

March 11, 1969

J ROBERT GALLOWAY ET AL

3,432,086

CARTON

Filed Sept. 27, 1967

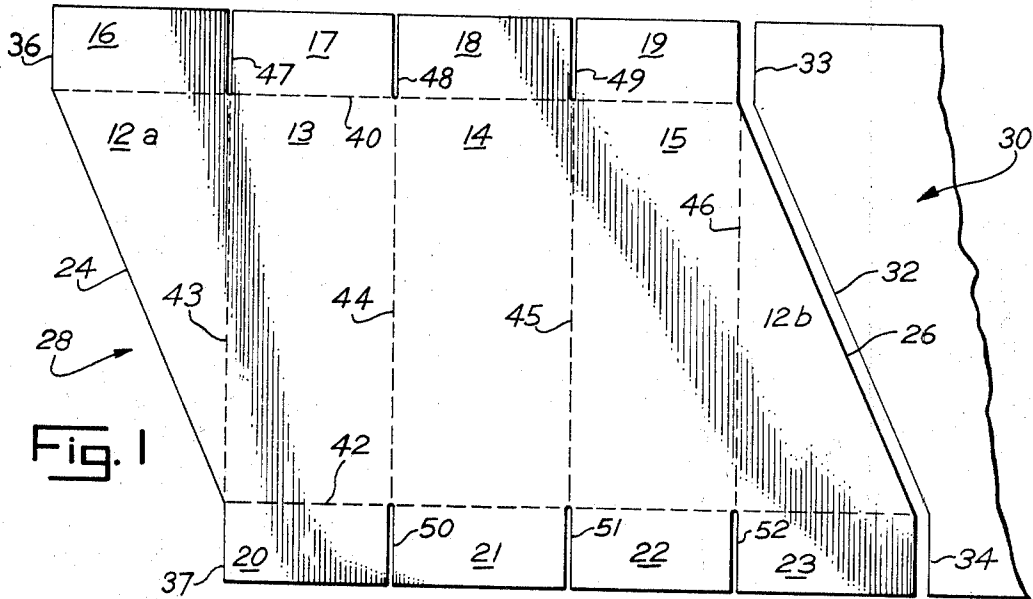


Fig. 1

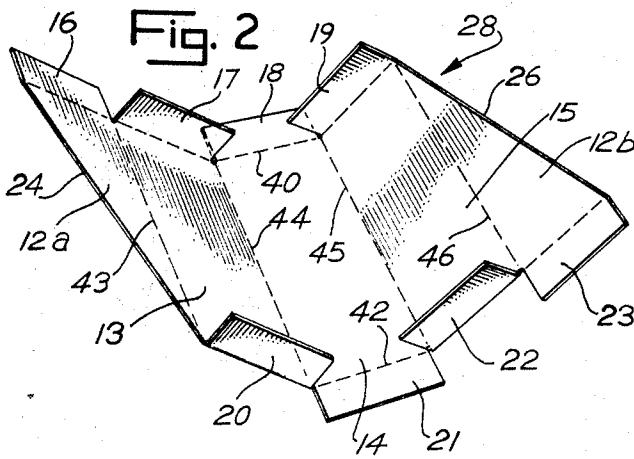


Fig. 2

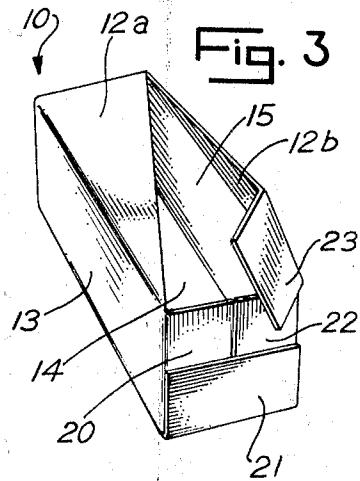


Fig. 3

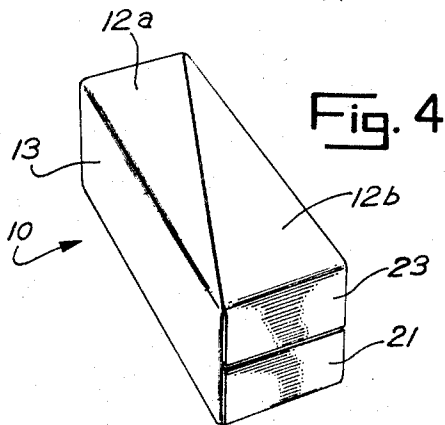


Fig. 4

INVENTOR.
J ROBERT GALLOWAY &
ROBERT K. GALLOWAY
Dominik, Stein & Knechtel
ATTORNEYS

1

2

3,432,086
CARTON

J. Robert Galloway, 27 Norwood Ave., Manchester, Mass. 01944, and Robert K. Galloway, 44 Lexington Ave., Magnolia, Mass. 01930

Filed Sept. 27, 1967, Ser. No. 670,961

U.S. Cl. 229-37

Int. Cl. B65d 5/12, 5/02

2 Claims

ABSTRACT OF THE DISCLOSURE

A carton which is formed from a single blank of sheet material and which is of a design such that the blanks can be progressively cut from a continuous length of material, with no waste. The carton has a number of side walls which join together to form the carton, at least one of which is formed with two side wall sections, each of which is triangular-shaped and forms one-half of the side wall. Each of the side walls, with the exception of the side wall formed by the two side wall sections, has an end flap affixed to each of its opposite ends. The two side wall sections each has only one end flap affixed to its one end. These end flaps are overlapped and affixed together to maintain the carton erect, thereby eliminating the need for the normally required manufacturer's glue seam.

This invention relates, generally, to cartons and, in particular, to cartons which are applicable for use as shipping cases for articles such as canned goods and the like.

The carton industry is a relatively large industry, as evidenced by the large number of goods which are packaged and shipped within cartons. It also is a highly competitive industry even though most cartons generally are of the same material, either paperboard, corrugated board and the like, and generally are of a similar construction and design. Accordingly, the only way in which a manufacturer can obtain an advantage over his competitors is to reduce the amount of material needed to form a carton or to reduce the time and/or labor required to form, erect, fill and seal a carton. If less complex and/or costly apparatus is required to form the carton or to fill it, an advantage also can be obtained. In many cases, a reduction of as little as 5 to 10 percent in the material required to form a carton will provide an economic edge. In the case of a single carton, this may not amount to a great deal of material, however, when this small amount is saved on each of the multitude of cartons manufactured and sold, a substantial savings in the cost of the material is realized. For the same reasons, a reduction of a few seconds in the time to form, erect, fill and seal a carton provides a substantial economic savings, when these seconds saved are tallied. The carton industry therefore is constantly designing and developing new cartons, in an attempt to provide cartons having these as well as other features so as to establish an advantage in the marketplace.

It is therefore an object of the present invention to provide improved cartons for shipping and/or storing articles such as canned goods and the like.

Another object is to provide improved cartons which can be formed from a single blank of sheet material.

Still another object is to provide improved cartons of the latter type which can be cut from a substantially continuous length of material with no waste.

A still further object is to provide improved cartons of the above type which can be easily and quickly formed, with automatic carton forming and erecting apparatus.

A still further object is to provide improved cartons

of the above type having a design whereby a substantial reduction in the material required is provided.

Another object is to provide a carton of the above type which eliminates the manufacturer's glue seam which normally is required.

Still another object is to provide improved cartons of the above type which can be shipped "knocked-down" and thereafter easily and quickly formed, erected, filled and sealed, with automatic carton forming and filling apparatus, or by hand.

Still another object is to provide improved cartons of the above type which require a minimum amount of material, and yet retain all the advantages of the presently available similar cartons that use more material.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The above objectives are accomplished with a carton which is formed from a single blank of sheet material and which is of a design such that the blanks can be progressively cut from a continuous length of material, with no waste. The carton has a number of side walls which join together to form the carton, at least one of which is formed with two side wall sections each of which is triangular-shaped and forms one-half of the side wall. Each of the side walls, with the exception of the side wall formed by the two side wall sections, has an end flap affixed to each of its opposite ends. The two side wall sections each has only one end flap affixed to its one end. These end flaps are overlapped and affixed together to maintain the carton erect, thereby eliminating the need for the normally required manufacturer's glue seam.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

FIG. 1 is a top plan view of a carton blank, and further illustrating the manner in which it is cut from a continuous length of material;

FIG. 2 is a perspective view of the carton blank partially folded;

FIG. 3 is a perspective view of the carton blank illustrating the same substantially completely folded so as to form a carton; and

FIG. 4 is a perspective view of a carton erected from the carton blank of FIG. 1.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawing, a shipping case or carton 10 preferably of corrugated board is illustrated having side walls 12-15 and end flaps 16-19 and 20-23 at each of the two opposite ends thereof. The carton 10 can be rectangular-shaped, as illustrated, or it can be square-shaped. The side wall 12 of the carton 10 is formed by a pair of side wall sections 12a and 12b, each of which is triangular-shaped and forms one-half of the side wall 12. The side wall sections 12a and 12b are integrally affixed to the side walls 13 and 15, respectively, and the tapered edges 24 and 26 thereof abut together when the carton 10 is formed so as to form a line that extends diagonally across the carton, between two of its corners, as can be best seen in FIG. 4. The end flaps 16-19 and 20-23 each is of a width corresponding to the width of the side wall to which it is integrally affixed and preferably has a length which is equal to one-half the cross-section of the carton 10 so that when folded in overlapping relationship the ends

of the carton 10 are completely sealed. If desired, the end flaps can have a length equal to the cross-section of the carton so that each end flap completely overlaps the end of the carton.

The cartons 10 are formed from carton blanks 28 like that shown in FIG. 1, which carton blanks can be easily and quickly progressively cut from a continuous length of material 30, with no waste. It may be noted that the width of the length of material 30 is selected to correspond to the overall length of the side walls 12-15 and the end flaps 16-19 and 20-23 affixed to the opposite ends thereof. More specifically, the width of the length of material 30 corresponds to, for example, the length of the side wall 13 and the two end flaps 17 and 20 integrally affixed to it. Accordingly, no waste results along the upper and lower edges (as illustrated) of the blank 28 when it is cut from the length of material 30. Also, the tapered edge 32 and the two vertically-disposed edges 33 and 34, formed on the end of the length of material 30 when a blank 28 is cut from it, correspond to and form the tapered edge 24 and the two vertically disposed edges 36 and 37 on the next blank 28 which is cut so that there is no waste along the cutting edge between the blank 28 and the length of material 30. In other words, the blanks 28 dovetail together perfectly so that there is no waste at all when they are cut from the length of material 30.

Simultaneously with the cutting of a blank 28 from the length of material 30, or thereafter, horizontally-disposed, parallel score lines 40 and 42, and vertically-disposed, parallel score lines 43-46 and cut lines 47-52 which constitute extensions of the score lines 43-46 are formed on the face of the carton blank 28. These score lines and cut lines divide the carton blank 28 so as to form the side walls 12-15 and end flaps 16-23 of the carton 10. Other size and shaped cartons are formed merely by proportionately forming the blank 28, in the above-described manner, so as to form side walls and end flaps of the desired size.

The cartons 10 are shipped and/or stored in the form of the carton blanks 28 so that a large number thereof can be conveniently packaged atop one another in a stack. In other words, the cartons 10 are shipped and/or stored "knocked-down."

The cartons 10 are formed and erected, either by hand or with automatic carton forming and erecting apparatus, in generally the following manner. It will be apparent, however, that one or more of the described steps can be performed at a different stage of the forming operation, as described. The end flaps 17 and 20 are first folded, along the respective score lines 40 and 42, so that they extend upwardly substantially perpendicular to the plane of the side wall 13. Simultaneously, the end flaps 19 and 22 are folded upwardly substantially perpendicular to the side wall 15. Thereafter, the side walls 13 and 15 are folded upwardly, along the respective score lines 44 and 45, substantially perpendicular to the plane of the side wall 14. An adhesive next is applied to the end flaps 18 and 21, and the end flaps 18 and 21 are folded, along the score lines 40 and 42, respectively, and affixed atop the end flaps 17, 19, 20 and 22, in overlapping relationship therewith.

At this point, the carton 10 is sufficiently formed so that it can be filled with the articles such as canned goods which are to be packaged therein. This also can be accomplished with automatic filling apparatus, in a convenient and speedy manner so that little time is required to perform the filling operation.

Thereafter, the same or additional apparatus applies adhesive to the end flaps 16 and 23, and folds them, along the respective score lines 40 and 42, so that they extend substantially perpendicular to the side wall sections 12a and 12b to which they are integrally affixed. The side wall sections 12a and 12b then are folded along score lines 43 and 46, respectively, so as to close the

carton 10, and the end flaps 16 and 23 affixed atop the end flaps 17, 19, 20 and 22, in overlapping relationship.

The carton 10, unlike most cartons, as explained more fully below, is maintained in the erected position by means of the end flaps 16, 18, 21 and 23 which are adhesively affixed to the end flaps 17, 19, 20 and 22. The end flaps 16, 18, 21 and 23, also provide strength to the carton so that it is not easily damaged or torn apart.

The tapered edges 24 and 26 of the side wall sections 12a and 12b are abutted together when the carton 10 is formed and are sufficiently tight so as to prevent dirt, dust and the like from entering the carton. In some cases, it may be desirable, however, to place an adhesive strip of material over the mating tapered edges 24 and 26 so as to provide a substantially dust-proof carton.

It is significant to note that the carton 10 is formed and held erect without the need of a glue flap or an auxiliary sealing strip as in the case of most presently available cartons. In the case of the former, a substantial savings in material is provided by eliminating the glue flap. With the elimination of cutting waste and the normally used glue flap, the carton 10 provides an overall savings in material of approximately 30 to 40 percent in comparison to presently available cartons of a like size manufactured in accordance with present techniques. In the case of the latter, a substantial economic savings is provided by eliminating both the need for the auxiliary sealing strip and the time and the apparatus to apply it.

It can therefore be seen from the above description of the carton 10 that it can be easily cut and formed. Furthermore, the carton 10 has a design such that a substantial savings in material, in comparison to similar available cartons, can be realized since it can be cut from a length of material with no waste and the normally used glue flap or auxiliary sealing strip is eliminated. The carton 10 also is shipped and/or stored "knocked-down" so that all the advantages attributable to this feature is likewise provided. The carton 10 furthermore can be formed, erected, filled and sealed with automatic carton forming and filling apparatus so that these operations can be quickly and easily performed. Apparatus of this type is disclosed in an application to be filed at a subsequent date.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above article without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Now that the invention has been described, what is claimed as new and desired to be secured by Letters Patent is:

1. A carton formed from a single blank of sheet material which is cut and scored so as to provide a plurality of adjacent side walls joined along vertical score lines, a triangular-shaped side wall section joined to the outermost ones of said side walls along vertical score lines, said triangular-shaped side wall sections having complementary tapering mating edges which extend diagonally across the entire length thereof and which form one half of a side wall of said carton, respectively, a foldable end flap at one end of each of said side triangular-shaped wall sections and at each of the two ends of each of said side walls joined thereto along a horizontal score line, a vertical cut separating adjacent end flaps, said side walls and said triangular-shaped side wall sections being folded along said vertical score lines to form said carton, said end flaps on two of said side walls at one end thereof being

5

folded inwardly and said end flaps on one of said triangular-shaped side wall sections and on said oppositely disposed side wall being folded thereover in overlapping relationship and affixed thereto, said end flaps on the opposite end of said side walls and said triangular-shaped side wall section being folded in overlapping relationship and affixed together in a like manner, said end flaps maintaining said carton erect.

2. The carton of claim 1, wherein said end flaps each have a length substantially equal to at least one-half the cross-section of said carton. 10 229—40

6

References Cited

UNITED STATES PATENTS

1,359,708	11/1920	Jones	-----	229—37
2,367,717	1/1945	Davidson	-----	229—37
3,209,981	10/1965	Thiele	-----	229—48

DAVID M. BOCKENEK, *Primary Examiner.*

U.S. Cl. X.R.