Aug. 14, 1962 F. A. CHIDSEY, JR., ETAL 3,049,282

CAN CARTON WITH REINFORCED CORNERS

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Fig. 2

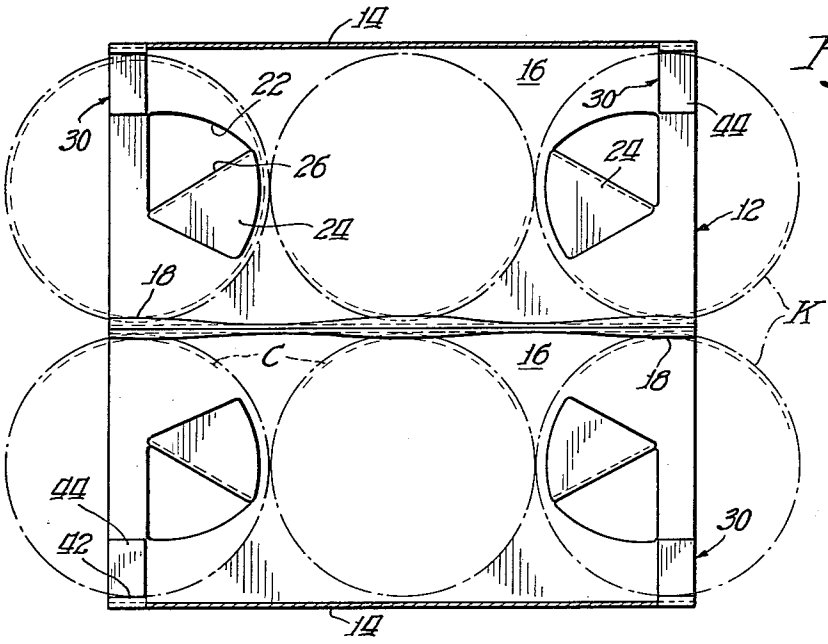


Fig. 1

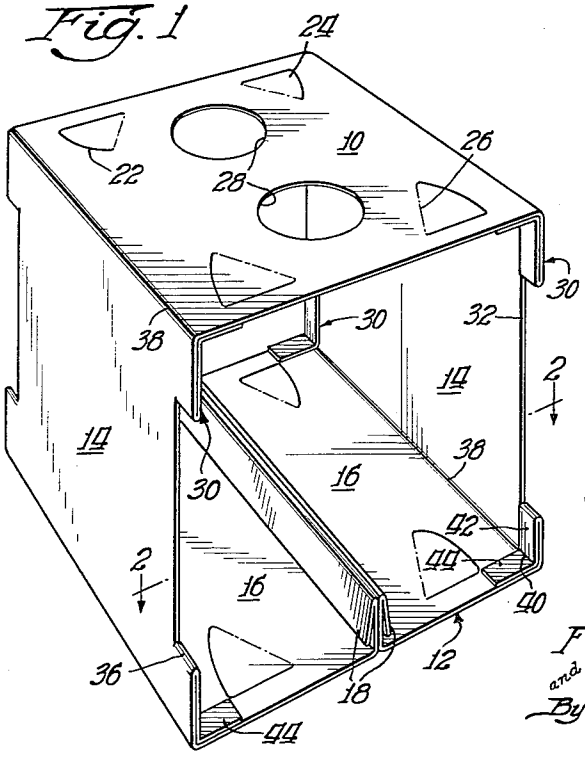
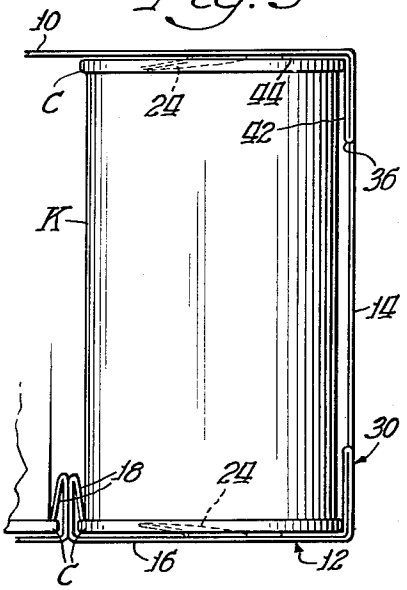


Fig. 3



Inventors:
Francis A. Chidsey, Jr.
and William C. Hasselo
By: Richard W. Carpenter Atty.

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Fig. 4

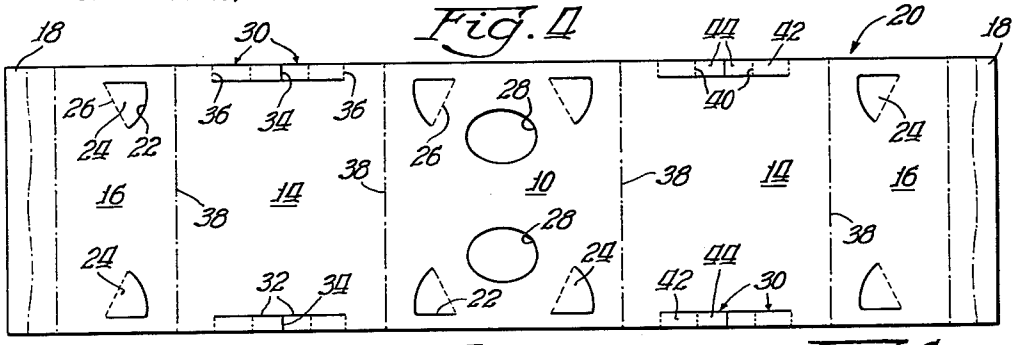


Fig. 5

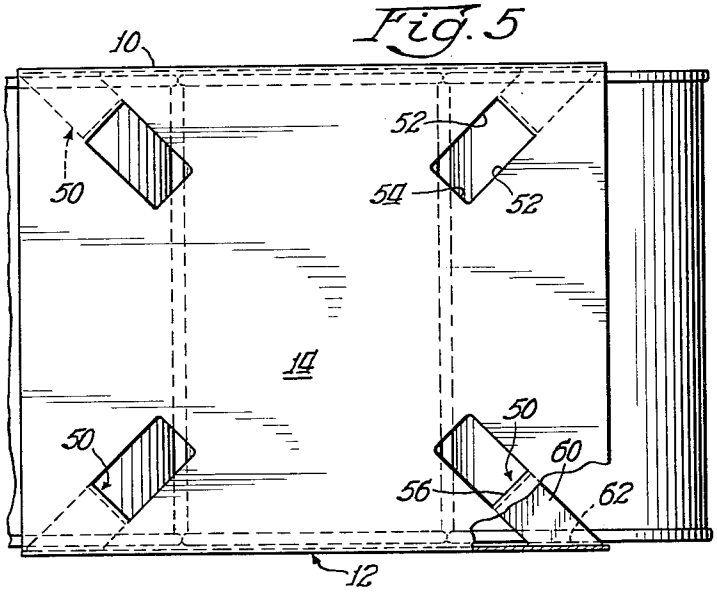


Fig. 6

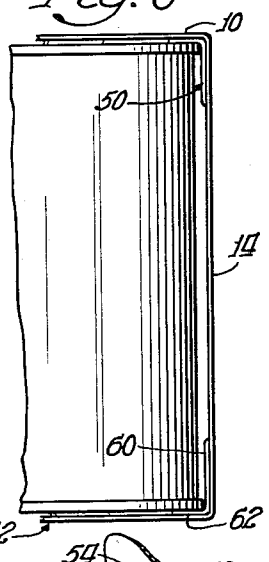


Fig. 7

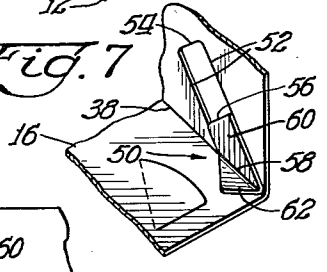
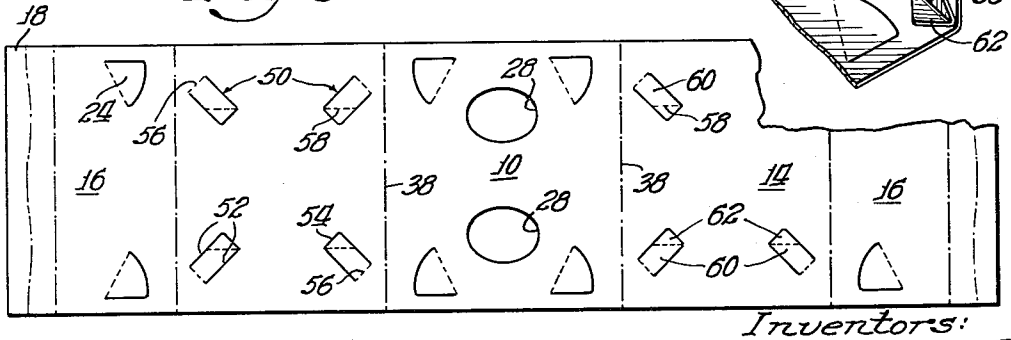


Fig. 8



Inventors:
Francis A. Chidsey, Jr.
and William C. Hasselo
By: Richard W. Carpenter Atty.

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3,049,282

CAN CARTON WITH REINFORCED CORNERS

Francis A. Chidsey, Jr., Wayne, and William C. Hasselo, Berwyn, Pa., assignors to Container Corporation of America, Chicago, Ill., a corporation of Delaware

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4 Claims. (Cl. 229—40)

This invention relates to open-ended paperboard cartons of the type employed in the packaging of cans or bottles containing beer, soft drinks, and other materials.

The invention comprehends a novel means of forming a carton of the type described having reinforced corners which do not require the use of any additional paperboard.

It is, therefore, an object of the invention to provide a tubular open-ended paperboard carton, for cans or bottles, having reinforced corners formed from material cut from certain walls of the carton.

A more specific object of the invention is the provision, in the carton of the type described, of corner flaps cut from the side and/or bottom walls of the carton which can be folded back against the carton walls to reinforce the corners of the carton.

These and other objects of the invention will be apparent from an examination of the following description and drawings wherein:

FIGURE 1 is a perspective view of a set-up carton embodying features of the invention;

FIGURE 2 is a horizontal section taken on line 2—2 of FIGURE 1, with the cans shown in position within the carton;

FIGURE 3 is an end elevational view of a portion of the structure of FIGURE 2;

FIGURE 4 is a plan view of the blank from which the carton of the previous views is formed;

FIGURE 5 is a side elevational view, partly in vertical section, of a carton embodying a slightly different form of the invention, with the cans shown in position;

FIGURE 6 is an end elevational view of a portion of the structure of FIGURE 5;

FIGURE 7 is a fragmentary perspective view of one corner of the carton shown in FIGURES 5 and 6; and

FIGURE 8 is a plan view of the blank from which the carton shown in FIGURES 5–7 is formed.

It will be understood that, for purposes of clarity, certain elements have been intentionally omitted from certain views where they are illustrated to better advantage in other views.

Referring now to the drawings for a better understanding of the invention, and first to FIGURES 1 through 4, it will be seen that the carton is of tubular open-ended construction having a pair of generally flat parallel top and bottom walls **10** and **12**, respectively, which are interconnected by a pair of parallel spaced side walls **14**, which define with the top and bottom walls a can receiving sleeve.

As best seen in FIGURE 2, the carton is adapted to contain a plurality of cans, indicated generally at K, having at opposite ends thereof peripheral bands or chimes, indicated generally at C, and which are disposed in two rows arranged in side by side relationship.

Although the top wall **10** of the carton is formed of a single panel, it will be seen that the bottom wall **12** is preferably formed of a pair of co-planer bottom wall panels **16** which extend from the respective side walls **14** to each other and which have at their adjacent inboard edges chime engaging flange members **18** connected to each other in any desired manner, such as by gluing, in order to close the carton and form a rigid structure.

Although the cartons illustrated in the drawings of this application are of the type disclosed in United States Letters Patent No. 2,963,148, the essence of the invention with which this application is concerned is not limited to

any particular type of carton, but is equally applicable to many different types of open-ended tubular paperboard cartons.

The carton may be formed from a single blank **20** of suitable sheet material such as foldable paperboard. As best seen in FIGURE 4, the blank **20** is scored to provide the previously described top, bottom, and side wall panels, and the chime engaging flange members, all of which are hingedly connected to each other along parallel score lines extending transversely of the carton blank.

Top wall panel **10** and bottom wall panels **16** may be cut as shown at **22** to provide a plurality of tabs **24** which when folded inwardly along hinge lines **26** engage the outer surfaces of the ends of cans to retain the cans within the carton. Also, top wall panel **10** may be provided with a pair of hand grip openings **28**.

As best seen in FIGURE 4, each side wall panel **14** of the carton is provided, inwardly adjacent each end edge thereof, with a pair of carton corner reinforcing flaps **30**, which are formed of the panel **14** itself by the longitudinal and transverse cuts **32** and **34**, respectively, and which are hingedly attached to the panel by a pair of fold lines **36** spaced inwardly from and extending parallel to the adjacent hinge lines **38** connecting panel **14** to the adjacent panel of the carton.

Each flap **30** is, in turn, divided by a transversely extending score line **40** into a pair of inner and outer sections **42** and **44**, respectively, which are of substantially equal length. It will be noted that fold line **36** of each flap extends parallel to score line **40** of the flap and adjacent hinge line **38** of the carton and is preferably located midway therebetween, so that when the carton is completely set up, and the flaps have been folded into position, flap score line **40** will be contiguous to the related carton hinge line.

Thus, it will be seen that after the carton has been formed into a tubular structure, as seen in FIGURE 1, and after the cans have been placed in position, as seen in FIGURE 2, each of the flaps **30** may be folded back against the inner surface of the side wall panel **14** from which it has been cut, so that the inner section **42** of the flap abuts the inner surface of the related side wall panel and the outer section **44** of the flap abuts the inner surface of the adjacent wall or panel which is hingedly attached to the side wall panel, with the flap score line **40** disposed inwardly contiguous to the related carton hinge line **38**. In this manner the carton corners are reinforced by the provision of a double wall without the use of any additional board, so that a carton embodying this invention can be formed from the same size blank as a conventional carton, and further, it may be formed of a blank of appreciably thinner material because of the double wall construction at the corners, which are the most critical areas of the carton.

If desired, the sections of each flap may be glued to their related engaging wall surfaces when the carton is set up.

Referring now to FIGURES 5 through 8 of the drawings, it will be seen that there is illustrated a modified form of the invention which embodies the same basic principle as the previously described embodiment, namely, reinforced corners formed by flaps which are cut out of the side wall panels of the carton without requiring additional material.

Each of the flaps **50** of the side wall panels of this carton are formed with a pair of parallel side cuts **52** interconnected by an end cut **54**, and are hingedly connected to the related side wall panel by a flap fold line **56**. In this embodiment, however, the flap edges and fold line are diagonally related to hinge lines **38** of the carton, instead of being parallel or normal to them, as in the case of the previous embodiment. The cut lines and

fold line of the flap are preferably disposed at angles of approximately 45° with hinge lines **38** of the carton.

Flap **60** is also divided, by a flap score line **58**, into a pair of inner and outer sections **60** and **62**, respectively. It will be seen that flap score line **58** extends in a direction normal to the hinge lines **38** of the carton and forms an angle of approximately 45° with the side cuts **52** of the flap. Also, it will be noted that the flap fold line **56** is located approximately midway between the flap score line **58** and the related hinge line of the carton, so that when the carton is set up as shown in FIGURE 7 of the drawings the flap may be folded back against the related side panel of the carton from which it is cut, in a manner similar to the flap of the previously described embodiment, with the flap inner section being disposed adjacent the inner surface of the side wall of the carton and the flap outer section **62** disposed adjacent the inner surface of the adjacent wall of the carton and with the flap score line **58** disposed inwardly contiguous to the related hinge line **38** of the carton.

Thus, the embodiment, like the previous embodiment, permits the reinforcement of the corners of the carton by use of flaps which are formed entirely out of the side walls of the carton without requiring the use of any additional material.

We claim:

1. An open-ended tubular carton, formed of foldable paperboard, having a corner construction, comprising:

(*a*) a pair of generally flat panels hingedly attached to each other to form therebetween a corner;

(*b*) said panels having free edges defining an end of the carton; and

(*c*) a flap cut from at least one of said panels and hingedly attached to said one panel on a fold line;

(*d*) said flap fold line and said panel hinge line converging;

(*e*) said flap being divided into separate sections by a transverse score line;

(*f*) said flap being folded back inside of the carton with its score line contiguous to the panel hinge line and with its sections disposed in full face abutting engagement with portions of respective carton panels at said ends of the carton on opposite sides of said panel hinge line to reinforce said corner.

2. A carton according to claim 1, wherein said flap is cut entirely from one of said panels.

3. A carton according to claim 1, wherein said flap fold line and said panel hinge line converge at an acute angle.

4. A carton according to claim 1, wherein said flap score line extends in a direction normal to said panel hinge line and at an acute angle to said flap fold line.

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