Dec. 28, 1965 R. E. PAIGE 3,226,005

FOLDABLE PAPER CONTAINER

Filed March 12, 1964 3 Sheets-Sheet 1

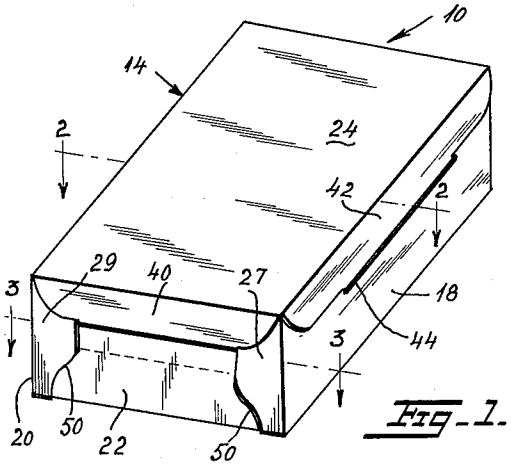


Fig. 1.

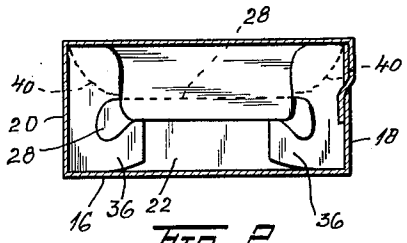


Fig. 2.

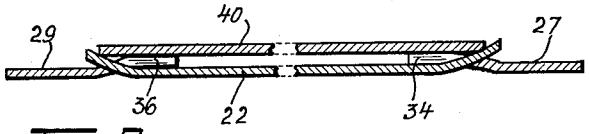


Fig. 3.

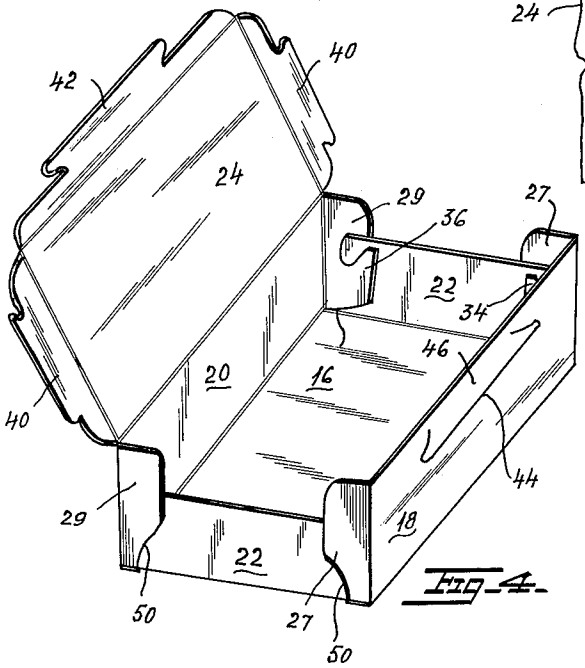


Fig. 4.

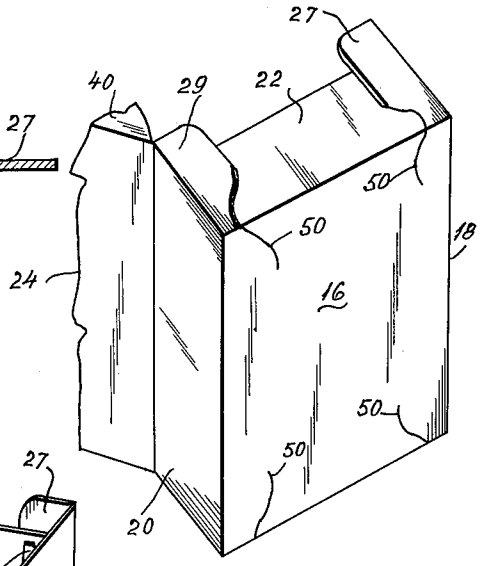


Fig. 5.

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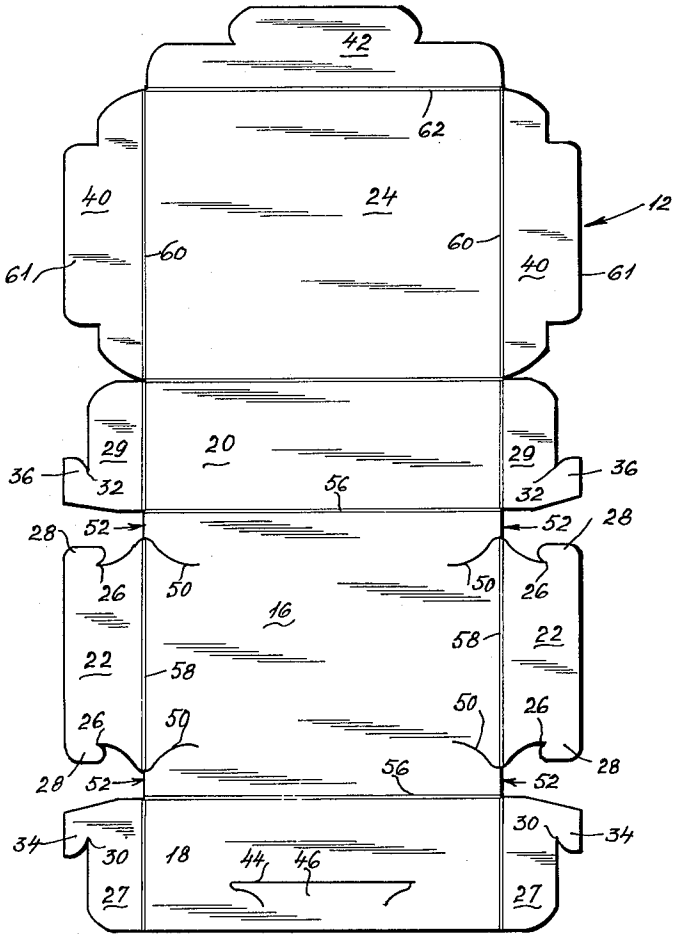


Fig. 6.

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Filed March 12, 1964 3 Sheets-Sheet 3

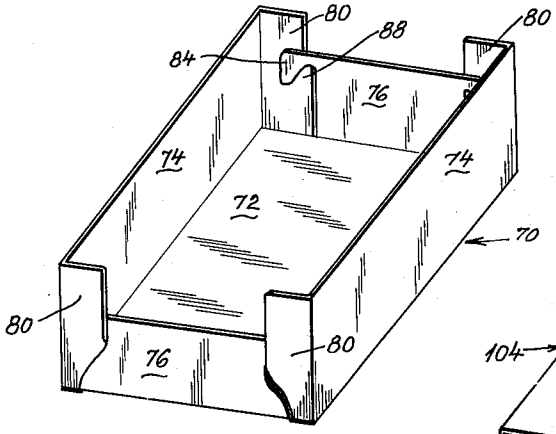


Fig-7-

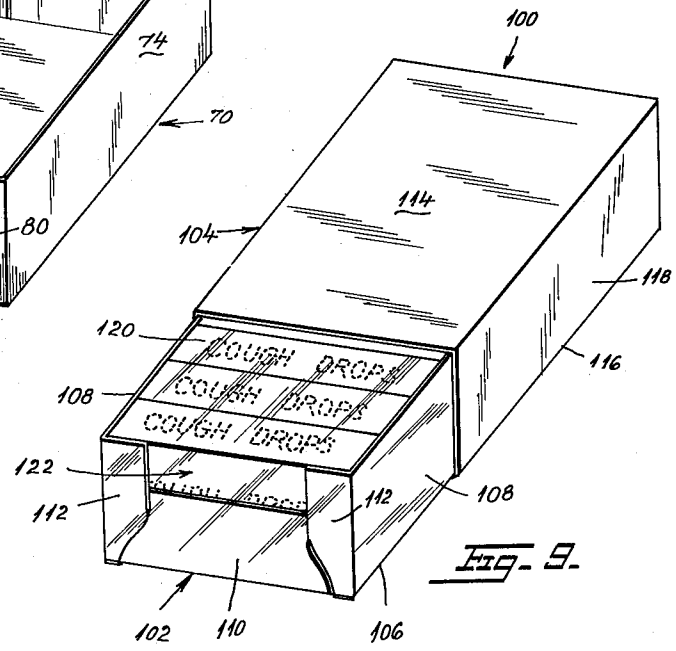


Fig-9-

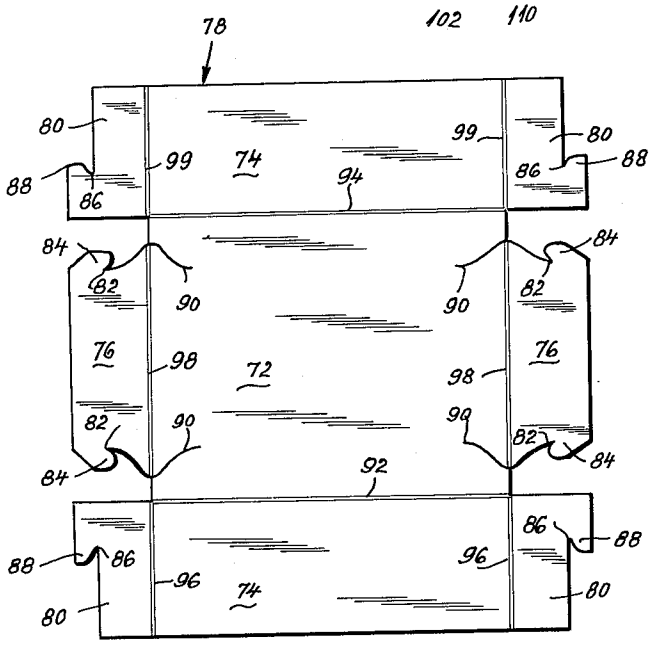


Fig-8-

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3,226,005

FOLDABLE PAPER CONTAINER

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Filed Mar. 12, 1964, Ser. No. 351,396
3 Claims. (Cl. 229—33)

This invention relates generally to paper containers and more particularly to new and useful improvements in a foldable paper box, carton or tray and the method of making same.

In the ordinary method of making foldable paper boxes or cartons with which applicant is aware, difficulty is experienced in interlocking the flaps and panels of the box body during assembly as the parts are cut to fit and will not stretch so as to meet the proposed interlocking surfaces, making it necessary to deform the parts to bring them together for interlocking.

It is the principal object of the present invention to avoid these disadvantages by providing a foldable paper box with means for facilitating the interlocking between the parts of the body of the box.

A specific object of the invention is to provide a single blank of paper for a box, with slits to permit the ends of the floor body of the box and the end panels of the body with the hooks on the ends thereof, to rise, the hooks to swing into proper position over the notches in the flaps and to swing downwardly with a snap action carrying the ends of the floor downwardly to floor level and finally tightly hooking the floor in level condition and hooking the flaps and panels together forming a tightly assembled box.

Another object of the invention, and according to a modification thereof, is to provide a tray or box with full height walls using a blank which has side walls which are full height but has end walls which are about half-height, making for a more economical blank and eliminating waste on the die cut sheet and thus saving material which runs from ten to twenty-five percent, depending upon the proportions of the tray or box.

Still another object of the invention is to provide a foldable paper box, carton or tray having these advantages that is simple in construction and economical to manufacture.

For further comprehension of the invention and of the objects and advantages thereof, reference may be had to the following description taken with the accompanying drawings and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIGURE 1 is a top perspective view of a box embodying one form of the invention, showing the box in closed condition.

FIG. 2 is a cross-sectional view taken on the line 2—2 of FIG. 1.

FIG. 3 is an enlarged horizontal sectional view taken on the line 3—3 of FIG. 1, with parts being broken away.

FIG. 4 is a view similar to FIG. 1 but showing the box in an open condition.

FIG. 5 is a fragmentary bottom perspective view with the cover in open condition.

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FIG. 6 is a top plan view of the blank from which the box of FIG. 1 was formed.

FIG. 7 is a top perspective view of a tray embodying the invention.

FIG. 8 is a top plan view of the blank from which the tray of FIG. 7 was formed.

FIG. 9 is a top perspective view of a slidable box embodying the tray and tubular slide-cover, the box being partly open and containing retail boxes.

Referring more in detail to the drawings, in FIG. 1 a box embodying the invention is illustrated and designated generally by the reference numeral **10**. The box is formed from cardboard or the like, the blank from which it was formed being shown in FIG. 6 and designated generally at **12**.

The box **10** has a shallow rectangular-shaped integrally-formed body **14** with a floor panel forming a bottom wall **16**, panels forming front and rear walls **18** and **20**, respectively, and panels forming end walls **22**, **22**. The end wall panels **22**, **22** are narrower than the front and rear wall panels **18** and **20**, respectively. The top of the body is open and is adapted to be closed by a panel forming a cover or lid **24** hingedly mounted along the top edge of the rear wall **29**. Front and rear walls **18** and **20**, respectively, are formed with end flaps **27** and **29**, respectively.

The end edges of the end walls **22**, **22** are formed with sharp curved notches **26**, defining end hooks **28** at the outer free edges of the walls. Flaps **27** and **29** are formed with sharp curved notches **30** and **32**, respectively, defining hooks **34** and **36**, respectively, at the outer free edges thereof. The hooks **28**, **34** and **36** are adapted to interlock with each other, the sharp notches **26** seating on the edges of the sharp notches **30** and **32**.

The cover or lid **24** is formed with end flaps **40**, **40** and with a flap **42** along its long front free end.

Front wall **18** is formed with an elongated slit **44** disposed parallel to the long top and bottom edges of the wall. The slit curves toward the free end edge of the wall defining a flap **46**.

For the purpose of assembling the cut blank shown in FIG. 6 into a box such as shown in FIGS. 1 to 5, inclusive, and in accordance with the invention, the material of the panel constituting the bottom wall **16** is formed with a slit **50**, intersecting each end edge of the bottom wall and curving inwardly toward the longitudinal center of the bottom wall, adjacent each corner of the bottom wall. The end wall panels **22** are not as long as the ends of the bottom wall **16** leaving spaces **52** therebetween. The slit **50** extends to the inner edges of the end edges of the end panels **22** and communicate with said spaces **52**.

In order to fold the blank **12** of FIG. 6 to assemble the carton **10** as shown in FIGS. 1 to 5, inclusive, the front and rear panels **18** and **20**, respectively, are folded upwardly along the fold lines **56**, **56** joining said panels with the bottom wall panel **16**. The flaps **27** and **29** are then folded inwardly toward the center of the carton to a position aligned with the ends of the bottom and front and rear walls. The panels **22** are next folded inwardly along the fold lines **58**, **58** toward the flaps **27** and **29** and are lifted upwardly, the slits **50** permitting this lifting action, to carry the hooks **28**, **28** on said panels **22** above the hooks **34** and **36** on the ends of the front and rear walls

18 and 20, respectively. While the hooks 28, 28 are in raised position, said hooks can be swung inwardly through the notches 26 and 32 in the flaps 27 and 29 behind the flaps 27 and 29 and because of the inherent flexibility of the material of the walls, the hooks 28, 28 will move downwardly with a snap action bringing the notches 30 and 32 into tight interlocking relation with the notches 26 and at the same time the ends of the bottom wall will drop down and close the slits 50.

The end walls 22, 22, it will be seen from FIG. 4, are lower than the front and rear walls 18 and 20, respectively, providing a space 59 thereabove.

The end flaps 40, 40 of the cover 24 may next be folded inwardly along the fold lines 60 to a position along the end edges of the cover panel. The cover is then swung inwardly over the open top of the body of the carton and the narrow portion 61 of the flaps 40, 40 inserted inwardly over the top of the end walls 22, 22 behind the top of the end walls and in underlapping relation thereto, the remainder of the flaps being in a line with the walls 22 and the ends of said remaining portions being in overlapping relation to the flaps 34 and 36 of the front and rear walls. The flaps 40, 40 are thus securely interlocked with the end walls 22, 22 and the spaces above the end walls are closed.

The flap 42 along the free front edge of the cover may next be folded downwardly along the fold line 62 into overlapping relation with the top of the front wall 18, with the narrow flap portion inserted through the slit 44 to interlock with the flap 46 on the front wall. A tightly closed box is thus produced.

Referring now to the modification of the invention shown in FIGS. 7 and 8, this invention takes the form of a tray 70 formed of cardboard. The tray has a rectangular-shaped body with a bottom wall 72, side walls 74, 74 and end walls 76, 76, and being open at the top. The side walls are much higher than the end walls.

The blank from which the tray was made is shown in FIG. 8 and indicated generally at 78. The blank is rectangular in shape with a central large panel, constituting the bottom wall 72 and narrower panels outwardly of the central panel, constituting the side walls 74, 74. A narrow panel 76 is formed integrally on each side of the central panel, said panels 76 constituting the end walls 76, 76.

The side walls 74, 74 are formed with end flaps 80, 80 and the inner edges of the end walls 76, 76 are formed with sharp curved notches 82, defining end hooks 84 at the outer free edges of the walls. The flaps 80 are formed with sharp curved notches 86 defining hooks 88 at the outer free edges thereof. The hooks 84 and 86 are adapted to interlock with each other, the edges of the notches 82, 84 seating on the edges of the sharp notches 86.

Similarly to the box 10 of FIG. 1, the panel constituting the bottom wall 72 is formed with slits 90 similar in shape, arrangement and position as the slits 50.

The blank 78 is folded similarly to blank 12 along the horizontal fold lines 92, 94 and vertical fold lines 96, 98, 99, as viewed in FIG. 8, with the hooks 84 interlocking with the hooks 88 in the same fashion as the hooks 28, 34 and 36, to produce the tray 70 shown in FIG. 7.

In FIG. 9, another modification of the invention in the form of a slidable box 100 is illustrated. The box is formed of cardboard and is rectangular in configuration and cross section. The box comprises broadly a tray-type body 102 slidably mounted in a tubular-shaped cover 104 adapted to envelope the body around the top, bottom and sides. The ends of the cover are open to permit the body to slide therethrough.

The tray-type body 102 is similar in shape and construction to the tray construction 70 shown in FIG. 7 and formed from a blank such as the blank 78 shown in FIG. 6. The body 102 has a bottom wall 106, side walls 108, and end walls 110, similar to walls 72, 74, and 76, respectively, of the tray 70. The side walls 108 have flaps 112 on the ends thereof similar to flaps 80 of the tray 70. The bottom wall 106 is provided with slits similar to the slits 90 of the bottom wall 72 of the tray 70.

Tubular cover 104 is formed of one piece of cardboard having a top wall 114, bottom wall 116 and side walls 118, 118 and is open at both ends. The cover is slightly larger in dimensions than the body 102 to permit the body to slide therethrough.

Medicinal wares or candy such as cough drops 120 in stacked formation are shown in the box body 102, and the indicia on the cough drops is exposed and readable when the body is partly pulled out of the cover 104 and is also exposed and readable through the opening or window 122 framed by the top edge of the adjacent end wall 110, the opposed edges of the flaps 112 and the top wall 114 of the cover 104. The tray is preferably wrapped in a thin transparent paper and the content will still be exposed and readable through the end opening 122.

In all forms of the invention, the bottom wall of the box-like body is formed with slits to permit the portion of the bottom wall between the slits as well as the end wall panels and adjacent flaps to be lifted in order to facilitate interlocking the adjacent panels and flaps, in assembly.

By reason of the constructions shown and described, a container can be made with full height walls, by using a blank which has front and back walls of full height, but with the side walls only about half height. These constructions make for a far more economical blank and eliminate the hard-to-interlock panels or flaps which make for waste on the die cut sheet. Accordingly, a box of a certain height can be made with a less-than-usual blank size thereby creating a saving in material running from ten to twenty-five percent, depending upon the proportions of the box.

It will be seen that I have designed a foldable box designed for a wide range of products, such as frozen vegetables, bakery products, bar and box candies in the 5 and 10 cent class and countless other packages where price is of great importance.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

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

1. A tray-like rectangular folding carton comprising a bottom panel, a front panel hingedly connected to one side of said bottom panel, a back panel hingedly connected to the opposite side of said bottom panel, and two side flaps hingedly connected to the opposite side edges of both the front panel and the back panel, each of the said side flaps having a hook, two hingedly connected end panels, each having two hooks to engage the side flap hooks which extend from the front panel and back panel; said bottom panel having two slits running from the ends of the juncture of each end panel with said bottom panel and extending toward the center of the bottom panel for a limited distance, to permit the two end panels to rise slightly, hook onto the hooks of the four side flaps, then sink back to flat bottom position with the four side flaps held directly over the bottom wall slits, thus interlocking the hooks in their engaged position and the bottom wall slits in their flat position.

2. A tray-like rectangular folding carton as defined in

claim **1**, and a closure cover hingedly secured to the top of the rear wall, said cover having end flaps hingedly connected to the ends thereof, each of said cover end flaps having a narrow portion adapted to be sprung inwardly through space between the side flaps of the front and rear panels which are hooked to the end panels and over the top edges of the end panels thereby to retain the cover in its closed position.

3. A tray-like rectangular folding carton as defined in claim **2**, said front wall having an elongated slit parallel to the top and bottom edges of the front wall and a flap on the closure cover engageable with the slit on the front wall to further retain the cover in its closed position.

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