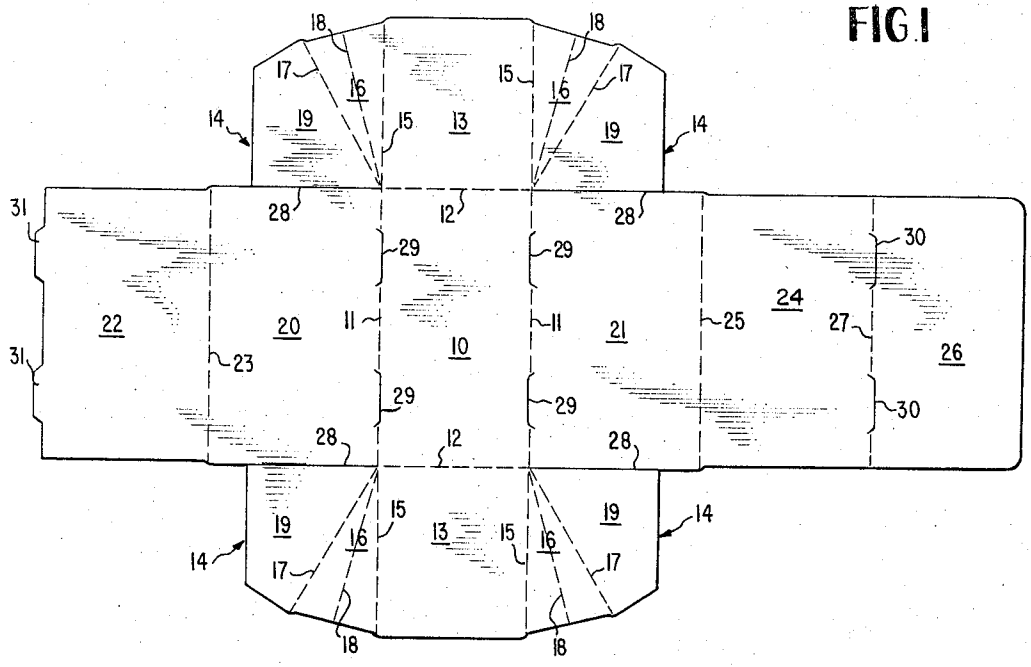
March 19, 1968 H. A. MARTELLI 3,373,923

EXPANDABLE TRAY CARTON

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FIG. 1



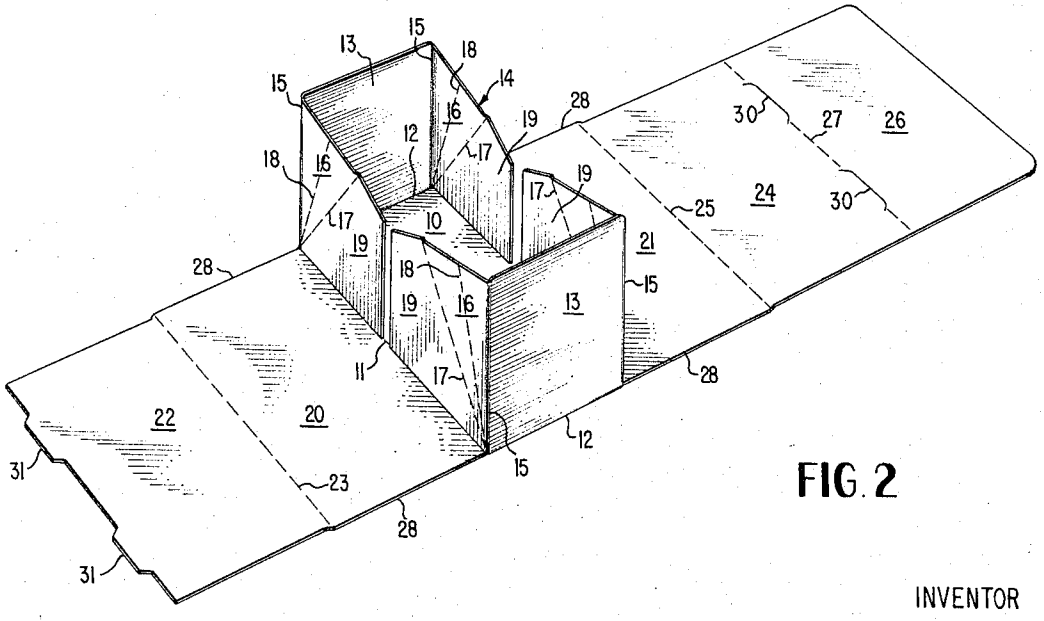


FIG. 2

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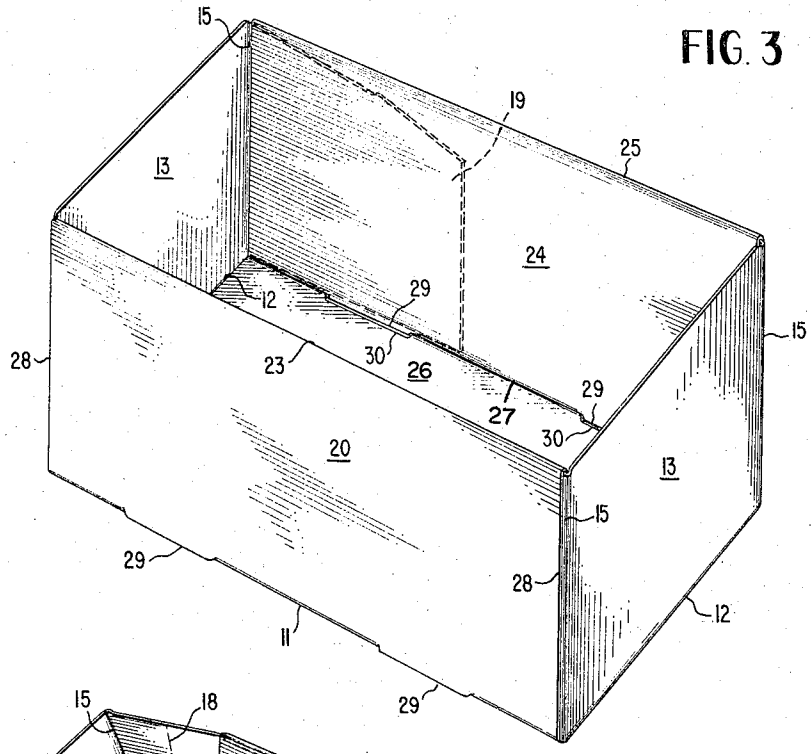
BY Charles P. Bauer
ATTORNEY

March 19, 1968 H. A. MARTELLI 3,373,923

EXPANDABLE TRAY CARTON

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FIG. 3



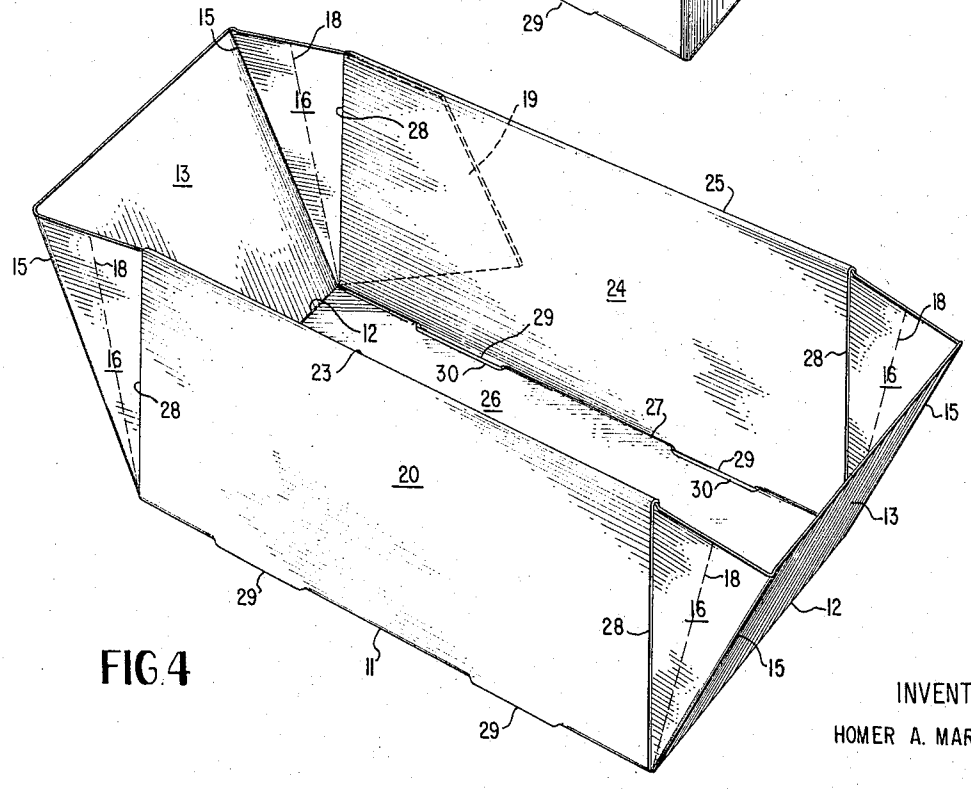


FIG. 4

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EXPANDABLE TRAY CARTON

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FIG. 5

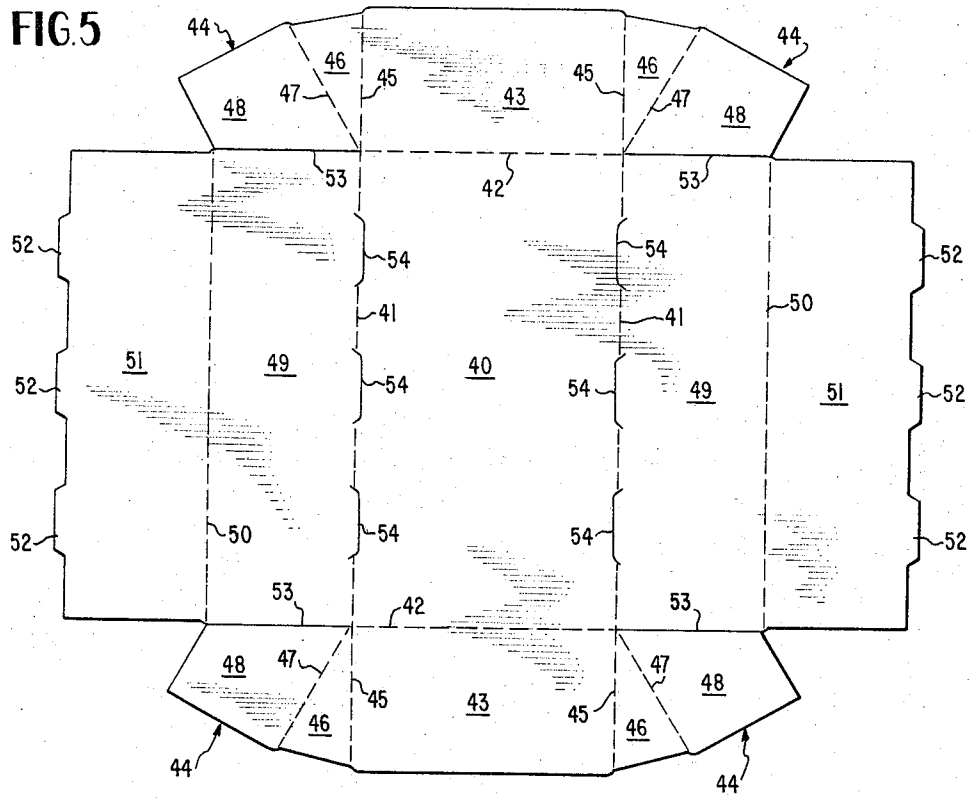
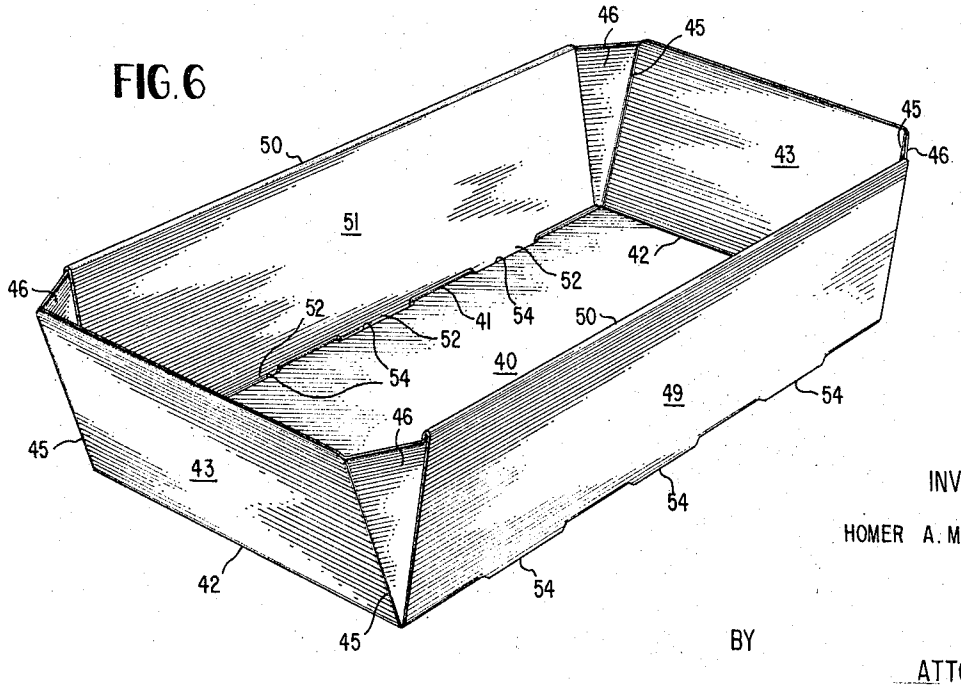


FIG. 6



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United States Patent Office 3,373,923
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3,373,923

EXPANDABLE TRAY CARTON

Homer A. Martelli, Westwood, N.J., assignor to Union Camp Corporation, New York, N.Y., a corporation of Virginia

Filed Aug. 12, 1966, Ser. No. 572,082
1 Claim. (Cl. 229—34)

ABSTRACT OF THE DISCLOSURE

An expandable carton comprising bottom, sides and ends, the ends having flaps on each side, each flap comprising a scored web portion and a terminal portion, each side having a hinged overlapping portion, the overlapping side portions being provided with locking lips fitting into slots in the bottom. When the carton is assembled, the end flaps are folded at 90° and are sandwiched between the sides and their overlapping portions, as the latter portions are folded over to fit within the carton, with the locking lips inserted in the bottom slits. The outer edges of the web and terminal portions are so shaped that the ends move freely to expand the carton until the outer edges of the terminal portions contact the hinge portion connecting the sides and their overlapping portions.

This invention relates to an expandable carton and more particularly to an expandable carton for both shipping and displaying merchandise.

An object of this invention is to provide an expandable carton.

Another object of this invention is to provide a shipping carton that can be used at the sale site as a display.

Another object is to provide a carton the sides of which slope outwardly to provide a display tray.

Another object is to provide a carton the sides of which can be pulled out or extended by a predetermined distance.

Another object is to provide a carton that can be assembled into a shipping or display receptacle without the need for glue or other externally applied securing means.

Another object is to provide an expandable carton made completely from a single blank sheet.

Another object is to provide a carton in which all four sides slope outwardly.

Another object is to provide a carton which is easily assembled and converted into a tray.

Still another object of this invention is to provide a carton the sides of which coact to limit the amount of slope that the sides can assume.

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

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 which will be indicated in the claim.

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 drawing, in which:

FIGURE 1 is a plan view of a blank of one embodiment of the invention;

FIGURE 2 is a perspective view of an intermediate step in the folding of the blank of the invention;

FIGURE 3 is a perspective view of the folded carton ready for shipping;

FIGURE 4 is a perspective view of the folded carton in a display condition;

FIGURE 5 is a plan view of a blank of another embodiment of the invention; and

FIGURE 6 is a perspective view of the completed carton in a display condition.

FIGURE 1 shows a flat blank of sheet material, such as paperboard or the like, of a weight suitable for the size of the carton to be made. If greater visibility is preferred, the carton may be constructed from a transparent material.

A bottom **10** is defined by score lines **11** and **12**. Located adjacent score lines **12** are ends **13** having lateral flaps **14** of a length less than one-half the length of the bottom on each side thereof attached along score lines **15**. Flaps **14** have a recessed triangular web **16** defined by score lines **15** and **17** bisected by score line **18**, and a terminal portion **19** is adjacent score line **17**.

Attached to the opposite sides of bottom **10** along score lines **11** are sides **20** and **21**, side **20** having an overlapping side portion **22** of a length slightly less than side **20** attached along score line **23**. Side **21** has an overlapping side portion **24** of a length slightly less than side **21** attached along score line **25** and an overlapping bottom portion **26** the same length as overlapping side **24** and attached to side **24** along score line **27**.

Sides **20**, **21**, **22** and **24** are all the same height and bottoms **10** and **26** are also the same width to allow the overlapping portions to lie adjacent their respective members when folded in an overlapping position. Score lines **15**, **17** and **18** which define recessed triangular web **16** converge towards and intersect the junction of score lines **11** and **12** at the corners of bottom **10**. Terminal portions **19** are adjacent sides **20** and **21** and are separated therefrom along lines **28** which are cut through from the end of terminal portion **19** to score line **11**.

Positioned along score line **11** are spaced slits **29** and along score line **27** are spaced strikeouts forming spaced slits **30**, the strikeouts being located so that the slits **30** are parallel and adjacent to their respective score lines. Along the outer edge of overlapping side portion **22** are a pair of extending shallow lips **31** which are in axial spaced alignment with slits **29**.

In order to set up the carton, flaps **14** are bent to a vertical position along score lines **15**; end portions **13** are then bent to a vertical position along score lines **12** so that flaps **14** lie perpendicular and coaxial to score lines **11**, as shown in FIG. 2. Sides **20** and **21** are bent 90° to a vertical position along score lines **11** so that sides **20** and **21** are parallel and adjacent to flaps **14** and overlapping side **22** is bent 180° along score line **23** so that it overlaps flaps **14** and lips **31** are inserted in slits **29** along score line **11**.

Overlapping side **24** is bent 180° about score line **25** so that it overlays flaps **14**, and the strikeouts of slits **30** are inserted in slits **29** along score line **11** and overlapping bottom **26** overlays bottom **10**.

The overlapping sides **22** and **24** and the overlapping bottom **26** are of sufficient length to press against ends **13** and hold the carton in a substantially rectangular shape, as shown in FIG. 3. Flaps **14** are sandwiched between sides **20**, **22** and **21**, **24** respectively with their lower edges abutting and lying along score lines **11**.

When the merchandise is placed in the carton, the weight and bulk of the merchandise tends to retain the strikeouts and abutting walls in engaging relationship to their respective members.

Another embodiment of the invention is shown in FIGURE 5 which shows a flat blank of sheet material, such as paperboard or the like, of a weight suitable for the size of the carton to be made. A bottom **40** is defined by score lines **41** and **42**. Adjacent score lines **42** are end portions **43** having lateral flaps **44** of a length less than one-half the length of the bottom on each side thereof hinged along score lines **45**. Flaps **44** have a recessed

triangular web 46 defined by score lines 45 and 47, and terminal portion 48 is adjacent score line 47. Attached to the opposite sides of bottom 40 along score lines 41 are sides 49. Sides 49 have side portions 51 projecting from the outer edges thereof along score lines 50, both of the side portions 51 being of a length slightly less than sides 49 and capable of nestling within the completed carton when folded in overlapping relationship to sides 49.

Overlapping sides 51 have shallow extending lips 52, the number of which will depend upon the size of the box to be made. The lips 52 are spaced along the outer edge of side 51 and in longitudinal alignment. Score lines 45 and 47 which define recessed triangular webs 46 converge towards and intersect their adjacent corners of bottom 40. Terminal portions 48 are adjacent sides 49 and are separated therefrom along lines 53 which are cut through from the outer edge of portion 48 to the corners of bottom 40 where score lines 45 and 47 intersect.

Positioned along score lines 41 are spaced strikeouts forming spaced slits 54 which are parallel to and adjacent score lines 41 and in longitudinal alignment with lips 52.

In order to set up the carton, flaps 44 are bent 90° to a vertical position along score lines 45 and ends 43 are then bent to a vertical position along score lines 42 to that flaps 44 lie perpendicular and coaxial to score lines 41. Sides 49 are bent 90° to a vertical position along score lines 41 so that sides 49 are adjacent flaps 44, and then overlapping sides 51 are bent 180° so that they overlay flaps 44. Lips 52 are then inserted in their respective slits 54 along score lines 41.

Sides 51 are of a length slightly less than sides 49 so that they fit within the folded carton in abutting relationship to ends 43 and help to hold the carton in a substantially rectangular shape. Flaps 44 are sandwiched between sides 49 and 51 in the same manner as in the alternate embodiment.

While the embodiment of FIGURE 5 is structurally different from that of FIGURE 1, both embodiments operate in the same manner.

When the carton is received with the merchandise therein and the receiver wishes to set up the display carton, all he need do is pull the ends 13 and 43 outwardly from a vertical position to the display position as shown in FIGURES 4 and 6.

It should be noted that the outer edges of webs 16 and terminal portions 19 are so shaped that when ends 13 are pulled out the flaps can initially freely pivot on hinge lines 12 without the web and terminal portions coming in contact with hinge lines 23 and 25. When the recessed webs 16 and 46 are extended their full amount beyond the overlapping sides, the outer edges of terminal portions 19 and 48 will abut the upper folded over portion of the sides which acts as a stop and prevents the entire flaps from coming out and the carton from becoming disassembled.

By varying the number of bisecting score lines in the web, the amount of flap that can be extended can be controlled. Because of the relative rigidity of the flaps, the sides tend to bend outwardly from a vertical plane so that all four sides and the connecting recessed webs are sloping outwardly from a vertical position at their upper edges, thereby making it much easier for the ultimate consumer to pick out the merchandise packed in the carton and allowing for a visible display of the merchandise at the point of purchase.

At no time during the operation of the carton do the terminal portions overlap and therefore, when the webs are pulled outwardly, the terminal portions which limit their movement will not abut and jam or force the overlapping sides out of engagement. The recessing of the webs allows the webs to be expanded easily without jamming against the upper folded over portion of the sides and the consequent fraying thereof.

Since certain changes may be made in the above article, and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description (or shown in the accompanying drawing) shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claim is 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.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An expandable carton for shipping and displaying merchandise comprising a rectangular bottom, two oppositely disposed ends hinged on one edge to said bottom, a flap hingeably and oppositely disposed on each side of said ends, each flap having a triangular web portion adjacent the hinge with the apex at the adjacent corner of said bottom, and a terminal portion, said web having score lines originating at the apex and extending to its outer edge, two oppositely disposed rectangular sides each hinged on one edge to said bottom and having an overlapping side portion hinged to its opposite edge, said overlapping side portions having a plurality of spaced lips in alignment with a plurality of spaced slits on the hinge lines connecting said adjacent sides and said bottom, said overlapping side portions being dimensioned in length to fit within the assembled carton, said overlapping side portions overlying said flaps when said lips are inserted in their respective slits, the outer edges of the web and terminal portion of each flap being shaped to permit free outward movement of the flap within the space between the side and its overlapping portion, when the flap is pulled, until the outer edge of the terminal portion contacts the hinge connecting the side and its overlapping portion and thereby limits the outward movement of the end, the score lines in the web permitting a limited expansion of the carton.

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