

June 28, 1960

R. J. McCALL

2,942,768

BOX

Filed Dec. 29, 1958

2 Sheets-Sheet 1

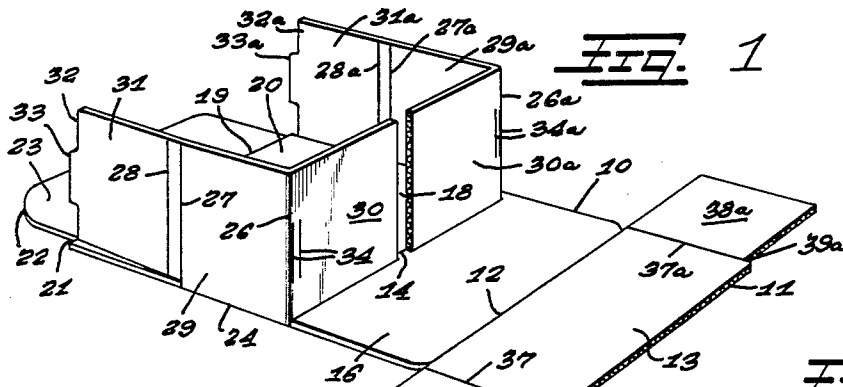


FIG. 2

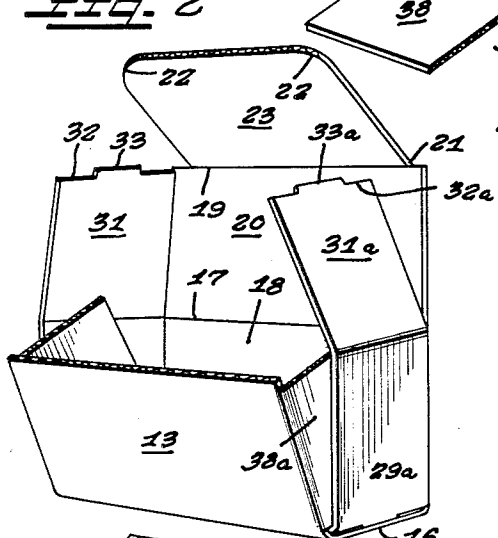


FIG. 3

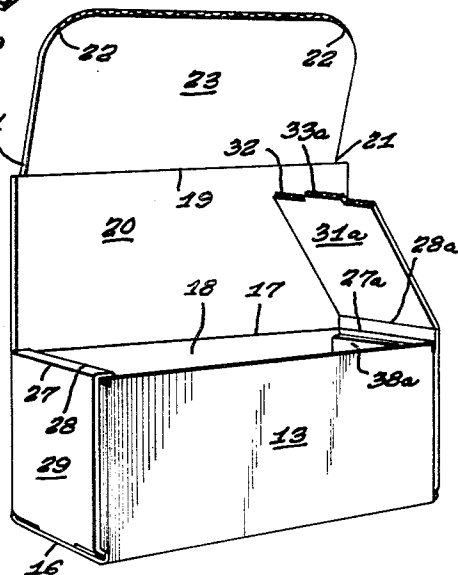
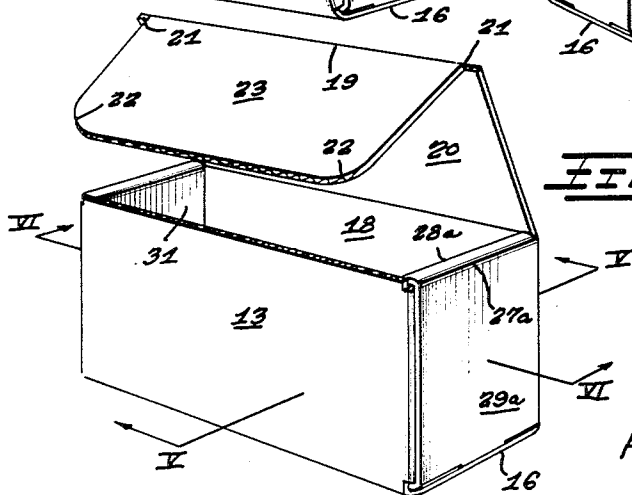


FIG. 4



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June 28, 1960

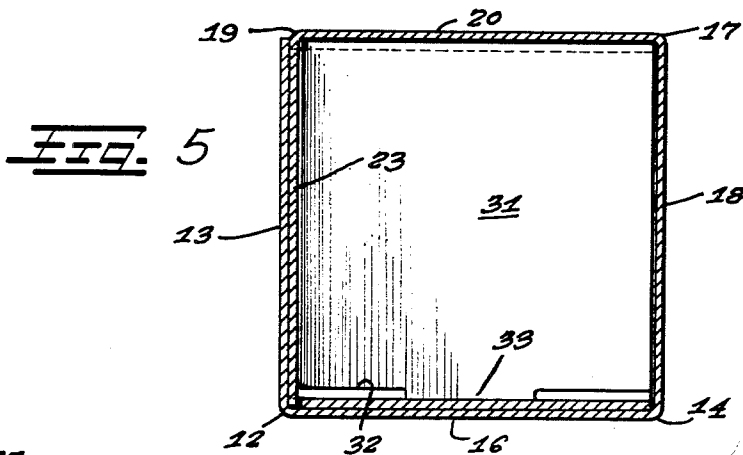
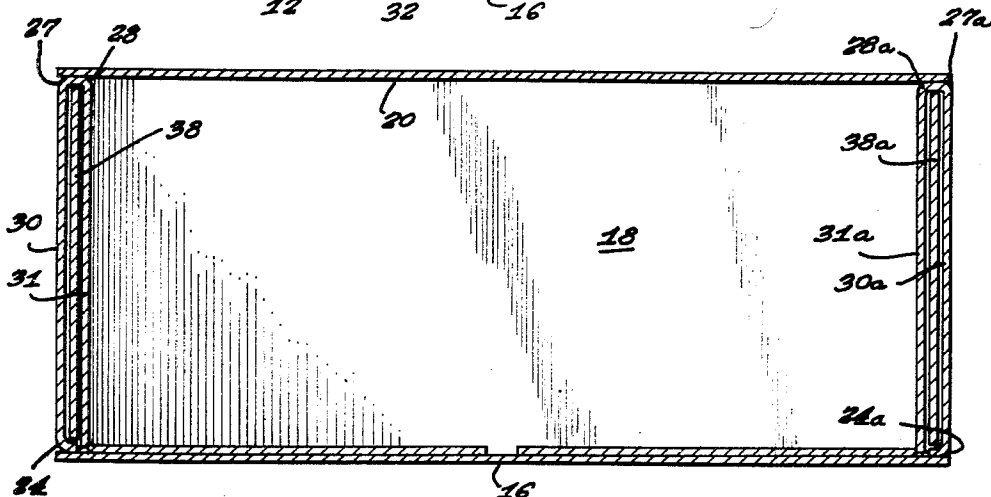
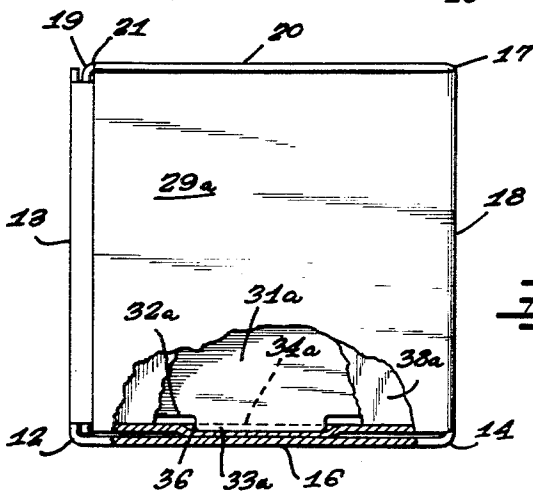
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2,942,768

BOX

Filed Dec. 29, 1958

2 Sheets-Sheet 2



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2,942,768

BOX

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Filed Dec. 29, 1958, Ser. No. 783,592

2 Claims. (Cl. 229—16)

This invention relates generally to containers and more particularly to a box made of a foldable sheet form such as a double face corrugated paper.

It is an object of the present invention to provide a foldable sheet form blank constructed to combine a combination of panels and flaps in such a manner as to use a minimum amount of stock.

It is a further object of the present invention to provide a foldable paper box construction which eliminates waste and folds.

A further object of the present invention is to provide a foldable paper box which incorporates an increased amount of strength because of the combination of panels and flaps and the respective locations thereof.

Yet another object of the present invention is to provide a box made of a corrugated paper wherein the principal scores run against the corrugations, thus adding to faster folding and increasing the strength of the finished article.

Many other advantages, objects and additional features of the present invention will become manifest to those versed in the art upon making reference to the detailed description will follow and the accompanying sheets of drawings in which a preferred structural embodiment of a box incorporating the principles of the present invention is shown by way of illustration.

On the drawings:

Figure 1 is a perspective view of a sheet form blank provided in accordance with the principles of the present invention with the parts thereof positioned in an initial assembly stage;

Figure 2 is a perspective view of the sheet form blank of Figure 1 but with the parts folded to a further stage of assembly;

Figure 3 is another view of the box of the present invention showing a step in the assembly subsequent to the assembly steps depicted in Figures 1 and 2;

Figure 4 is a perspective view of the finished box provided in accordance with the principles of the present invention;

Figure 5 is a cross-sectional view taken generally on line 5—5 of Figure 4;

Figure 6 is a cross-sectional view taken generally on line VI—VI of Figure 4; and

Figure 7 is an end elevational view of the box of Figure 4 but with parts broken away and with parts shown in elevation to illustrate additional details of construction.

As shown on the drawings:

The box of the present invention is made of a sheet form member such as a double face sheet form corrugated paper blank indicated generally at 10 and having the usual laminar construction consisting of the intermediate corrugations 11 with the double faces provided by an inside surface sheet and an outside surface sheet.

The corrugations 11 run in direction so that the four principal score lines provided on the body portion of the blank extend transversely of the corrugations, thus contributing to the ease with which the box of the present

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invention may be folded to an assembled condition. More specifically, it will be noted that the sheet form member 10 comprises a main body portion having a first score or score line 12, thereby to provide a first panel in the main body portion which will be referred to herein as a front wall 13.

A second score or score line 14 is formed in the body portion in spaced relation to the score or score line 12, thereby forming a second panel in the main body portion adjacent the first panel and such panel will be referred to herein as a bottom wall 16.

The body portion of the sheet form member 10 is provided with a further score or score line 17 which is spaced from the score or score line 14, thereby to form in the main body section a third panel adjacent the bottom wall 16 which third panel shall hereinafter be referred to as a rear wall 18.

The main body portion of the blank 10 is provided within an additional score or score line 19 spaced from the score or score line 17, thereby to form in the main body portion a fourth panel which shall be referred to herein as a top wall 20. The remaining fifth panel is provided with a relieved margin as at 21 and with rounded corners as at 22, and shall be referred to herein as a tucker 23.

It will be specifically noted that each of the scores or score lines 12, 14, 17 and 19 extend transversely of the corrugations 11 in accordance with the principles of the present invention.

The box of the present invention is further characterized by the provision of a first flap on each side of the body portion, which first flap is adapted to constitute a three-panel element. Thus, it will be noted that the blank 10 is provided with a longitudinal score or score line 24 extending in the direction of the corrugations 11, thereby forming an integral hinge connection between the first flap and the rear wall 18 at each respective end of the rear wall 18.

The flap is in turn scored transversely of the direction of the corrugations 11 as at 26 and in spaced relation thereto as at 27 and 28, the scores or score lines 27 and 28 being relatively closely spaced and the spacing dimension between the scores or score lines 26 and 27 being essentially the same as the spacing dimension between the score lines 14 and 17. Thus, there is formed in the first flap a panel which is integral with the body portion along the score line 24 coextensive with the rear wall 18 referred to herein as a side wall 29. The corresponding panel on the first flap at the opposite end of the rear wall 18 is indicated at 29a and the score lines are likewise indicated by like reference numerals with the suffix a appended thereto. Extending from one side of the side wall 29 is a second panel referred to herein as a bottom panel 30 and 30a. Extending in an opposite direction, is a third panel in the first flap referred to herein as a locking panel 31 and 31a.

It will be noted that the bottom panel 30 and 30a is essentially coextensive in longitudinal dimension to the spacing dimension between the scores 12 and 14, while the locking panels 31 and 31a are essentially the same in longitudinal dimension as the spacing dimension between the scores 17 and 19. Both of such sets of panels, however, 30, 30a, 31, 31a are hinged or pivoted along the respective score lines 26, 27, 28, 26a, 27a, 28a formed in the first flaps.

It will be further noted that each of the locking panels 31 and 31a is particularly characterized by the formation of a free edge 32 and 32a having a detent or projection 33 and 33a, respectively.

Moreover, each bottom panel is particularly characterized by the formation therein of two closely spaced slits indicated at 34 and 34a which are parallel to one another

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and spaced apart a dimension in substantial conformance with the thickness of the stock making up the sheet form member 10. The slits 34 and 34a are immediately adjacent the respective scores or score lines 26 and 26a. Furthermore, as shown in Figure 7, particularly, it will be noted that the material between the slits 34 and 34a is compressed so as to be of reduced dimension, thereby forming a recess indicated in Figure 7 at 36 for receiving a locking tab 33 or 33a, as the case may be. It will be noted that since the slits 34 and 34a are parallel to the scores or score lines 26 and 26a, the slits cut across the corrugations 11. In the actual cutting operation, two separate cutting edges are provided with means between the cutting edges to effect the compression of the corrugations and the reduction of the thickness of the material so that the recess 36 is provided without sacrificing strength of material and without impairing the structural integrity of the box structure.

A second flap is provided at each respective end of the front wall 13 and is separated therefrom by a score or score line indicated at 37 and 37a, respectively. Thus, the second flap is identified at 38 and 38a and is coextensive in longitudinal dimension with the spacing dimension between the edge of the body portion and the score 12 except one edge of each second flap 38 and 38a is provided with marginal relief as at 39 and 39a to facilitate snug assembly of the various flaps and panels.

The successive steps in assembling the box from a sheet form are illustrated in the series of drawings, Figures 1-4, inclusive. Thus, in Figure 1 it will be noted that the bottom panels 30 and 30a are folded inwardly after the first flaps are moved upwardly to position the side walls 29 and 29a in upright position.

The second step in the assembly is illustrated in Figure 2 wherein the front wall 13 is folded upwardly and the second flaps 38 and 38a are directed inwardly of the box so as to be disposed in contiguous relation to the corresponding side walls 29 and 29a.

Thereafter, and as is illustrated in Figure 3, each of the locking panels 31 and 31a is folded over the top of the corresponding side wall 29 and its adjoining second flap 38 or 38a. Thus, the locking flaps 31 and 31a are bent back upon the side wall portions 29 and 29a and are moved into the interior of the box. In this connection, it will be noted that the double scores 27 and 28 and 27a and 28a permit accommodation of the thickness of the side walls or end walls 29 and 29a and the second flaps 38 and 38a so that the locking flaps 31 and 31a can be moved completely into the box and into contiguous relation adjacent the corresponding second flaps 38 and 38a.

When the locking flaps 31 and 31a are swung into position, it will be noted that the tabs 33 and 33a snap into the corresponding recesses 36, 36 provided in the respective bottom panels 30 and 30a, thereby locking the box parts in firm assembly.

To complete the enclosure, the tucker 23 is inserted into the box and, as shown in Figure 7, lies adjacent the front wall 13.

There is thus provided a box construction of unusual strength which uses a minimum amount of board or stock and which eliminates waste and folds. Moreover, the four principal scores in the body portion run against the corrugations and contribute to faster folding, thereby to improve the efficiency of use of the box construction in mass production packaging operations.

Although various minor modifications might be suggested by those skilled in the art, it should be understood

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that I wish to embody within the scope of the patent warranted hereon all such modifications as reasonably and properly come within the scope of my contribution to the art.

I claim as my invention:

1. A box comprising a sheet form blank scored to form a five panel body portion, two three panel first flap portions, and two one panel second flap portions, said body portion having a front wall with one of said two one panel second flap portions at each respective end thereof, a bottom wall, a rear wall having said three panel first flap portion connected to the respective opposite ends thereof, a top wall on one side of said rear wall, and a tucker on one side of said top wall, each said first flap portion having a bottom panel foldable into position adjacent said bottom wall, a side wall foldable into position adjacent a corresponding second flap and a locking flap foldable over the top of an adjacent side wall to overlie the corresponding second flap, said top wall overlying the bottom wall in spaced relation thereto and said tucker being inserted inwardly adjacent said first wall, the edge of said locking flap having a projection and the adjacent bottom panel of said first flap having a recess formed by a pair of closely spaced slits with a portion therebetween yieldably displaced by said projection, said blank being made of double faced corrugated paper with said corrugations running in direction transverse to the score separating the panels of said body portion, said slits being formed transversely of said corrugations and the corrugations between said slits being compressed to form a depression for receiving said locking projection.

2. A box made of a double face sheet form corrugated paper blank scored transversely of the corrugations to form a five panel body portion having successively adjacent one another a front wall, a bottom wall, a rear wall, a top wall, and a tucker, a first flap on each side of said body portion and connected thereto along a score formed in the direction of the corrugations and coextensive with said rear wall, each said flap being scored transversely of the corrugations to form a three panel flap having a bottom panel, a side panel and a locking panel, and a second flap on each side of said body portion connected along a score in the direction of the corrugations adjacent said front wall, said panels being successively folded to place said bottom panels adjacent said body wall with said second flap adjoining the inside surface of a corresponding side wall, whereupon said locking panel folds into the box over the contiguous side wall and second flap to lie adjacent said second flap, said locking panel being essentially coextensive in area with said side wall and having a locking tab projecting from the edge thereof adjacent the bottom panel when the box is assembled; said bottom panel having formed therein adjacent and parallel to the score separating the bottom panel from said side wall a pair of slits with a depressed portion therebetween receiving said lock tab to retain the box in assembled position, said tucker having relieved margins at opposite sides thereof and rounded corners at the junction between said opposite sides and the free edge thereof to facilitate insertion of said tucker inwardly adjacent said front wall.

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