Dec. 30, 1969 J. V. MAHON ET AL 3,486,682

REDUCIBLE FLIP-TOP CARTON

Filed April 25, 1968 2 Sheets-Sheet 1

Fig 1

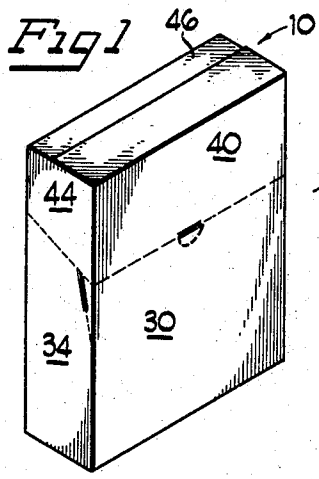


Fig 2

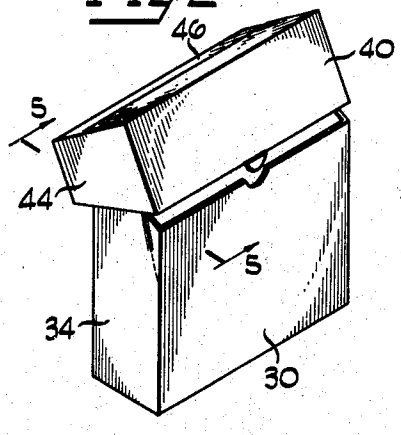


Fig 3

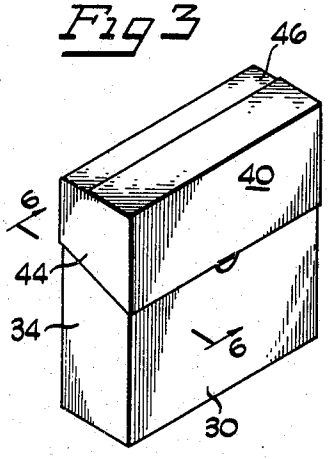


Fig 4

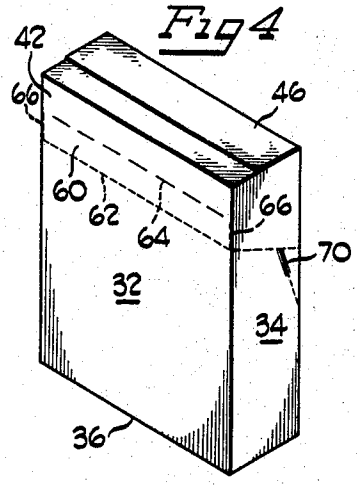


Fig 5

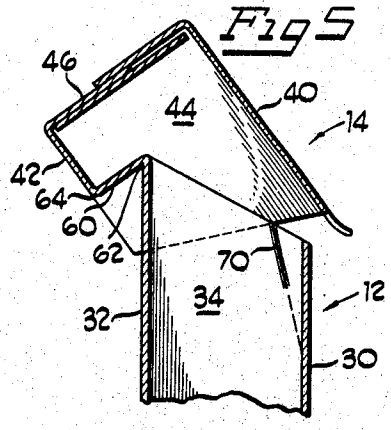
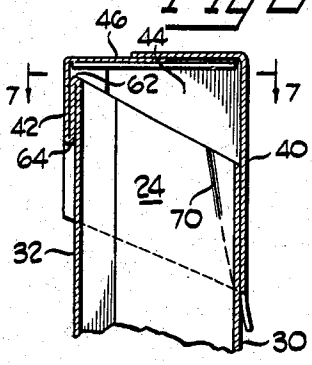


Fig 6



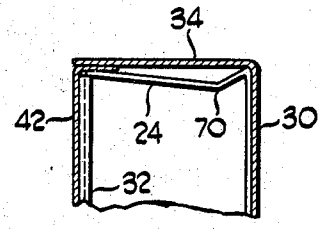
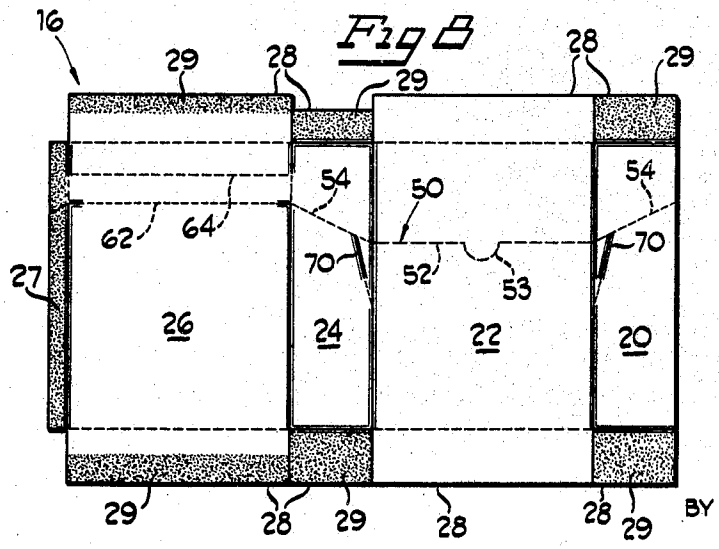


Fig 7

Fig 8



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REDUCIBLE FLIP-TOP CARTON

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Fig 9

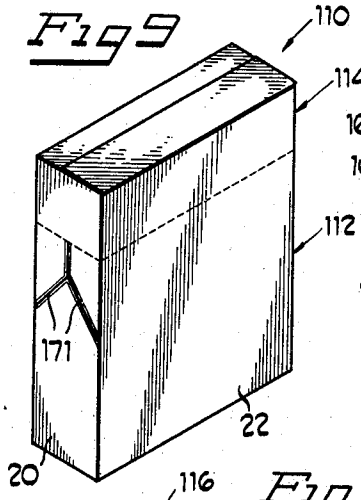


Fig 10

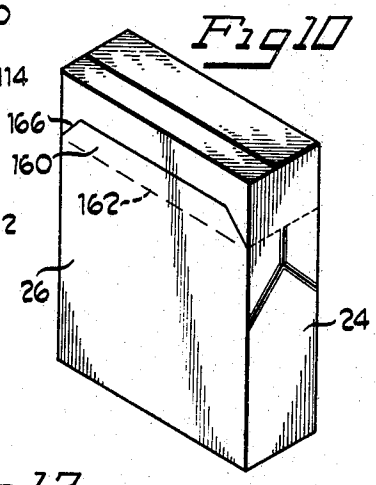


Fig 11

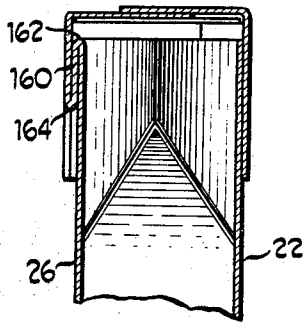


Fig 12

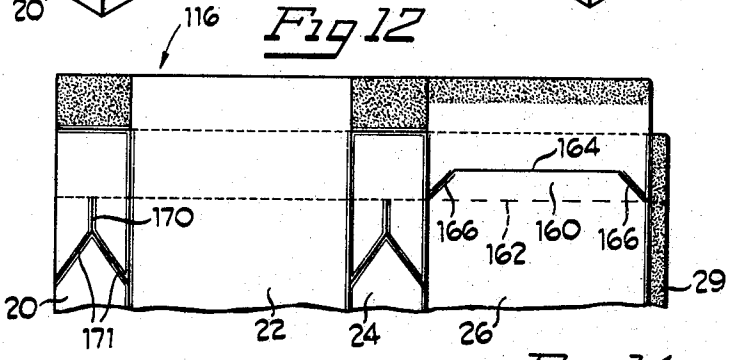


Fig 13

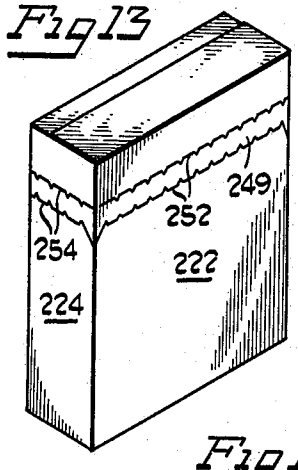


Fig 14

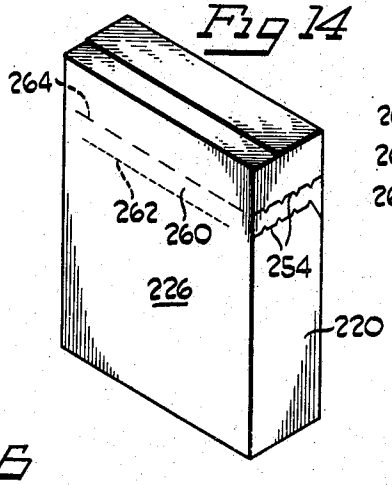


Fig 15

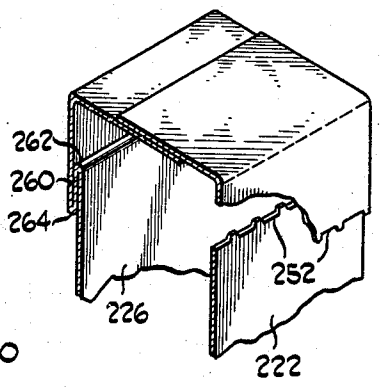
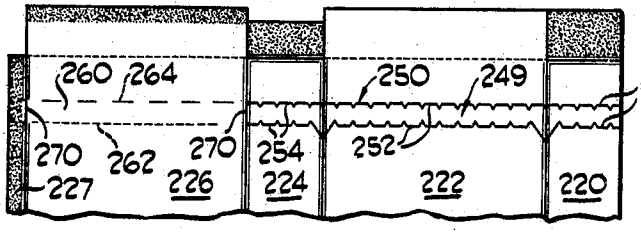


Fig 16



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3,486,682

REDUCIBLE FLIP-TOP CARTON

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Int. Cl. B65d 5/54, 5/66
U.S. Cl. 229—51 6 Claims

ABSTRACT OF THE DISCLOSURE

A reducible, flip-top carton having cover and base portions joined along three walls by a weakened line of tear and joined along a fourth wall by a connecting strip hingedly attached to the respective portions to permit the carton to be reduced in height after initial opening thereof by telescoping the cover portion over the base portion.

This invention relates to paperboard cartons and more particularly to reducible cartons of the so-called flip-top or hooded style. Although the concept of providing a flip-top or hooded type of carton with removable or folding means for permitting the carton to be reduced in size after a portion of the contents thereof have been removed therefrom is not new, most of the cartons of this style require a substantially greater amount of paperboard than regular cartons require.

It is therefore a primary object of this invention to provide a reducible, reclosable, flip-top style carton which utilizes no greater amount of paperboard than a conventional seal-end folding carton.

A more specific object of the invention is the provision, in a carton of the type described, of a pair of base and cover portions connected to each other along front and side walls by a weakened line of tear which permits the separation of the portions from each other and which are connected along the rear wall by a connecting strip hingedly attached to the cover and base portions which permits the cover portion to be telescoped over the base portion upon reclosure of the carton.

These and other objects of the invention will be apparent from an examination of the following description and drawings; wherein:

FIGURE 1 is a perspective view of a carton embodying features of the invention, shown prior to initial opening of the carton;

FIGURE 2 is a view similar to FIGURE 1 but showing the carton after it has been initially opened and while it is in the process of being reclosed in reduced condition;

FIGURE 3 is a view similar to the previous views but illustrating the carton upon reclosure in reduced condition;

FIGURE 4 is another perspective view similar to FIGURE 1 but showing the reverse side of the carton;

FIGURES 5 and 6 are vertical sections taken on line 5—5 and 6—6 of FIGURES 2 and 3, respectively;

FIGURE 7 is a horizontal section taken on line 7—7 of FIGURE 6;

FIGURE 8 is plan view of the blank from which the carton illustrated in the previous views may be formed;

FIGURES 9, 10, 11 and 12 correspond to FIGURES 1, 4, 6, and 8, respectively, but illustrate a modified form of the invention;

FIGURES 13, 14 and 16 correspond to FIGURES 1, 4, and 8, respectively, but illustrate a modified form of the invention; and

FIGURE 15 is a view similar to FIGURE 3, but with portions of the structure broken away.

It will be understood that, for purposes of clarity, certain elements have been intentionally omitted from certain views where they are believed to be illustrated to better advantage in other views.

Referring now to the drawings for a better understanding of the invention, it will be seen that a carton embodying one form of the invention as illustrated in FIGURES 1 through 8.

In this embodiment, as well as in the other embodiments, the carton, indicated generally at **10**, is a reducible carton of the so-called flip-top or hooded style and includes base and cover portions, indicated generally at **12** and **14** respectively, which may be formed from a unitary blank **16** of foldable paperboard which is illustrated in FIGURE 8 of the drawings.

Blank **16** which is used to form the carton of this invention is generally similar in size and overall shape to carton blanks used to form conventional seal-end cartons; however, because of the novel design of the invention disclosed herein it is possible to produce a reducible flip-top carton without utilizing any additional board in the blank.

Blank **16** is cut and scored to provide arranged panels **20**, **22**, **24**, **26** and **27**, first end wall panel **20**, front wall panel **22**, second end wall panel **24**, rear wall panel **26**, and glue strip **27** which are hingedly interconnected and overlapped at the end of the blank to form a tubular structure. Hingedly attached to the opposite ends of the front, rear, and side wall panels are a plurality of closure flaps **28** which may be folded into overlapped relationship and adhesively interconnected in the areas indicated at **29** to provide a seal-end carton structure.

It will be understood, of course, that the invention is not limited to a seal-end carton and either the top or bottom closure flaps may be of the inner locking type rather than the glued type if desired.

The base portion **12** of the carton includes a front wall **30**, a rear wall **32**, a pair of side walls **34**, and bottom wall **36** which are interconnected to provide a box-like enclosure open at the top.

Cover portion **14** includes a front wall **40**, a rear wall **42**, a pair of side walls **44**, and a top wall **46** which are interconnected to form a box-like enclosure open at the bottom.

Although the base and cover portions of the carton are integrally formed so as to constitute a one-piece structure when the carton is erected, the front and side walls of the base and cover sections are joined by a generally transversely extending weakened line of tear, indicated generally at **50**, having a central section **52** extending across the front wall in generally parallel relationship with the hinge lines which connect front wall panel to the upper and lower closure flaps, and having a pair of side sections **54** extending across the side walls and sloping upwardly from opposite ends of center section **52**. Center section **52** may be formed with a centrally disposed offset portion **53** to facilitate initial rupturing of tear line **50**.

The rear walls of the base and cover portions of the carton are interconnected by a relatively narrow, elongated, connecting strip **60** which extends transversely across rear wall panel **22** of the blank in generally parallel relation with the hinge line which connect the rear wall panel to the top and bottom closure flaps of the carton. Connecting strip **60** is defined by lower and upper hinge lines **62** and **64**, respectively. Lower hinge line **62** is preferably aligned with the upper extremities of tear line side section **54**. At opposite ends of connecting section **60** there may be provided vertical weakened lines **66** which permit the connecting strip to be separated at its ends from the adjacent side walls of the carton to permit the

carton cover portion to be telescoped over the base portion in the manner hereinafter described.

Also, side walls **34** of the base portion may be provided with fold lines **70** which permit the end walls to be collapsed slightly to permit the cover portion of the carton to be telescoped over the base portion.

Now to describe the operation and use of the carton. Referring first to FIGURES 1 through 3, it will be seen that to open the carton weakened line of tear **50**, separating the cover and base portions of the carton, is ruptured by depressing the carton front wall along the central offset section **53** of the weakened line of tear. When the front and side walls of the cover portion have been separated from the corresponding walls of the base portion the cover portion may be flipped back to open. After a portion of the contents have been removed, so that it is desirable to reduce the size of the carton, the cover portion is pushed to the rear and back-folded, as best illustrated in FIGURE 5, to the position of FIGURE 6 to reclose the carton. In this position the rear wall of the cover portion is positioned over the connecting strip which is folded back against the upper portion of the rear wall of the base portion of the carton. This permits the entire cover portion to be telescoped over the base portion, as shown in FIGURE 6. FIGURE 7 illustrates the manner in which the carton may be crushed slightly because of score lines **70** in the side walls.

Referring now to FIGURES 9 through 12, it will be seen that a modified form of the invention is disclosed. Inasmuch as this embodiment is similar in many respects to the previously described embodiment related numerals have been used for corresponding elements of the structure. For example the numeral **110** has been used to designate the carton instead of the numeral **10** which was used in connection with the previous embodiment. Thus in describing this carton reference will be made only to the features which are different from those previously described.

As best see in FIGURE 12, connecting section **160**, which separates the rear walls of the cover and base sections, is preferably trapezoidal in shape and is defined by a straight lower hinge line **162**, an upper hinge **164** and side cut lines **166** extending therebetween and which converge upwardly. Hinge lines **164** and **162** may be formed by cut scores to facilitate the bending movement necessary to accomplish the telescoping as illustrated in FIGURE 11 of the drawing. Also, as best seen in FIGURE 12, in order to facilitate crushing of the carton by deforming the side walls, the side walls may each be provided with a straight fold line **170** and a pair of inclined fold lines **171** which diverge from the lower end of fold line **170** to provide a generally Y-shaped fold arrangement.

This embodiment of the carton is opened and closed and telescoped in the same manner as the preceding embodiment.

Turning now to FIGURES 13 through 16, it will be seen that yet another form of the invention is illustrated. This embodiment is also similar to the preceding embodiments and again related numerals have been used to designate corresponding elements of the structure.

This embodiment differs from the two preceding embodiments in one primary respect, and that is that the front and side walls of the cover section are joined to the corresponding walls of the lower section by a removable tear-out section indicated generally at **249** which is defined by a pair of generally parallel transversely extending weakened lines of tear **250** each of which have a central portion **252** extending across the front wall panel **222** and end portions **254** which extend across side wall panels **220** and **224**.

To open this carton the tear strip **249** is detached from the front and end walls of the carton, and thereafter the rear wall of the cover section may be back-folded over the connecting strip **260** and the upper part of the base portion rear wall, as illustrated in FIGURE 15, in the same general manner as in connection with the previous views. Also, if desired end wall panels **220** and **224** may be provided with fold lines (not shown) if desired to facilitate crushing of the walls to aid in telescoping of the cover portion over the base portion.

Thus it will be understood that in each of the three embodiments of the invention a reclosable, reducible, flip-top carton is formed from a unitary blank of foldable paperboard which is no larger in size than the blank used to form a conventional seal-end carton of the same size.

We claim:

1. A reducible, reclosable, flip-top carton formed from a unitary blank of foldable paperboard, comprising:

(a) a base portion including bottom, front, rear, and side walls, interconnected to form a box-like enclosure open at the top;

(b) a cover portion including top, front, rear, and side walls interconnected to form a box-like enclosure open at the bottom;

(c) the front, rear, and side walls of said cover portion being co-planar with and joined to related front, rear, and side walls, respectively, of the base portion prior to initial opening and reduction of the carton;

(d) the related front and side walls of the carton portions being joined to each other along weakened lines of tear to permit their separation from each other;

(e) the related rear walls of the carton portions being joined to each other by a transversely extending connecting strip having upper and lower edges hingedly connected to lower and upper edges, respectively, of said upper and lower carton portion rear walls, so that, after the front and side walls of the carton portions are separated upon initial opening of the carton, the cover portion rear wall can be back-folded over the connecting strip and base portion rear wall to allow the carton height to be reduced by telescoping the carton cover portion over the carton base portion upon reclosure of the carton.

2. A carton according to claim **1**, including fold lines in the base portion side walls accommodating slight deformation of said side walls to facilitate telescoping of the cover portion over the base portion of the carton.

3. A carton according to claim **1**, including lines of weakness extending between corresponding ends of the upper and lower edges of said connecting strip for facilitating the back folding of said cover portion rear wall over the connecting strip and base portion rear wall.

4. A carton according to claim **3**, wherein said lines of weakness are parallel and are located at the opposite side edges of said cover portion rear wall.

5. A carton according to claim **3**, wherein said lines of weakness diverge and are located inwardly from the side edges of said cover portion rear wall.

6. A carton according to claim **1**, and including a removable tear strip interposed between related front and side walls of the cover and base portions and connected to said carton portions along a pair of spaced weakened lines of tear.

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DAVIS T. MOORHEAD, Primary Examiner

U.S. Cl. X.R.

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