Jan. 15, 1963 S. R. PHIN 3,073,502

CARTON WITH INTERLOCKING CLOSURE MEANS

Filed Nov. 2, 1961

2 Sheets-Sheet 1

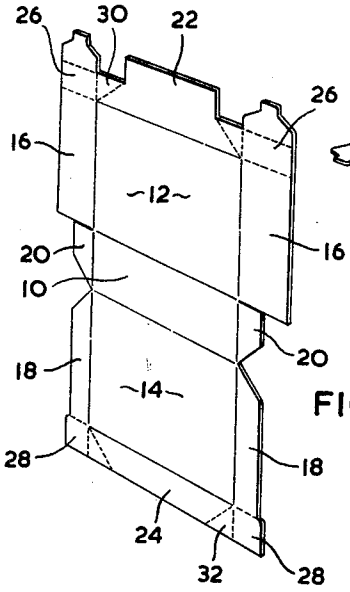


FIG. 1

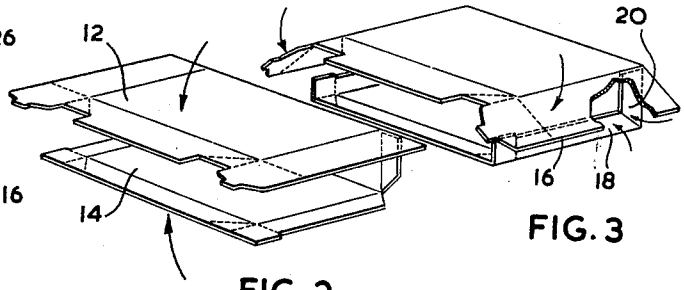


FIG. 2

FIG. 3

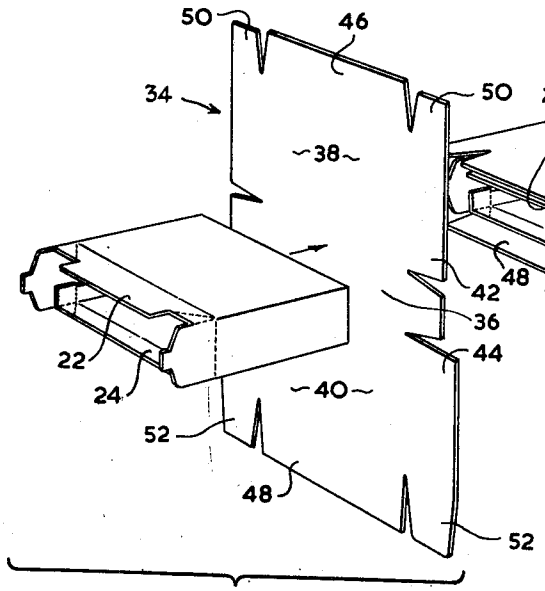


FIG. 4

FIG. 5

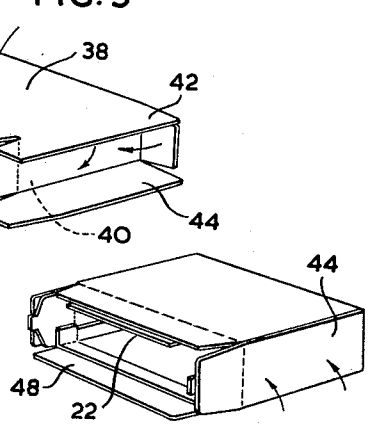


FIG. 6

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2 Sheets-Sheet 2

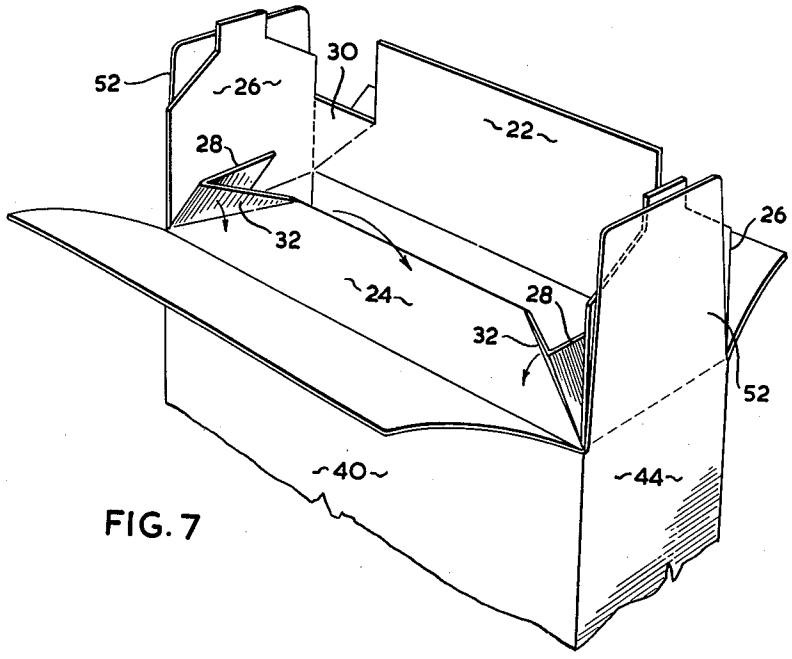


FIG. 7

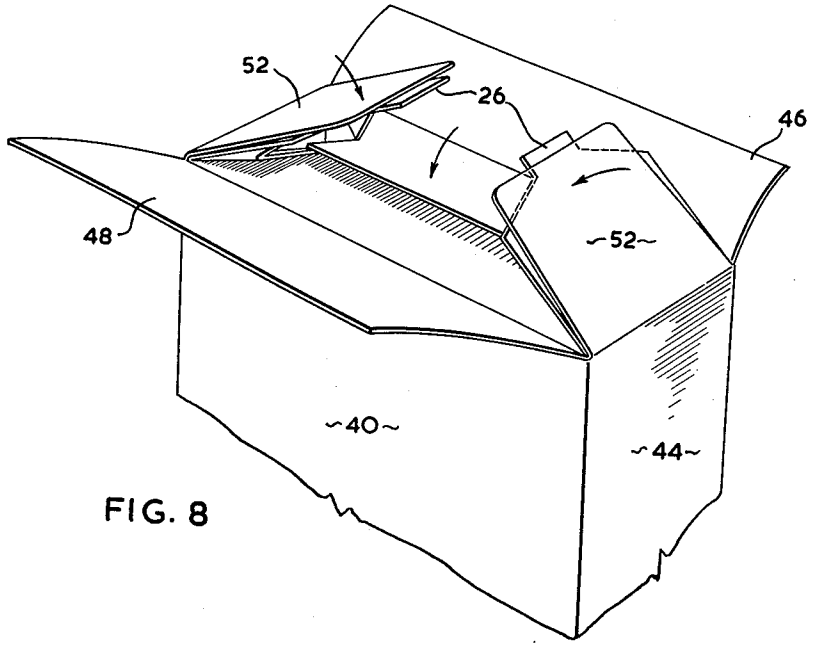


FIG. 8

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CARTON WITH INTERLOCKING CLOSURE MEANS

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This invention relates generally to sealable cartons. More particularly it concerns the formation of a blank and its assembly into a container that has special merit from the sealing view point and because of the attractiveness of the container and the ease with which printing or lithographing can be applied to it.

Containers made from a rigid board and wrapped with an overwrap of an impervious waxed or otherwise sealable wrapper have been used fairly extensively in the packaging of bakery goods, frozen foods and granular material and the like. The efficiency of the seal of both the inner package and the outer wrap has always been a matter of some concern to users, who use these containers in large amounts, and to box manufacturers who have been competing with each other to provide a better container for the user and thereby increase the utility of the type of box in question. The utility of the wrapped hardboard container has been in the past limited by the fact that its sealability has been considerably less than perfect and its high cost of an efficient seal is desired. Manufacturers of products such as cake mixes, salt and the like have not used the package to its fullest because to make it what is termed in the trade "sift proof" requires a costly wrapping operation.

This invention relates to a container of this type that has a novel type of closure which can be made "sift proof" for practical purposes. In addition, the container is especially adapted for use with a type of outer covering that can be readily and easily lithographed and applied to the carton prior to closure. Previously, it has been common to provide a wrapping that is folded at the ends and applied after the package is packed. The previous practice destroyed the continuity of reading matter and illustration on the ends of the package. With the present invention, which contemplates a dye-cut outer wrapping having flaps that correspond to and cooperate with the dyecut flaps of the hardboard inner cover, the continuity of printed or lithographed matter on the ends of the carton can be preserved.

It is, therefore, a prime object of this invention to provide a sealable hardboard carton that can be economically used with an outer cover that can be lithographed in such a way that the continuity of reading matter can be preserved. These and other objects will be apparent to those skilled in the art following a reading of the specification which follows.

The inner skin or container according to this invention is characterized by a top closure having side top closure flaps and end top closure flaps motively interconnected by links whereby the side top closure flaps are actuated to a closed position as the end top closure flaps are depressed. An outer cover is provided which has side top closure flaps and end top closure flaps that are not interconnected. The end top closure flaps of the outer cover are adapted to be closed with the end top closure flaps of the inner container, and the side top closure flaps are sealed after the closure of the inner container has been completely closed by operation of the end top closure flaps. The invention will be fully understood and appreciated after reading the detailed specification which follows.

In the drawings:

FIGURE 1 is a view of blank from which a container according to this invention is formed.

FIGURE 2 shows the first step of folding the container blank of FIGURE 1, and

FIGURE 3 shows a subsequent step in folding the blank of FIGURE 1.

FIGURE 4 shows the container fully formed with the exception of the top closure and a blank from which a cover is formed.

FIGURES 5 and 6 are views illustrating the folding of the cover around the container, the top closure of the container and the cover both being open.

FIGURES 7 and 8 are views illustrating the closure of the cover.

As indicated above, this invention relates to a container and a cover therefor that are formed from blanks on a mandrel. The formation of the blanks on a mandrel type box making machine is well-known in the art and detailed reference to such a machine will not be made in this application. This invention concerns the container itself and the cover therefore and to involve description and illustration of the forming machine would only unnecessarily burden this application.

FIGURE 1 illustrates a blank from which a container according to this invention is formed. It is made from a cardboard and has a bottom **10**, two side wall panels **12** and **14** each hinged to an opposite side of the bottom **10**, two end wall assemblies each of which is comprised of a first end wall panel **16** hinged to the side wall panel **12** and a second end wall panel **18** hinged to the side wall **14**. The end wall assemblies are the same at each end of the container and like numbers have been given to the end wall panels at each end of the container.

The numeral **20** is a bottom sealing flap and is hingedly connected to each end of the bottom **10**.

As will be referred to later, end wall panel **16** overlaps and is preferably adhesively secured to end wall panel **18** to form a complete end wall of a carton.

The top closure of the container is unique and comprises two side top closure flaps **22** and **24**, one hinged to side wall panel **12** and the other hinged to side wall panel **14** and end top closure flap assemblies hinged to the end wall panel assemblies. The end top closure flap assemblies at each end of the carton comprise an end top closure flap **26** hinged to end wall panel **16** and an end top closure **28** hinged to end wall panel **18**. Links **30** and **32** in the form of triangular panels connect their respective side closure flaps **26** and **28** with their respective end top closure flaps by a perforated line. These links as will be apparent later, motively connect the end top closure flaps that are formed from the end top closure flap assemblies with their adjacent side top closure flaps when the side wall panels and end wall panels are in set up relation so that the side top closure flaps are activated to a closed position in advance of the end top closure flaps as the end top closure flaps are activated to a closed position in a set-up carton. This will be apparent from the description of the forming of a carton from the blank **1** which immediately follows a brief reference to a blank for a cover for the carton made from a blank shown in FIGURE 1.

The cover blank is generally referred to by the numeral **34** in FIGURE 4 and comprises a bottom **36**, side wall panels **38** and **40**, end wall assemblies similar to those described in the blank of FIGURE 1 and each comprising a first end wall panel **42** and a second end wall panel **44** connecting with the side wall panels **38** and **40** respectively.

The cover **34** has a top closure that is comprised of side top closure flaps **46** and **48** and end top closure flap assemblies comprised of end top closure flaps **50** and **52**.

I will now describe the method of folding the container blank shown in FIGURE 1 and the wrapper **34** therefore to form a carton. The formation of the blanks is done on machines of known general design having a series of mandrels about which the blanks are formed into cartons. The first fold is illustrated in FIGURE 2. It will be noted that the side walls **12** and **14** are bent to assume an operative position about a mandrel (not shown). Following this, the end wall assembly is folded to form an end wall at each end of the carton. The sequence for the blank illustrated is to first fold the panel **18**, then the panel **20** and finally, the panel **16**. The marginal edge of the flap **16** preferably has an adhesive thereon that can be activated to secure the panels **16** and **18** in overlying relation.

Both ends of the carton are formed so that it appears as an open container substantially as illustrated in FIGURE 4.

At this stage, the cover **34** is applied thereto, in the form of a blank as illustrated in FIGURE 4. The cover **34** is preferably made from a paper as distinct from a hardboard and may be lithographed. It is dye-cut in the shape indicated.

The sequence of folding the sides and ends of the paper cover **46** are the same as the sequence just described for the board container, that is, the side panels **38** and **40** are first folded about the container. Following this, the panels that comprise the end of the cover are folded into position.

FIGURE 6 shows the rigid container and the cover therefore with the top closure open. The container in this condition is filled with the contents to be inserted into it. Following this, the closure is operated to a closed position.

In this connection, it is important to note that the end top closure flaps of the container are motively connected with the side top closure flaps of the container but that the end top closure flaps of the cover are independent of the side top closure flaps of the cover. Thus, as the end top closure flaps of the container and the cover are simultaneously closed, the side top closure flaps of the container only, are closed whereby the side top closure flaps of the cover can subsequently be drawn over the package and sealed to provide an adequate and good seal.

FIGURES 7 and 8 illustrate the closure. With the blank illustrated, initial pressure is first applied to the side top closure flap **24** to urge it towards a closed position, in advance of the side top closure flap **22**. It will be noted that as the top side closure flap **24** begins to close, it pulls with it the end top closure flaps **28** which are motively connected to it by means of the triangular links **32**.

After the side top closure flap **24** has been actuated slightly towards a closed position, the larger end top closure flaps **26** are actuated to the closed position. In this connection, it is preferable to simultaneously apply pressure to the links to insure that they fold between the side and end flaps. It will be apparent that because of the link interconnection between the end flaps **26**, and the side top closure flap **22**, that the side top closure flap **22** of the container will be closed in advance of the end top closure flaps **26**.

It will be noted that the end top closure flaps **50** and **52** of the cover **34** are closed at the same time as the end top closure flaps of the carton. Thus, once the end top closure flap assemblies have been closed, the side top closure flaps alone remain to be closed. The side top closure flaps are closed last. The shorter one **46** is closed first, the longer one is closed over it, and a suitable sealing medium between the two is provided.

An adhesive is used on the container and the cover in accordance with the requirements. The adhesive can be preapplied adhesive that is applied by the manufacturer to the carton or to the cover and activated by heat pressure or the like or it can be a machine applied adhesive applied to the blank as the blank is folded to form a carton. The carton will be especially useful with the heat seal type of adhesive that is preapplied to the paper and actuated by heat in a manner well-known in the trade.

The fold lines between the flaps and panels of the hardboard carton are preferably scored for neat folding in accordance with standard practice. The paper cover is not scored prior to folding since it tends to fold readily.

Embodiments of this invention other than the one illustrated will be apparent to those skilled in the art and it is not my intention that the invention should be limited to this specific embodiment disclosed.

What I claim as my invention is:

1. A container formed from a rigid cardboard, said skin comprising a blank having a bottom, two side wall panels each hinged to an opposite side of said bottom, two end wall assemblies and a top closure, each of said end wall assemblies being formed from a first end wall panel and a second end wall panel, the said first end wall panel being hinged to one of said side wall panels and said second end wall panel being hinged to the other of said side wall panels, said first end wall panel being adapted to overlap said second end wall panel, said top closure comprising two side top closure flaps, one hinged to each of said side wall panels and end top closure flap assemblies hinged to each of said end wall panel assemblies, the said end top closure flap assemblies hinged to each of said end walls comprising a first end top closure flap hinged to said first end wall panel and a second end top closure flap hinged to the said second end wall panel, a link connecting each of said side top closure flaps with a top closure flap hinged to an adjacent end wall, said links motively connecting said end top closure flaps with their adjacent side top closure flaps when said side wall panels and end wall assemblies are in set-up relation whereby said side top closure flaps can be activated to a closed position in advance of said end top closure flaps as said end top closure flaps are closed in a set-up carton.

2. A container blank as claimed in claim 1 in which said links each comprise a panel hingedly connecting with its respective said side top closure flap and with its said end top closure flap.

3. A container blank as claimed in claim 1 in which said links each comprise a triangular panel hingedly connecting with its respective said side top closure flap and with its said end top closure flap.

4. A container as claimed in claim 1, said container comprising a first container and a container cover in combination therewith, said container cover being adapted to form a cover for said first container and comprising a blank having bottom, side wall panels, end wall panels and top flaps, said top flaps being independent of each other.

5. A container skin as claimed in claim 1, said container comprising a first container and a second container cover in combination therewith, said second container cover being adapted to form a cover for said first container and comprising a blank having a bottom, two side wall panels, two end wall assemblies, and a top closure; each of said end wall assemblies being formed from the first end wall panel and a second end wall panel, said top closure comprising two side top closure flaps, one connecting with each of said side wall panels and end top closure flap assemblies connecting with each of said end wall panels, the said end top closure flap assemblies comprising a first end top closure flap hinged to said first end wall panel and a second end top closure flap hinged to said second end wall panel.

References Cited in the file of this patent

UNITED STATES PATENTS

681,323	Houghland	Aug. 27, 1901
712,434	Fiske	Oct. 28, 1902