United States Patent

[11] 3,596,827

[72] Inventor Alfred W. Kinney
Kansas City, Mo.

[21] Appl. No. 856,631
[22] Filed Sept. 10, 1969
[45] Patented Aug. 3, 1971
[73] Assignee Phillips Petroleum Company

[54] COMPOSITE CONTAINER AND BLANK
5 Claims, 4 Drawing Figs.

[52] U.S. Cl. 229/5.6, 229/5.5, 229/5.7
[51] Int. Cl. B65d 3/10
[50] Field of Search 229/5.5, 5.6, 5.7, 5.8; 220/65, 83

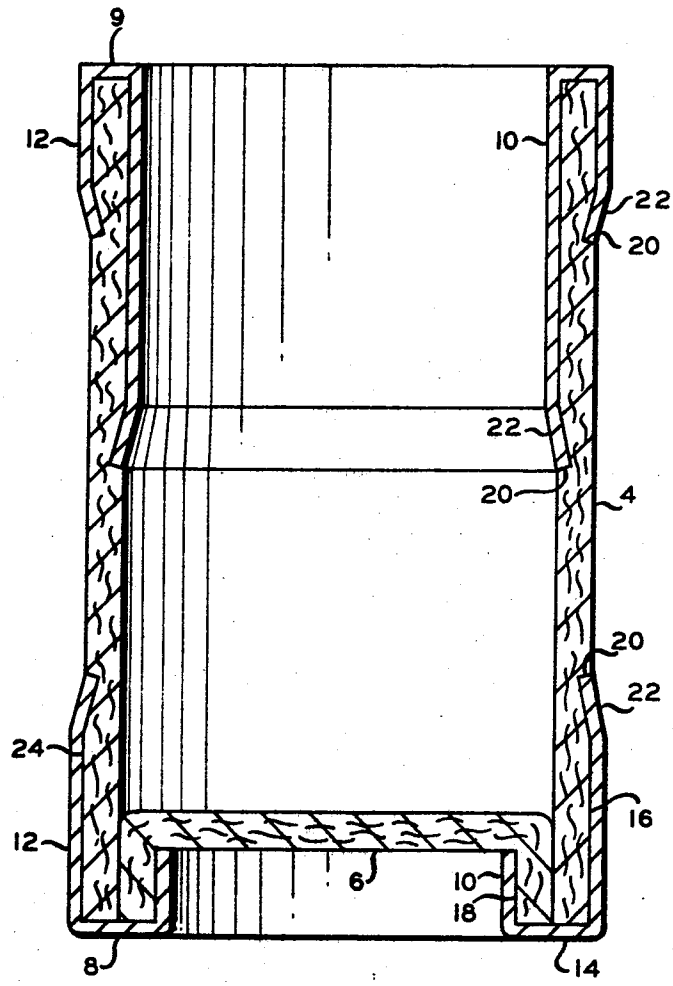
[56] References Cited

UNITED STATES PATENTS

2,240,944	5/1941	Steele	229/5.7
2,827,218	3/1958	Wilcox	229/5.5
2,902,198	9/1959	Page	229/5.7

Primary Examiner—David M. Bockenek
Attorney—Young and Quigg

ABSTRACT: An improved composite container and paperboard blank for forming a paperboard and metal composite container, said blank formed with score lines having sides converging at an angle of at least 90° for receiving an end of the metal portions of said container.



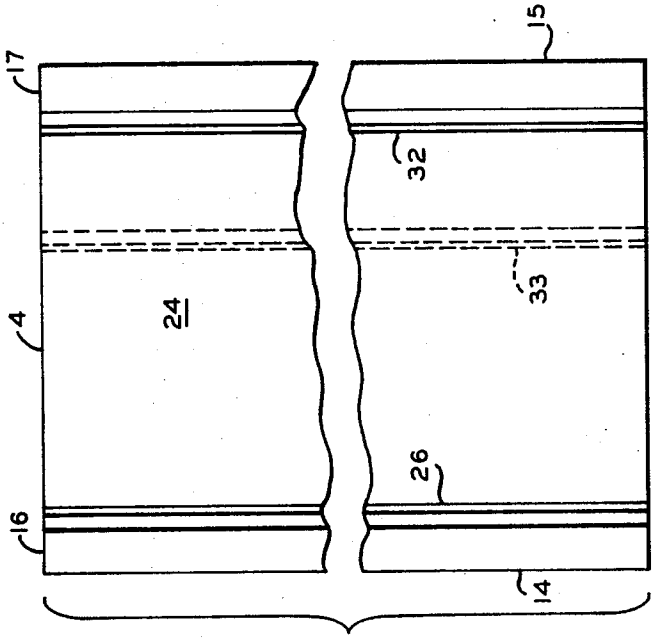


FIG 2

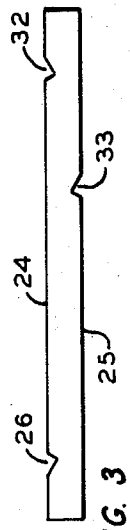


FIG. 3

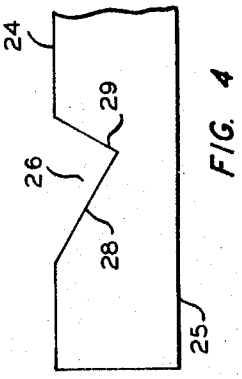


FIG. 4

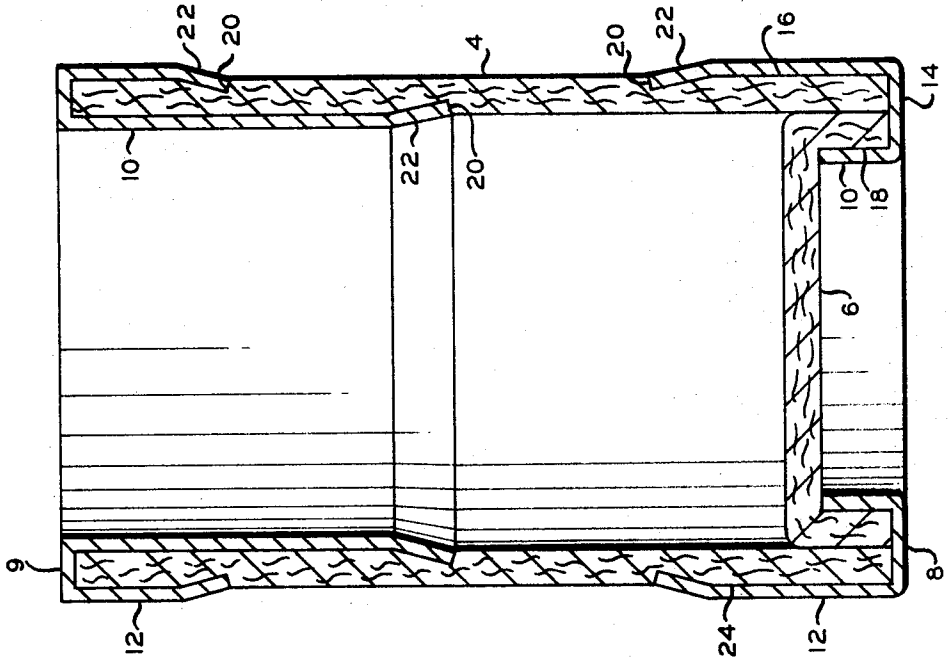


FIG. 1

INVENTOR.
A. W. KINNEY
BY Young & Quigg
ATTORNEYS

COMPOSITE CONTAINER AND BLANK

This invention relates to an improved composite container and paperboard blank for forming a paperboard and metal composite container. In another aspect, this invention relates to an improved composite container and paper blank for forming a paperboard and metal composite container having an improved attachment of the metal to the paperboard sidewall.

In heretofore utilized paperboard and metal composite containers for packing potato chips, breakfast cereals, and the like, as shown for example in U.S. Pat. No. 2,827,218, the metal bottom retaining member was forced into the paperboard sidewall or was forcefully held to said sidewall by piercing pins. Forcing the end of a metal member into the paperboard sidewall weakened the sidewall and sometimes, in situations where the metal did not completely enter the sidewall, left a sharp metal edge exposed and upon which edge persons handling said container could be injured. In containers using piercing pins, the container was also weakened and persons handling the container were sometimes injured by improperly positioned pins.

It is therefore an object of this invention to provide an improved composite container and paperboard blank for forming paperboard and metal composite containers. Another object of this invention is to provide a paperboard blank that is constructed to receive one end of the metal portion of the container and provide a container having an improved attachment of the metal to the paperboard. Yet another object of this invention is to provide a paperboard blank that is constructed to receive and cover an end of the metal portion of the container, thereby providing a safer container. Other aspects, objects, and advantages of the present invention will become apparent from a study of the disclosure, the appended claims, and the drawings.

The drawings show the improved paperboard blank of this invention and the composite container formed with that improved blank.

FIG. 1 is a longitudinal sectional view of a composite container and the improved sidewall blank of this invention.

FIG. 2 is a plan view of the improved paperboard blank,

FIG. 3 is an end view of the blank of FIG. 2, and

FIG. 4 is an enlarged view of the score line and a portion of the improved paperboard blank of this invention.

FIG. 1 shows the improved paperboard and metal composite container that is constructed of the improved paperboard sidewall blank 4, a bottom closure member 6, and metal bottom-and top-crimping members 8, 9. The metal-crimping members 8, 9 each have inner and outer flanges 10, 12 forming a channel receiving a top or bottom edge 14 (shown in FIG. 2) or 15 and a bottom or top portion 16 or 17 of the sidewall blank 4. The channel of the bottom-crimping member 8 also receives a downwardly extending flange 18 of the bottom closure member 6. The outer flanges 12 of the crimping members 8, 9 each have a holding element 22 with an end 20 formed thereon. The holding elements 22 of the outer flanges 12 are each crimped toward their respective inner flange 10 and into forcible contact with an outer surface 24 of the sidewall blank 4 for maintaining the therebetween paperboard portions of the container. The holding element 22 can also be formed on the inner flange 10 of the top-crimping member 9 and crimped toward its respective outer flange 12 as described above. Providing a holding element 22 on the inner flange 10 of the top-crimping member 9 and crimping said element toward its associated outer flange 12 is particularly important for protecting a person that is placing his hands within the formed container.

Referring to FIG. 2, a bottom score line 26 is formed on the outer surface 24 of the bottom portion 16 of the sidewall blank 4 spaced from the bottom edge 14 of said blank 4. The bottom score line 26 extends traversely of the blank 4.

Referring to FIGS. 3 and 4, the bottom score line 26 has first and second sides 28, 29 converging toward one another and intersecting within the sidewall 4. The angle of intersection of said first and second sides 28, 29 is at least 90° and preferably is exactly a 90° angle to provide frictional contact between the holding element 22 and the sidewall blank 4 for fixedly attaching the metal-crimping member 8 to the blank 4. The depth of the score line 26 is sufficiently large as to receive within the score line 26 the entire end 20 of the holding element 22 of the bottom-crimping member 8 of the composite container 2 in the formed condition. For example, when the ends 20 of the holding element 22 of the bottom- or top-crimping members 8, 9 have a thickness of 0.0088 inch, it is preferred that the depth of the score lines have a depth of at least 0.0076 inch. By so constructing the score lines of the sidewall blank 4 of this invention, the entire end 20 of each holding member 22 is covered by the sidewall 4. In the composite container 2 with a metal bottom-crimping member 8 having a holding member 22 with a thickness of 0.0088 inch, it is preferred that a first side 28 of the score line 26 is adjacent and spaced from the bottom edge 14 of the sidewall blank 4 and extends inwardly and upwardly relative to the outer surface 24 of the blank 4 and that the second side 29 of the score line 26 has a width of at least 0.0088 inch, is separated from the bottom edge of the sidewall 4 by the intervening first side 28 of the score line 26, and extends outwardly and upwardly from the first side 28 of the score line 26 to the outer surface 24 of the sidewall blank 4 at an angle 90° relative to the first side 28 for covering the entire end 20 of the metal-holding member 22 by the abutting second side 29 of the score line 26.

In composite containers having a bottom-crimping member 8 and a metal top-crimping member 9, a top score line 32 is formed on the outer surface 24 of the sidewall blank 4 spaced from the bottom portion 16 of the blank and extending traversely of the blank 4 substantially parallel to the bottom score line 26. It is also preferred that a second top score line 33 to be formed on the inner surface 26 of the sidewall blank 4 spaced from the bottom portion 16 of the blank and extending traversely of the blank 4 substantially parallel to the bottom score line 26. Similar to the score line 26 described above, score lines 32, 33 each have two sides converging toward one another and intersecting within the sidewall blank 4 with the angle of intersection of the sides being at least 90° and the depth of the score lines being at least 0.0076 inch.

By so constructing an improved composite container and sidewall blank 4 as described above, the ends of the holding elements of the metal portions of the composite container are moved into a preformed score line during construction of the container, thereby avoiding damage to the container while attempting to force the ends into the sidewall and assuring that the sharp edges of the metal end are covered by a side of the score line thereby avoiding possible injury to a person handling said container.

I claim:

1. An improved paperboard sidewall blank of substantially rectangular formation for forming a paperboard and metal composite container comprising paperboard sidewalls and a bottom closure member and a metal bottom-crimping member, said metal bottom-crimping member having inner and outer flanges forming a channel for receiving a bottom edge and a bottom portion of the sidewalls and a downwardly extending flange of the bottom closure member with an end of a holding element of said outer flange being crimped toward the associated inner flange and into forcible contact with an outer surface of the sidewall for maintaining the therebetween paperboard bottom closure flange and adjacent bottom portion of the sidewalls in forcible contact one against the other, the improvement comprising:

a bottom score line on an outer surface of the bottom portion of the sidewall blank spaced from the edge of the blank and extending traversely of the blank, said score line having first and second sides converging toward one another and intersecting within the sidewall, said first side of the score line being adjacent and spaced from the bottom edge of the sidewall and extending inwardly and up-

wardly relative to the outer surface of the sidewall and said second side of the score line having a width of at least 0.0088 inch, being separated from the bottom edge of the sidewall by the intervening first side of the score line, and extending outwardly and upwardly from the first side of the score line to the outer surface of the sidewall at an angle of substantially 90° relative to the first side of the score line.

2. An improved paperboard sidewall blank, as set forth in claim 1, wherein the depth of said score line is at least 0.0076 inch.

3. An improved paperboard sidewall blank of substantially rectangular formation for forming a paperboard and metal composite container comprising paperboard sidewalls and a bottom closure member and a metal bottom-crimping member, said metal bottom-crimping member having inner and outer flanges forming a channel for receiving a bottom edge and a bottom portion of the sidewalls and a downwardly extending flange of the bottom closure member with an end of a holding element of said outer flange being crimped toward the associated inner flange and into forcible contact with an outer surface of the sidewall for maintaining the therebetween paperboard bottom closure flange and adjacent bottom portion of the sidewalls in forcible contact one against the other, the improvement comprising:

a bottom score line on an outer surface of the bottom portion of the sidewall blank spaced from the edge of the blank and extending traversely of the blank, said score line having first and second sides converging toward one another and intersecting within the sidewall; and

a top score line on the outer surface of the sidewall blank spaced from the bottom portion of the blank and extending traversely of the blank substantially parallel to the bottom score line, said score line having two sides converging toward one another and intersecting within the sidewall with the angle of intersection of the sides being at least 90° and the depth of said score line being at least 0.0076 inch.

4. An improved metal and paperboard composite container having paperboard sidewalls with a plurality of score lines and a bottom closure member with a downwardly extending flange, a metal bottom-crimping member having inner and outer flanges forming a channel receiving a bottom edge and portion of the sidewalls and the downwardly extending flange of the bottom closure member, and a metal top-crimping member having inner and outer flanges forming a channel receiving a top edge and portion of the sidewalls, the improvement comprising:

a bottom score line on an outer surface of the bottom portion of the sidewalls spaced from the edge of the sidewalls and extending about the container, said score line having first and second sides converging toward one another and intersecting within the sidewalls, said first side of the score like being adjacent and spaced from a bottom edge of the sidewall and extending inwardly and upwardly relative to the outer surface of the sidewall and said second side of the score line having a width of at least 0.0088 inch, being separated from the bottom edge of the sidewall by the intervening first side of the score line, and extending outwardly and upwardly from the first side of the score line to the outer surface of the sidewall at an angle of substantially 90° relative to the first side of the score line; and

holding elements formed on the outer flanges of the crimping members, each holding element extending toward its respective inner flange and having an end positioned entirely within the bottom score line of the sidewall blank.

5. An improved container, as set forth in claim 4, wherein each end of each holding element has a thickness not greater than 0.0088 inch and the score lines have a depth of at least 0.0076 inch.