, if the package is used for packaging chemically leavened dough, under the autogeneous pressure of the generated CO₂, in that sense the joint 43 covered by the inner layer 40, is thus sealed.

It will be seen that by inserting a knife between the edges at 46, the strip 47 may be torn off in the same manner as strip 39 of FIGS. 6 and 7 and the package opened in the manner illustrated in FIGS. 9 and 10, by giving the package end an axial twist in opposite directions.

While I have disclosed a two layer laminated container with the inner layer reversed and the outer layer scored in lines of weakness, I may, if the outer layer is of sufficient strength for the purpose indicated, use only one convolute wind and omit the inner convolute wind, and consequently the ribbon also. In all other respects the container may be of the form described for FIGS. 1-4 and 6-14. By tearing the strip off of the single convolute

6

wind in the same manner as is described above for the outer convolute wind, I may open the container in the same manner as described above.

While I have described a particular embodiment of my invention for the purpose of illustration, it should be understood that various modifications and adaptations thereof may be made within the spirit of the invention as set forth in the appended claims.

I claim:

1. A pressure package comprising a container, said container comprising a circumambient laminated wall and end covers for said container, said wall extending continuously around said container and composed of an outer lamina and an inner lamina, a continuous section of the wall of the outer section being weakened and extending around said container between said covers, the inner section of said container underlying the weakened section of said container being severed, an expandable wrapper separate from the container enclosed in said container, said wrapper comprising a sheet of flexible sheet material, a fold in said material extending around the circumambient wall of said container between the ends thereof.

2. A pressure package comprising a container, said container comprising a tearable circumambient laminated wall, end closures for said container, said wall composed of an outer lamina and an inner lamina, the circumambient wall of said outer section being continuous, a continuous section of the wall of the outer section between said closures being weakened, the inner section of said container underlying the weakened section of said container being severed, an expandable wrapper separate from the container enclosed in said container, said wrapper comprising a sheet of flexible sheet material, a fold in said material extending around the circumambient wall of said container between the ends thereof.

3. A pressure package comprising a container, said container comprising a circumambient laminated wall, a pair of end closures for said container mounted on said wall, said wall comprising an outer paper lamina and an inner paper lamina, a pair of parallel weakened score markings extending around the outer lamina starting at a point on said outer lamina, spaced apart from one of said end closures and terminating at a point on said outer lamina spaced apart from the other of said closures, the inner lamina being severed at a line extending around said inner section and lying between the said parallel lines of scoring, the circumambient wall of said outer section being continuous, an expandable wrapper separate from the container enclosed in said container, said wrapper comprising a sheet of flexible sheet material, a fold in said material extending around the circumambient wall of said container between the ends thereof.

4. A container comprising a tearable circumambient laminated wall, said wall composed of an outer lamina and an inner lamina, a continuous section of the wall of the outer section being weakened, the inner section of said container underlying the weakened section, of said container being severed, a ribbon of glue repellent material positioned underneath the said weakened section and over the severed section of said inner lamina, said outer lamina being adhesively connected to said inner lamina on both sides of said ribbon.

5. A container comprising a tearable circumambient laminated wall, said wall composed of an outer lamina and an inner lamina, the circumambient wall of said outer section being integral and continuous, a continuous section of the wall of the outer section being weakened, the inner section of said container underlying the weakened section of said container being severed, a ribbon of glue repellent material positioned underneath the said weakened section and over the severed section of said inner lamina, said outer lamina being adhesively

7

connected to said inner lamina on both sides of said ribbon.

6. A container, a circumambient laminated wall for said container, end closures for said container mounted on said wall, said wall comprising an outer paper lamina and an inner paper lamina, a pair of parallel weakened score markings extending around the outer lamina, the inner lamina being severed at a line extending around said inner section and lying between the said parallel lines of scoring, the circumambient wall of said outer section being integral and continuous, and a ribbon of glue repellent material positioned between the said layers and overlying said severed section and underlying the said outer lamina between the said parallel score marks, said outer lamina being adhesively connected to said inner lamina on both sides of said ribbon.

7. A container, a circumambient laminated wall for said container, end closures for said container mounted on said wall, said wall comprising an outer paper lamina and an inner paper lamina, a pair of parallel weakened score markings extending around the outer lamina, the inner lamina being severed at a line extending around said inner section and lying between the said parallel lines of scoring, the circumambient wall of said outer section being continuous, a ribbon of glue repellent material positioned between the said layers and overlying said severed section and underlying the said outer lamina between the said parallel score marks, said outer lamina being adhesively connected to said inner lamina on both sides of said ribbon, the width of said ribbon being substantially equal to the distance between said score marks.

8. A pressure package comprising a cylindrical container, said cylindrical container comprising a cylindrical wall and end closures for said wall, one mounted on each end of said wall, said wall comprising an outer layer and an inner layer, laminated to said outer layer, the outer layer being weakened at a section extending substantially 360° around the circumference of said outer section and lying between the said end closures, the inner layer being severed along a line underlying said weakened section of said outer lamina, an expandable wrapper separate from said container enclosed in said container, said wrapper comprising a sheet of sheet material, said sheet being circumferentially pleated around said circumambient wall.

9. A container, a circumambient laminated wall for said container, end closures for said container mounted on said wall, said wall comprising an outer paper lamina and an inner paper lamina, a pair of parallel weakened score markings extending around the outer lamina, the inner lamina being severed at a line extending around said inner section and lying between the said parallel lines of scoring, the circumambient wall of said outer section being integral and continuous, a ribbon of adhesive repellent material positioned between said outer and inner lamina and overlying the line of severance of said inner lamina and between the said parallel lines of weakness of said outer layer, said ribbon being of width substantially equal to the distance between said lines of weakness in said outer layer, and said lamina being adhesively connected on both sides of said ribbon.

10. A cylindrical container, comprising a cylindrical wall and closures for said container, one mounted on each end of said wall, said end closures being clinched over said wall, said wall comprising a plurality of adhesively laminated helically wound layers, the edges of said helically wound layers abutting each other along a helical line of juncture, the outer layer being weakened along two spaced parallel helical lines terminating intermediate said end closure, the helical line of juncture lying between said parallel lines of weakness of said outer layer, said layers being in non-adherent contact between said parallel helical lines.

11. A cylindrical container, comprising a cylindrical wall, end closures for said container mounted one on

8

each end of said wall, said end closures being clinched over said wall, said wall comprising an outer helically wound layer and an inner helically wound layer, said layers being adhesively secured together, two spaced helical lines of weakness on said outer layer extending substantially 360° around said cylindrical wall from a point in said outer layer adjacent and spaced from one of the closures to a point adjacent and spaced from the other closure, the helical line juncture of said inner layer extending from a point in said inner wall adjacent one closure to a point adjacent the other closure lying between the said parallel lines of weakness of said outer layer, and said layers being in non-adherent contact between said lines.

12. A cylindrical container comprising a cylindrical wall, end closures for said container mounted one on each end of said wall, said wall comprising an outer helically wound layer and an inner helically wound layer, two spaced helical lines of weakness in said outer layer extending around said cylindrical wall from a point in said outer layer adjacent and spaced from one of the closures to a point adjacent and spaced from the other closure, the helical joint of the helically wound inner layer extending from a point in said inner wall adjacent one closure to a point adjacent the other closure, a helically disposed ribbon of glue repellent material positioned between said outer and inner layers and overlying the said helical line of juncture of said inner layer and between the said parallel lines of weakness of said outer layer, said ribbon being of width substantially equal to the distance between said helical line of weakness in said outer layer and said layers being adhesively connected on both sides of said ribbon.

13. A container comprising a circumambient wall, said wall being composed of an outer layer and an inner layer, a continuous section of the wall of the outer layer being weakened, the inner layer of said container adjacent the weakened section of said outer layer being severed, a ribbon positioned underneath the weakened section and over the severed section of said inner layer, said ribbon being in readily separable contact with said inner layer, and said outer layer being adhesively connected to said inner layer on both sides of said ribbon.

14. A container comprising a circumambient wall, said wall being composed of an outer layer and an inner layer, a continuous section of the wall of the outer layer being weakened, the inner layer of said container adjacent the weakened section of said outer layer being severed, a ribbon positioned underneath the weakened section and over the severed section of said inner layer, said ribbon being in non-adhesive contact with said inner layer and separate from said outer layer, the outer layer being adhesively connected to said inner layer on both sides of said ribbon.

15. A dough package comprising a container with dough contained therein and constructed to permit said dough to be bodily removed therefrom without mutilation, said container comprising a lined inner fibrous body forming a generally cylindrical casing and having a generally helical separation line extending substantially the full length thereof and pitched to extend helically around substantially the complete circumference of the container, an outer reinforcing wrapping superposed about said inner body, said outer wrapping having a helical tear line out of register with said helical separation line permitting the container to be opened substantially the full length thereof at said separation line, and a pair of end closures positively clamped at the ends of the container to confine the contents therewithin, said dough being bodily removable from the container without mutilation thereof by grasping the container ends and twisting the same in opposite directions to unwrap the container from the dough throughout substantially the entire length of the package.

16. The structure set forth in claim 15 and said helical tear line consisting in a helical line of perforations to

permit said outer wrapper to be helically split from end to end.

17. The structure set forth in claim 16 and at least the portion of said inner body and said outer wrapping disposed between the separation line and said perforated tear line being detached and free one from the other.

18. A dough package comprising a container with dough contained therein and constructed to permit said dough to be bodily removed therefrom without mutilation, said container comprising an inner fibrous body forming a generally cylindrical casing and having a generally helical separation line extending substantially the full length thereof and pitched to extend helically around substantially the complete circumference of the container, liner material covering the inner surfaces of said inner body, an outer reinforcing wrapping superposed about said inner body and detachably held therearound, said outer wrapping having at least a readily detachable peeling edge portion to facilitate unwrapping and removal thereof from the inner body to permit expansion of the inner body by separation at said helical separation line substantially from end to end of the container, and a pair of end closures secured to the ends of the container to positively seal the contents therewithin, said dough being bodily removable from the container without mutilation thereof by grasping the ends of the container and twisting the same in opposite directions to unwrap the inner body from said dough throughout substantially the entire length of the container.

19. A package for dough products comprising a container with dough contained therein and constructed to permit said dough to be bodily removed therefrom without mutilation, said container comprising an inner body of fibrous sheet material forming a generally cylindrical casing and having a generally helical separation line extending substantially the full length of the container and pitched to extend helically around substantially the complete circumference of the container, liner material covering the inner surface of said inner body, an outer reinforcing wrapping normally held in superposed position about said inner body, at least the portion of said outer wrapping overlying said helical separation line being readily detachable and removable from said inner body to expose said separation line and permit expansion of said inner body by separation at said separation line substantially from end to end of the container, and a pair of end closures secured to the ends of the container to positively seal the contents therewithin whereby the ends of the container may be grasped and twisted in opposite directions to unwrap the inner body from said dough throughout substantially the entire length of the container.

20. The structure set forth in claim 19 and a pair of spaced apart separation lines helically formed in substantially parallel relation in said outer wrapping to define a removable tear strip overlying said helical separation line, at least said tear strip being free and detached from said inner body to permit the same to be readily removable from said outer wrapping and said inner body to expose said separation line and permitting expansion of the inner body by separation thereof at said separation line.

21. A dough package comprising a container with dough contained therein and constructed to permit said dough to be bodily removed therefrom without mutilation, said container comprising an inner fibrous body helically formed into a generally cylindrical casing having a generally helical butt joint forming a separation line and extending the full length of the container and pitched to extend helically around substantially the complete circumference of the container, liner material covering the inner surface of said body member, an outer reinforcing wrapping superposed about said inner body and detachably held therearound, said outer wrapping having at least a peeling edge portion readily detachable from

the adjacent outer wrapping and from the inner body to facilitate peeling off and removal of the outer wrapping from the inner body to expose said separation line and permit expansion of said inner body by separation along said helical separation line from substantially one end of the container to the other, and a pair of end closures secured to the ends of the container to positively seal the contents therewithin, said dough being bodily removable from the container without mutilation thereof by grasping the ends of said container and twisting the same in opposite directions to unwrap the inner body from said dough throughout substantially the entire length of the container.

22. A dough package comprising a container with dough contained therein and constructed to permit said dough to be bodily removed therefrom without mutilation, said container comprising an inner fibrous body forming a generally cylindrical casing and having a generally helical separation line extending substantially the full length thereof and pitched to extend helically around substantially the complete circumference of the container, an outer reinforcing wrapping superposed about said inner body, said outer wrapping having a helical tear line out of register with said helical separation line permitting the container to be opened substantially the full length thereof at said separation line, and a pair of end closures positively clamped at the ends of the container to confine the contents therewithin, said dough being bodily removable from the container without mutilation thereof by grasping the container ends and twisting the same in opposite directions to unwrap the container from the dough throughout substantially the entire length of the package.

23. A package for dough products comprising a container with dough contained therein and constructed to permit said dough to be bodily removed therefrom without mutilation, said container comprising an inner body of fibrous sheet material forming a generally cylindrical casing and having a generally helical separation line extending substantially the full length of the container and pitched to extend helically around substantially the complete circumference of the container, liner material covering the inner surface of said inner body, an outer reinforcing wrapping normally held in superposed position about said inner body, at least the portion of said outer wrapping overlying said helical separation line being readily detachable and removable from said inner body to permit expansion of said inner body by separation at said separation line substantially from end to end of the container, and a pair of end closures secured to the ends of the container to positively seal the contents therewithin whereby the ends of the container may be grasped and twisted in opposite directions to unwrap the inner body from said dough throughout substantially the entire length of the container.

24. The method of packaging dough comprising helically winding an inner fibrous body to provide a generally cylindrical casing with the adjacent edges of said body being abutted to form a helical separation line in said body extending from one end of the casing to the other and pitched to extend helically around substantially the complete circumference of the casing, winding an outer wrapping around said inner body, forming a helical tear line in said outer wrapping out of register with said helical separation line, and permanently closing the ends of the casing with the dough confined therewithin, said helical separation line and tear line permitting said dough to be bodily removed from the casing without mutilation of the dough by grasping the casing ends and twisting the same in opposite directions to unwrap the casing from the dough throughout substantially the entire length of the casing after said separation line and said tear line have been opened.

11

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THERON E. CONDON, *Primary Examiner*.PAUL R. NEFF, *Examiner*.J. EARL DRUMMOND, JOSEPH R. LECLAIR,
GEORGE E. LOWRANCE, *Assistant Examiners*.

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,304,185

February 14, 1967

Maurice W. Fortney

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 39, after "ing" insert -- and the period during which the pressure is allowed to generate is called the "proofing --; column 2, line 63, for "lavel" read -- label --.

Signed and sealed this 17th day of October 1967.

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents