Nov. 6, 1962 M. E. HOLY 3,062,367

CARTON STRUCTURE

Filed Dec. 2, 1958

FIG. 1

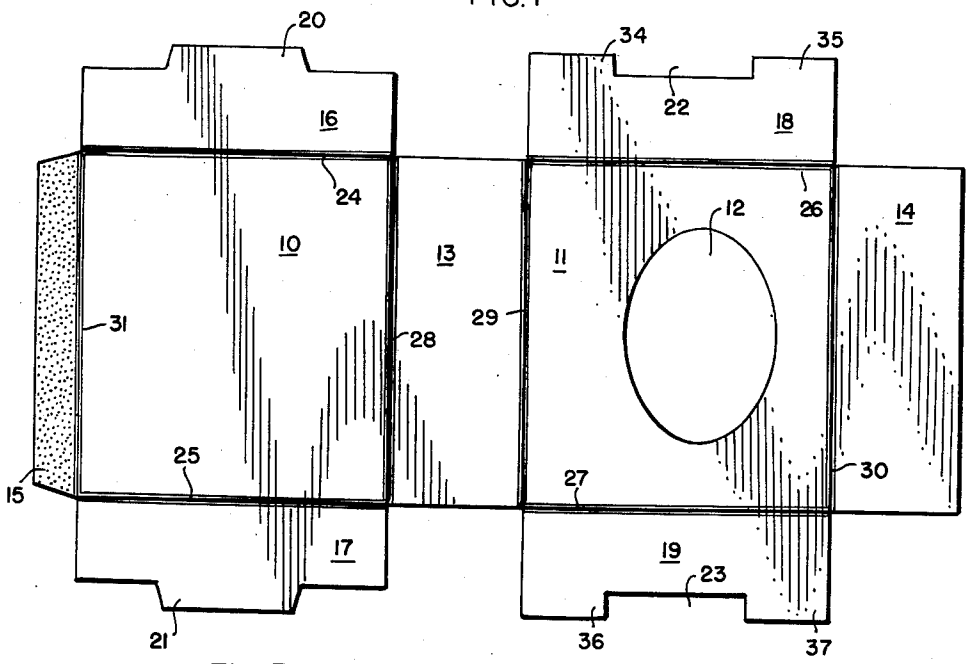


FIG. 3

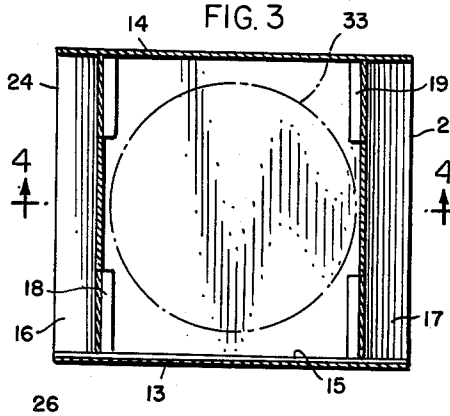


FIG. 2

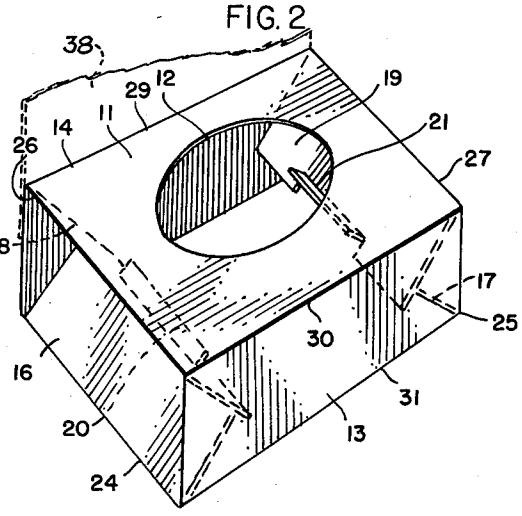
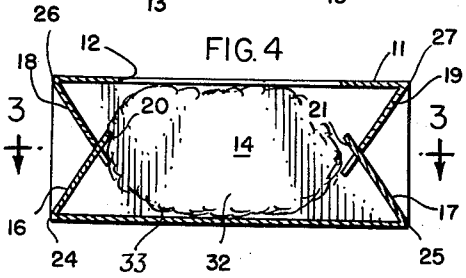


FIG. 4



INVENTOR:
MITCHEL E. HOLY
BY
Walter D. Haubaugh
ATT'Y

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CARTON STRUCTURE

Mitchel E. Holy, Chicago, Ill., assignor to Cooper Carton Corporation, Chicago, Ill., a corporation of Illinois

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This invention relates to a carton structure, and more particularly to a foldable carton which is especially useful in connection with the packaging and display of relatively light weight, small or irregularly-shaped articles such as sponges, scouring pads, and glass, plastic or metal containers or objects etc.

In packaging articles of such type, it is desirable to provide a carton structure which is equipped with a window in which, or behind which, an article can be placed for display purposes to enable the purchaser to visually inspect the article at the time of purchase. Further, the cartons are disposable, and consequently must be inexpensive, convenient for inserting and removing articles therefrom, and should be foldable or collapsible so that large numbers thereof can be compactly shipped and stored. Also the carton should be structurally rugged to support the article in its display position and if any display card is attached thereto, the carton should be strong enough to support the card in proper position to be viewed under all encountered conditions.

Additionally, it may be noted that in connection with the insertion of articles into the cartons, it is desirable to employ over-size cartons which hold or maintain the articles in centered relation with respect to the viewing window thereof and to provide a broad base for support of other display material.

One of the objects of the invention is to provide a low cost package structure, which not only saves in material used but also is structurally stronger for any given weight or type of paper board than are conventional boxes.

The invention is also characterized by an easily handled end closure which enables high speed machine folding in which side flaps or folds are eliminated and the two interengaging closure flaps may be brought into position with either one moved first and will end with an interlock which not only strengthens the box form but prevents opening until pressed inwardly again.

The invention is also characterized by a novel end closure construction in which there are no fold lines to be made in the closure flaps and the squaring of the main portion places the flaps in position for closure with the cartons disposed with either side forward.

An object of the present invention is also to provide a carton that satisfies the characteristics desired for such cartons which have been set forth.

Another object of the invention is in the provision of a window-equipped carton structure having improved means for automatically centering articles therein as part of the carton closing operation.

Still another object is that of providing a foldable or collapsible carton formed of paper-board or the like, which uses a minimum of material and which has end closures that snap into place and serve to maintain the carton squared in its box-like configuration, and also serve to center the article and cushion the same during shipment.

A further object is to provide a carton of the character described having end closures, each of which comprises two flaps that have a composite dimension substantially greater than the end opening to be closed thereby, and have interlocking tabs that engage each other when the flaps are folded into the interior of the carton to maintain the same therein. Additional objects and advantages of the invention will become apparent as the specification develops.

An embodiment of the invention is illustrated in the accompanying drawing, in which:

FIG. 1 is a plan view of a cut and scored blank from which a carton embodying the present invention can be formed;

FIG. 2 is a perspective view of the carton in the shape or position of use thereof;

FIG. 3 is a horizontal, longitudinal sectional view taken along the line 3—3 of FIG. 4; and

FIG. 4 is a vertical, longitudinal sectional view taken along the line 4—4 of FIG. 3.

The blank illustrated in FIG. 1 is scored along the various edges thereof so as to define a bottom **10**, a top **11** provided with a viewing window **12** therein, side walls **13** and **14**, an adhesive-coated securing or anchor lip **15**, and end flaps **16**—**17** and **18**—**19**. The flaps **16** and **17** are respectively equipped with centrally disposed, outwardly projecting tongues **20** and **21**, and the flaps **18** and **19** are respectively provided with grooves or recesses **22** and **23** adapted to seat the tongues therein.

The tongued flaps **16** and **17** are hingedly or foldably connected with the bottom **10** along the respective lines **24** and **25**; and similarly, the grooved flaps **18** and **19** are foldably connected to the top **11** along the lines **26** and **27**. It will be evident that the side wall **13** is foldable relative to the bottom **10** and top **11** along the lines **28** and **29**, while the side wall **14** is foldable along line **30**, and lip **15** folds with respect to the bottom **10** along line **31**. The blank may be cut from pressed paper or cardboard or any other suitable material. Similarly, various adhesives may be used along the lip **15**, and the precise character thereof may be related to the carton material. In the specific illustration, a pressure-sensitive adhesive is employed.

In assembling the carton, the bottom, side and top walls are folded relative to each other so as to define a generally rectangular prism, and the lip **15** is then folded along the outer surface of the side wall **14** and is bonded thereto. After such folding operation, the carton can be collapsed—that is, pivoted along the lines **28** through **31** to bring the top **11** into planar juxtaposition with the bottom **10**. In this condition, the carton can be compactly stored and shipped.

To use the carton in a packaging operation, it is restored to its general prismatic form and the flaps at one end of the carton folded inwardly as shown in FIGS. 2 through 4 to maintain the shape thereof. For example, the flaps **16** and **18** may be so folded inwardly, and preferably the grooved flap **18** is placed beneath flap **16** for then the tongue **20** quite readily snaps into the groove **22** therefor. However, it is not essential that the flaps be folded in such manner, but it is somewhat more convenient to do so.

The carton now defines a compartment or space **32** adapted to receive an article such as is indicated diagrammatically by the circular line **33** in FIG. 3. After the article **33** is inserted therein, the end flaps **17** and **19** may be closed in the manner of the flaps **16** and **18**. To remove the article **33**, either the flaps **16** and **18** or **17** and **19** may be unfolded by releasing the appropriate tongue from the groove therefor, although ordinarily the consumer will destroy the carton when removing the article therefrom.

It will be noted especially in FIG. 4 that the interlocked flaps at each end of the carton project inwardly into the compartment **32** thereof, and in so doing substantially align any article therein with respect to the viewing window **12** and thereafter maintain such centered

relation. Further, the tongues **20** and **21** project beyond the plane of the respective flaps **18** and **19**, and are angularly disposed with respect thereto. Thus, these tongues provide resilient abutments for an article **33** that constrain the same against longitudinal shifting within the compartment. Similarly, the ears **34** and **35** of the flap **18** and which define the groove **22** thereof, and the ears **36** and **37** of the grooved flap **19**, project beyond the plane of the flaps **16** and **17** and therefore also serve as resilient abutments.

Since the flaps **16** and **18** have a composite dimension, that is, the sum of the respective dimensions thereof measured along lines normal to the foldable edges **24** and **26**, is greater than the end opening (that is, the width of the side wall **13** measured between the foldable edges **28** and **29** thereof), the tongue **20** and groove **22** interlock at only one position of the flaps; namely, the position thereof shown most clearly in FIG. 4 wherein both are folded into the interior of the compartment **32**. Thereafter, this dimensional relationship maintains the flap interlock within the compartment in the generally triangular configuration most evident in FIG. 4, and if a back board a display panel **38** such as shown in FIG. 2 is attached to a wall, it will be supported by the breadth and weight of the carton with the article therein.

While in the foregoing specification an embodiment of the invention has been set forth in considerable detail for purposes of making an adequate disclosure thereof, it will be apparent to those skilled in the art that numerous changes may be made in those details without departing from the spirit and principles of the invention.

I claim:

1. In a rectangular carton of relatively stiff cardboard defining a substantially enclosed compartment therein and

having an open end providing access to such compartment, a pair of end flaps constituting the sole means for closing such open end, said flaps being foldably connected respectively to said carton along parallel edges defining in part the open end thereof and having a composite dimension substantially greater than the dimension of said opening between said parallel edges, one of said flaps being equipped with a notch intermediate the ends of its edge and the other thereof with a tongue intermediate the ends of its edge snugly received within said notch along a straight line of mutual support when the flaps are folded and inverted into the interior of the aforesaid compartment to form an outwardly presenting obtuse angle therebetween, said flaps in operative position being biased outwardly to maintain them in interlocked position, the ends of said flaps engaging the sides of said box whereby the interlock defined by said tongue and notch in conjunction with the aforementioned composite dimension and angle of said flaps maintains the same in such folded position within the compartment and the box in erected condition.

2. The carton called for in claim 1 in which an open viewing window is provided in a side wall of the carton behind which the contents of the compartment are resiliently held in place by the inner edge portions of the flaps.

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