Dec. 25, 1956 H. A. BERGSTROM 2,775,395

COMPOSITE CAN WITH QUICK-OPENING LAP SEAM

Filed March 22, 1954

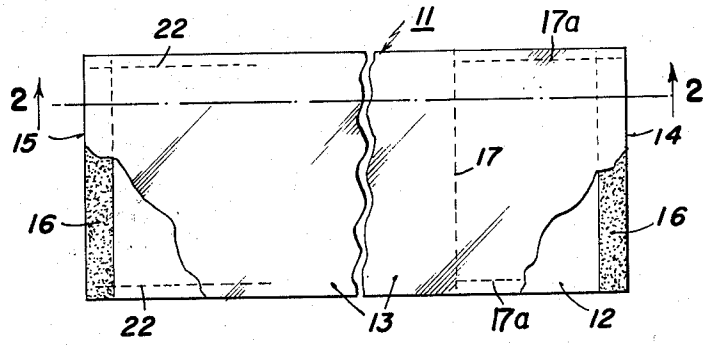


FIG. 1

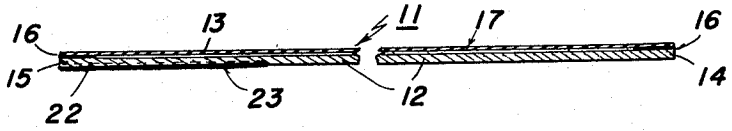


FIG. 2

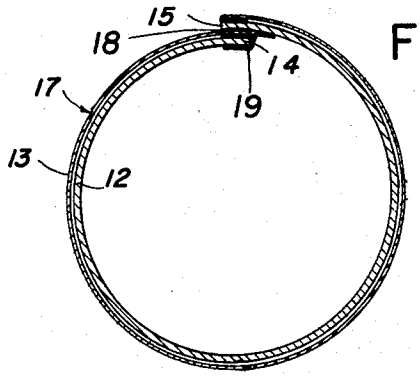


FIG. 3

FIG. 4

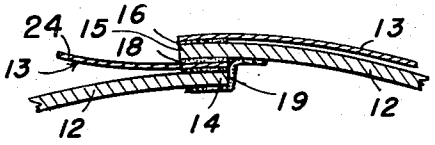


FIG. 7

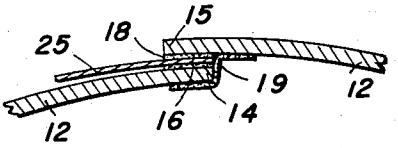


FIG. 5

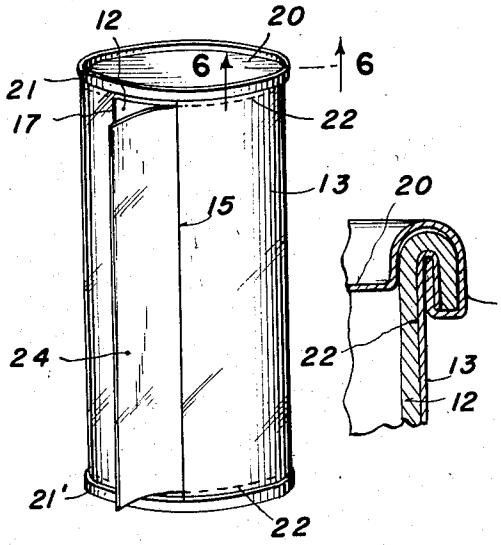


FIG. 8

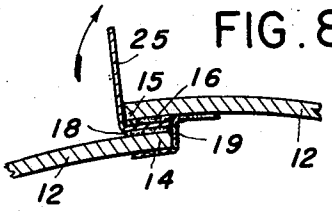


FIG. 6

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COMPOSITE CAN WITH QUICK-OPENING LAP SEAM

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6 Claims. (Cl. 229—51)

The following specification deals with a composite can having a quick-opening lapped side seam. Such cans are particularly adapted for the merchandising of foodstuffs and other materials. They are so called because they are composed of a side wall of pulp or paper board, while the tops and bottoms are made of sheet metal according to the usual practice.

At the present time, these cans are used for packaging foodstuffs such as bakery goods which are intended to be readily opened when the food contents are to be prepared for consumption. As these cans will withstand a moderate amount of internal pressure, they have found great utility in packaging oven-ready biscuits and the like.

One of the problems met in packaging such goods is that during normal periods of shipment and temporary storage, some internal pressure develops in the goods and is exerted on the inner walls of the can. Any effort to open the can at a selected point results in the sudden release of the pressure at that point. This is equalized by pressure from the rest of the contents. As a result the material nearest the opening may be forced out of the can resulting in considerable distortion of the shape of the goods.

Raised biscuits to the number of perhaps 10, are customarily packed in such a can. If the side wall of the can is punctured in the opening movement, the biscuit opposite the opening will be forced out of shape by the internal pressure as above described. The remaining contents will be distorted in varying amounts.

It is an object of my invention to provide a composite can having at least two plies of material such as paper or paper board so designed as to permit simultaneous opening over the entire length of the side wall. This serves to release the internal pressure for the full height of the can so that all of the contained articles retain their original shape.

A further object of the invention is to provide a can of this nature which may be opened by the fingers and without the use of any particular implements.

It is a still further object of the invention to provide a can in which the lapped side seam is utilized as the point at which the opening is executed simultaneously over the length of the can.

Among the objects of my invention is to utilize the transparent or printed paper label which is wrapped around the side wall of the can as a means for facilitating the extensive opening for the discharge of the contents.

Other objects of the invention will be apparent from the following description of the preferred form as illustrated in the accompanying drawing in which:

Fig. 1 is the improved paper blank with two plies and adhesive across the ends;

Fig. 2 is a longitudinal section 2—2 of Fig. 1;

Fig. 3 is a transverse section of the completed side wall of the can;

Fig. 4 is an enlarged cross-section of the lapseam portion of a completed can showing a label in position to be pulled up to break the seal;

Fig. 5 is a perspective view of the completed can with a metal top and with the outer ply torn to provide a flap;

Fig. 6 is a fragmentary vertical cross-section on the line 6—6 of Fig. 5;

Fig. 7 is a fragmentary cross-section of modified form, a single ply wall with a flap instead of the coextensive label or wrapper and

Fig. 8 is a similar view of the flap bent up preparatory to opening.

The invention as illustrated in the drawings is carried out by providing a side wall having a fiber or paper board layer or inner ply with an associated outer portion which may or may not be coextensive with the inner ply, but which will serve as the means for opening up the side seam simultaneously over its length.

Thus in Fig. 1 I have shown a blank **11** for constructing a side wall. This blank consists of an inner ply **12** of fiber or paper board of suitable strength to withstand the normal internal pressure that may develop from the contents. The inside surface of this ply can be lined with aluminum foil, parchment, glassine, plastic film or any similar protecting medium.

The outer ply **13** is much thinner than the inner ply **12**. The outer ply may consist of a layer of paper on which a design has been printed and which may be given a glazed surface. The outer ply **13** may be transparent to permit the display of a design appearing on the inner ply. The outer ply also has a definite function in reinforcing the inner ply.

The ends **14** and **15** of the inner ply **12** are each coated on the outer side with a narrow strip of adhesive **16, 16.**

The outer ply **13** is attached to the inner ply **12** at the ends only and by means of the adhesive portion **16, 16.**

The outer ply **13** lies closely against the outer surface of the inner ply **12.** To facilitate the opening of the can the outer ply is scored transversely or otherwise somewhat weakened along the line **17** as shown on Fig. 1 and at the points indicated on Figs. 2 and 3. It is also scored longitudinally along the side edges as indicated at **17*a*.**

By applying an adhesive strip **18** across outside surface of the outer ply **13** at the end **14**, the opposite end **15** may be lapped over the adhesive part and a side seam produced. The adhesive **18** is thermoplastic and the seam can be made by a momentary application of heat and pressure.

A protective coating **19** is then applied over the exposed edge of the inner ply at the end **14**, and this extends to the inner surface of the opposite overlapped end so as to seal the side seam and prevent deterioration or loss caused by the nature of the contents of the can.

A top **20** preferably of metal is rolled over the side edges of the can body and formed into a bead **21** as illustrated in Figs. 5 and 6. It will be apparent that this bead also overlies the outer ply **13** along its side edges.

The bottom **21**, also of sheet metal, is likewise beaded over the lower side edge of the can body.

In order to facilitate the continued opening of the can from the side seam, the inner ply **12** is lightly scored as shown at **22, 22** on lines within and parallel to the side edges starting from the overlying end **15.** This scoring is carried out on the inner surface of the inner ply **12** and for a depth of approximately one fourth the thickness of the paper board. The scoring should extend about one half the length of the blank. In order to seal the can at this area, a protective coating **23** of enamel, lacquer or other material, is applied over the scored lines.

The mode of simultaneously opening this can throughout the length of the side seam is illustrated in Figs. 4 and 5. By tearing the outer thin ply **13** along the lines **17** and **17*a***, it forms a flap **24** which may be bent back to the overlapped side seam formed by the ends **14** and **15.** At this point an outward pull on the flap **24** will apply stress

between the adhesive layer **16** and the flap **24**. The end **15** and flap **24** are thus pulled away from the adhesive **16** holding flap **15** to end **14** or if this adhesive does not let go, the paperboard **12** to which it is adhered will shear internally to open up the entire side seam. This opening operation occurs substantially simultaneously over the length of the side seam. Even if the movement is started at one end, it will be practically completed throughout the length of the side seam and to the opposite end before any part of the contents are exposed.

In the opening movement, the sealing coating **19** is also torn apart.

By this means there is a complete absence of localized release of pressure on the contents. There is therefore no distortion resulting from the release of the internal pressure.

Since the overlapping end **15** of the inner ply has been scored along the lines **22**, **22**, the opening movement can be readily carried out for substantially half the circumference of the pan. As soon as the flap **24** and the end **15** have been rolled back to the desired extent, the package may be inverted and the contents will drop out freely.

It will be apparent that the flap **24** need not be coextensive with the side wall. It is only necessary that it provide a finger hold along the side seam and outer edge **15** of the inner ply. It is therefore possible to apply this invention to a single ply container. This has been illustrated in Figs. 7 and 8, in which the end **15** overlaps the end **14**, as above described. However, the end **14** carries an adhesive flap **25** of limited length only. The flap **25** is attached by adhesive strip **18** to the overlying end **15** of the inner ply **12**.

In use, the flap **25** lies closely parallel to the end **14** of the inner ply as shown in Fig. 7. When, however, it is desired to open the can, the flap **25** is raised as shown in Fig. 8 by the operator's fingers, and a sharp, upward pull serves to start the opening movement which may be immediately completed over the entire length of the end **15**. The full opening will of course be the same as is shown in Fig. 5.

The above description illustrates the preferred form of the invention without, however, limiting the variations possible in materials, proportions and minor details other than as indicated by the scope of the appended claims.

What I claim is:

1. A composite side-opening can with a top and a bottom and having a side wall of paper board or like material comprising an inner ply and an outer ply coextensive therewith, said plies being joined together at their ends only, and overlapping at the end of a single convolution, the outer ply at that point being cemented to the inner ply of the opposite end to form a continuous four-ply side seam, the outer ply being transversely scored at a point inwardly of the cemented end for guided severance and parting of the seam between the severed end of the outer ply and the underlying end of the inner ply.

2. A composite side-opening can with a top and a bottom having a side wall of paper board or like material comprising an inner ply and an outer ply coextensive therewith, said plies being joined together at their ends only, and overlapping at the end of a single convolution, the outer ply at that point being cemented to the inner ply of the opposite end to form a continuous side seam, said outer ply being transversely scored at an intermediate point to form a flap for splitting the side seam between the plies of the underlying end.

3. A composite side-opening can with circular top and bottom members and having a side wall of paper board or like material comprising an inner ply and an outer ply coextensive therewith, said plies being joined together at their ends only, the outer ply at one end being cemented to the inner ply of the opposite end to form a continuous four-ply side seam, said outer ply being transversely scored at an intermediate point to form a flap extending for the full length of the side seam between said top and bottom members for splitting the seam between the plies of the underlying end.

4. A composite side-opening can with a side wall and a top and a bottom each beaded over the lateral edges of the side wall, said side wall comprising an inner ply and a coextensive outer ply, said plies being joined together at their ends only, and the ends being overlapped at the end of a single convolution and cemented together to form a continuous separable side seam, the outer ply being transversely scored at an intermediate point and lightly scored from that point to the seam along lines adjacent the beads of the top and bottom.

5. A composite side-opening can with a side wall and a top and a bottom each beaded over the lateral edges of the side wall, said side wall comprising an inner ply and a coextensive outer ply, said plies being joined together at their ends only, and the ends being overlapped at the end of a single convolution and cemented together to form a continuous separable side seam, the outer ply being transversely scored at an intermediate point and lightly scored from that point to the seam along lines adjacent the beads of the top and bottom, and the inner ply at the overlapping end being scored along projections of the said lines and adjacent the beads of the top and bottom.

6. A composite side-opening can with a top and a bottom and having a side wall of paper board or like material comprising an inner ply and a coextensive outer ply, said plies being joined together at their ends only, the outer ply at one end being cemented to the inner ply of the opposition end at the end of a single convolution to form a continuous separable side seam, a sealing layer overlying the inner portion of said seam, said outer ply being transversely scored at an intermediate point to form a flap for splitting the side seam between the plies of the underlying end and for tearing the sealing layer opposite the seam.

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