Feb. 7, 1961 I. H. FOWLE ET AL 2,970,740

SELF-ERECTING DISPENSING CARTON

Original Filed June 7, 1957

2 Sheets-Sheet 1

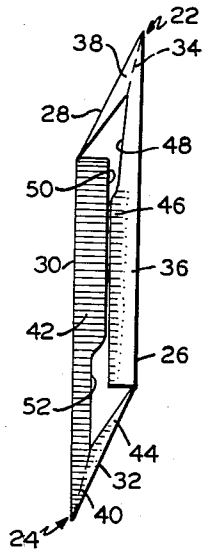


FIG.1

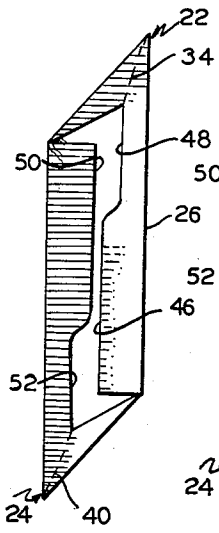


FIG.2

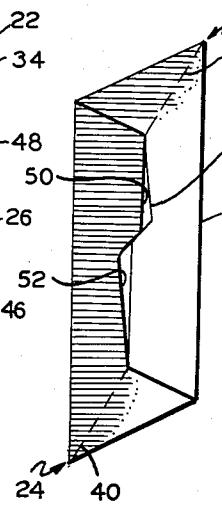


FIG.3

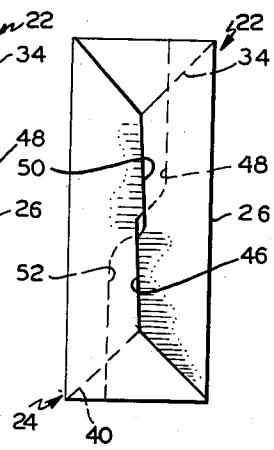


FIG.4

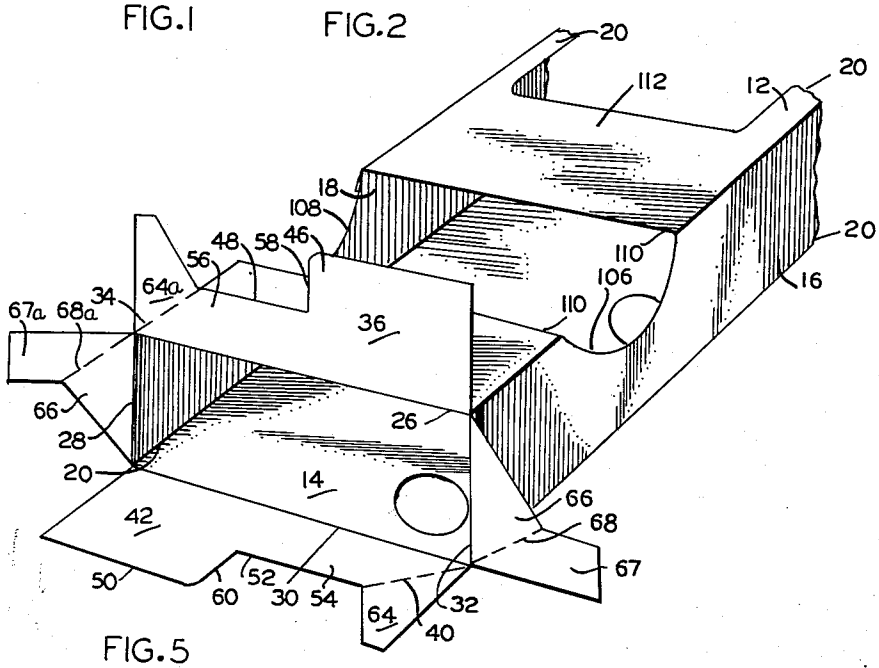


FIG.5

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Feb. 7, 1961 I. H. FOWLE ET AL 2,970,740

SELF-ERECTING DISPENSING CARTON

Original Filed June 7, 1957 2 Sheets-Sheet 2

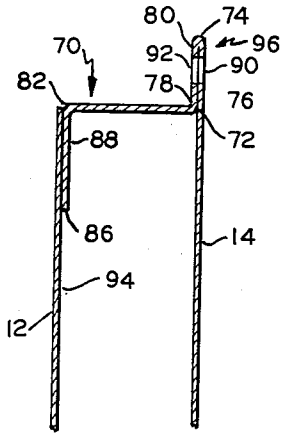


FIG.7

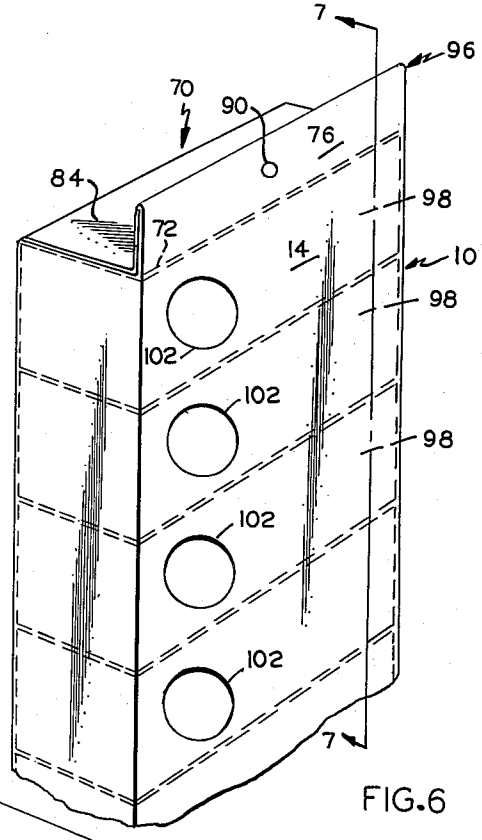


FIG.6

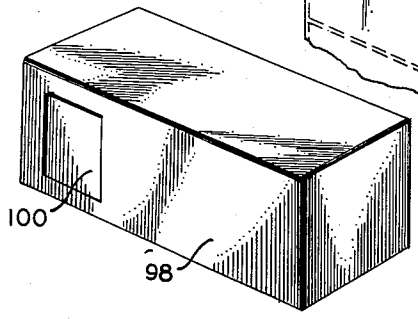


FIG.8

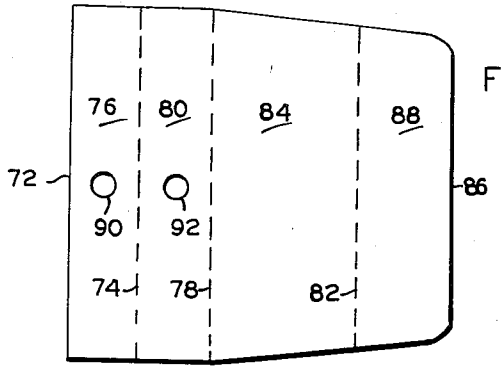


FIG.9

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SELF-ERECTING DISPENSING CARTON

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Original application June 7, 1957, Ser. No. 664,286. Divided and this application Apr. 30, 1958, Ser. No. 731,966

3 Claims. (Cl. 229—38)

This invention relates to cartons and, more particularly, to cartons which may be folded flat for shipping and then unfolded for use.

A major object of this invention is to provide an automatic bottom for folding cartons which snaps into position upon opening or unfolding of the carton from a flat position whereby the carton becomes self-erecting.

A further object is to provide a carton having a top closure which may be formed into a shoulder for suspending the carton without exposing the contents at the top opening.

Another object is to provide a plurality of openings in at least one wall of the carton to expose an area on each one of the articles contained in the carton.

It is also an object of this invention to provide a carton which may serve as a dispenser for the articles contained therein.

In the attainment of the foregoing objects, a feature of this invention resides in a structure including two flaps on one end of the carton which are provided with diagonal score lines upon which the carton is folded in its collapsed condition, and locking means which serve automatically to lock the flaps together when the carton is unfolded or opened into its article-containing condition.

Another feature resides in a cover flap having a plurality of successive panel sections which, in one position form a normal closure for an end of the carton, but, in a second position, two of the panel sections may be folded upon each other to form a hanging shoulder, while the third and fourth panel sections form the closure for the end of the carton.

Other objects and features will be apparent from the following description of the invention, pointed out in particularity in the appended claims and taken in connection with the accompanying drawings, in which:

Fig. 1 is an end view of the carton showing the bottom of the carton partially unfolded;

Fig. 2 is an end view, as in Fig. 1, wherein the bottom of the carton is more fully opened;

Fig. 3 is an end view showing the bottom of the carton still further opened and the flaps beginning to engage each other;

Fig. 4 is an end view showing the bottom of the carton fully opened and the flaps locked in place;

Fig. 5 is a perspective view of the carton showing the bottom opened to reveal the component parts of the flaps;

Fig. 6 is a perspective view showing the suspending shoulder on the top flap of the carton and openings in the rear wall of the carton for exposing areas of the articles contained in the carton;

Fig. 7 is a cross-sectional view taken along line 6—6 in Fig. 6 showing the top flap arranged to provide a suspending shoulder for the carton;

Fig. 8 shows one of the articles which may be contained in the carton; and

Fig. 9 is a plan view of the top flap of the carton.

With reference to the drawings, carton **10** has a front wall **12**, a rear wall **14**, and side walls **16** and **18**. At the intersection of each of these walls with one another there is provided a fold or score line **20** so that carton **10** may be folded into a flattened condition. As best indicated in Fig. 5, when carton **10** is in a flattened condition, rear wall **14** would remain stationary while side wall **18** would pivot downwardly to the left about the fold line **20** between side wall **18** and rear wall **14**. In folding downwardly, front wall **12** and side wall **16** would become positioned in the same plane to overlie rear wall **14** and side wall **18** which would also be in a common plane.

Figs. 1 through 4 show the bottom of carton **10** in various stages of being opened from its flattened position into its most fully opened position. The bottom of carton **10** is provided with flaps **22** and **24** which extend from the bottom edges of different pairs of adjacent walls of carton **10**. Flap **22** is joined to edges **26** and **28** while flap **24** is joined to edges **30** and **32**.

Flap **22** is divided by a perforated score line **34** into portions **36** and **38**, while flap **24** is divided by score line **40** into portions **42** and **44**. Score line **34** bisects the angle between edges **26** and **28**, and score line **40** bisects the angle between edges **32** and **30**. Formed on portion **36** of flap **22** is a projection **46** and an adjacent notch **48**, while portion **42** is provided with a correspondingly shaped projection **50** and notch **52**.

Fig. 1 shows carton **12** partially unfolded and flaps **22** and **24** are shown in a partially flattened position, projecting inwardly into the carton (i.e., into the paper). Fig. 2 shows flaps **22** and **24** unfolding even more, while Fig. 3 shows the carton almost fully opened and projections **46** and **50** beginning to engage each other. Fig. 4 shows the carton fully opened with opposed sides parallel and flaps **22** and **24** interlocked by the engagement of projections **46** and **50** and notches **48** and **52**. Notch **52** receives projection **46** so that projection **46** slides into place against the inner surface **54** of portion **42** below notch **52**, while, in a similar manner, projection **50** is received in notch **48** to allow projection **50** to slide into position against the inner surface **56** of portion **36** beneath notch **48**. As best shown in Fig. 4, it can then be seen that flaps **22** and **24** are interlocked to maintain the carton in an open condition. Inner edges **58** and **60** of projections **46** and **50**, respectively, will bear against each other to restrain the carton **10** from reverting to its folded condition.

The relative movements and interactions of the various components of the bottom of the carton **10** can best be described by the reference to Figs. 1 through 4. When carton **10** is fully flattened (not shown), portions **36** and **38** of flap **22** are folded respectively against the inner surfaces of walls **12** and **18**, and portions **42** and **44** of flap **24** are folded respectively against the inner surfaces of walls **14** and **16**. As carton **12** is unfolded, flaps **22** and **24** begin to move both outwardly from carton **10** and laterally with respect to each other. As projections **50** and **46** begin to unfold and move outwardly, they engage each other so that further outward movement is restrained. But as the carton is further unfolded, pressure builds up between the projections so that at the point in lateral movement when the projections on each flap are in such a position that edges **58** and **60** are in alignment, a slight additional lateral movement in the same direction causes projection **46** to snap into notch **52** and slide into engagement with inner surface **54**, and likewise causes projection **50** to snap into notch **48** and slide into engagement with inner surface **56**. Therefore, it can be seen that flaps **22** and **24** are interlocked and that edges **58** and **60** on projections **46** and **50**, respectively, will bear against each other to prevent the flaps and the carton from reverting to its original folded condition.

Fig. 5 shows a convenient way of forming the flaps **22**

and 24 illustrated in Figs. 1 and 4, inclusive. Portions 44 and 38 of flaps 22 and 24 include flap subportions 62, 64 and 62*a*, 64*a*, respectively. Subportion 62 is divided into areas 66 and 67 by the perforated score line 68. In like manner subportion 62*a* is divided into areas 66*a* and 67*a* by a perforated score line 68*a*. The inter-relationships of these subportions to form the flaps 22 and 24 will now be described for the position of carton 10 shown in Fig. 4; i.e., the carton is fully opened and the flaps are interlocked to form the bottom on the carton.

With reference to the right hand side of the bottom of carton 10, as shown in Fig. 5, subportion 62 extending from edge 32 is swung inwardly to the left as to close the open bottom end of carton 10. Flap portion 42 carrying flap subportion 64 is then turned upwardly so that subportion 64 overlies the outer surface of area 66 and portion 42 overlies the outer surface of area 67. Glue or other fastening means my then be applied to the inner surface of subportion 64 and the outer surface of area 66 in order to secure subportions 62 and 64 together. When the subportions are thus secured together, it is noted that score line 68 coincides with score line 40 so that carton 10 may be folded and unfolded as previously described. It is to be understood that subportions 62*a* and 64*a* are fastened together in a like manner to form flap 22.

At the upper end of carton 10 is a flap generally designated as 70. As shown in Fig. 9, the flap 70 extends from the upper edge of rear wall 14 and is provided with three successive score lines defining sections of the flap. The score lines are all parallel to each other and parallel to upper edge 72 of the carton 10.

Score line 74 defines with upper edge 72 a flap section 76. Score line 78 defines with score line 74 a flap section 80. Score line 82 defines with score lines 78 a flap section 84. Outer edge 86 of flap 70 defines with score line 82 a flap section 88. Formed in flap section 76 is an opening 90 and in flap section 80 an opening 92. Openings 90 and 92 are of the same size and are centrally located in their respective flap sections.

Flap sections 76 and 80 are of identical width. Flap section 84 has the same width as the combined widths of flap sections 76 and 80, which is also the same width as the distance between front wall 12 and rear wall 14 of carton 10.

In the normal position of the flap, flap sections 76 and 80 are folded along upper edge 72 at a right angle to rear wall 14 and sections 84 and 88 are folded along score line 78 at a right angle to sections 76 and 80. In this normal position, flap sections 76 and 80 combine to provide the closure for the end of carton 10 while sections 84 and 88 are tucked inside front wall 12 bearing against the inner surface 94 thereof.

In the second position of the cover flap, as shown in Figs. 6 and 7, flap sections 76 and 80 are folded upon each other to form an upstanding hanging shoulder 96 with openings 90 and 92 in registry with each other. Section 84 then forms the top closure for the upper end of carton 10 and section 88 tucks inside the front wall 12, as shown in Fig. 7. This arrangement provides a means from which to suspend carton 10, while at the same time providing a top closure for the upper end of the carton so as not to expose the contents thereof. Openings 90 and 92 allow the carton to be suspended from a nail or similar fastener.

Fig. 8 shows a type of article which may be stacked in carton 10 to realize the full utility of the invention. Box 98 is rectangular and may contain any object, such as a roll of film. Area 100 on box 98 is provided for marking the price or other code relating to the object contained in box 98. When a plurality of boxes 98 are stacked in carton 10, as shown in Fig. 6, they are arranged so that each area 100 on boxes 98 is in alignment with one

of openings 102 extending the height of the carton. The registry of openings 102 and areas 100 allows a retailer to mark the price or other code on the boxes 98 in areas 100 without removing the boxes from the carton.

Fig. 5 shows additional features of this invention. Side walls 16 and 18 have been cut away at 106 and 108, respectively, to form an opening with slot 110 in top wall 12 to provide a suitable opening from which boxes 98 may be dispensed when the carton is in a vertical position. In addition, Fig. 5 shows a partial view of a window 112 which may be provided in the front wall 12 in carton 10 so that boxes 98 may be visible to customers while carton 10 is suspended on a display board or building wall from hanging shoulder 96, thereby providing a desirable display and dispensing carton.

Although a specific embodiment of this invention has been shown and described, it will be understood that it is but illustrative and that various modifications may be made therein without departing from the scope of the invention as defined in the appended claims.

This application is a division of our pending application, S.N. 664,286 filed June 7, 1957.

We claim:

1. In a carton having spaced opposed front and rear walls and a pair of spaced opposed side walls, a top cover for said carton consisting of a flap joined to the upper edge of the rear wall, said cover flap extending upwardly from said upper edge in the plane of said rear wall and having first, second and third score lines and an outer edge spaced successively upwardly from, and parallel to, said upper edge; said opposed front and rear walls, said upper edge and second score line, and said second and third score lines all being equally spaced, said upper edge and said first score line defining a first cover flap section, said first and second score lines defining a second cover flap section, said second and third score lines defining a third cover flap section, and said third score line and said outer edge defining a fourth cover flap section; in a first position of said cover flap, said first and second sections being foldable downwardly along said upper edge at a right angle to said rear wall, and said third section being foldable downwardly along said second score line at a right angle to said first and second sections to provide a closure for the upper end of said carton; and in a second position of said cover flap, said second section being foldable downwardly to overlie said first section, said third section being foldable upwardly along said second score line at a right angle to said first and second sections, and said fourth section being foldable downwardly along said third score line at a right angle to said third section, said third and fourth sections providing a closure for the upper end of said carton, and said first and second sections providing an upwardly extending shoulder from which to suspend said carton.

2. A carton as defined in claim 1 wherein the distance between said upper edge and said first score line is equal to the distance between said first and second score lines, and said first and second cover flap sections are each provided with an opening, the openings registering with each other when said second section is folded to overlie said first section in said second position of said cover flap.

3. In a carton as defined in claim 1, said rear wall having a plurality of openings extending the height thereof to expose vertically spaced areas of the contents of said carton.

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