

Aug. 30, 1966

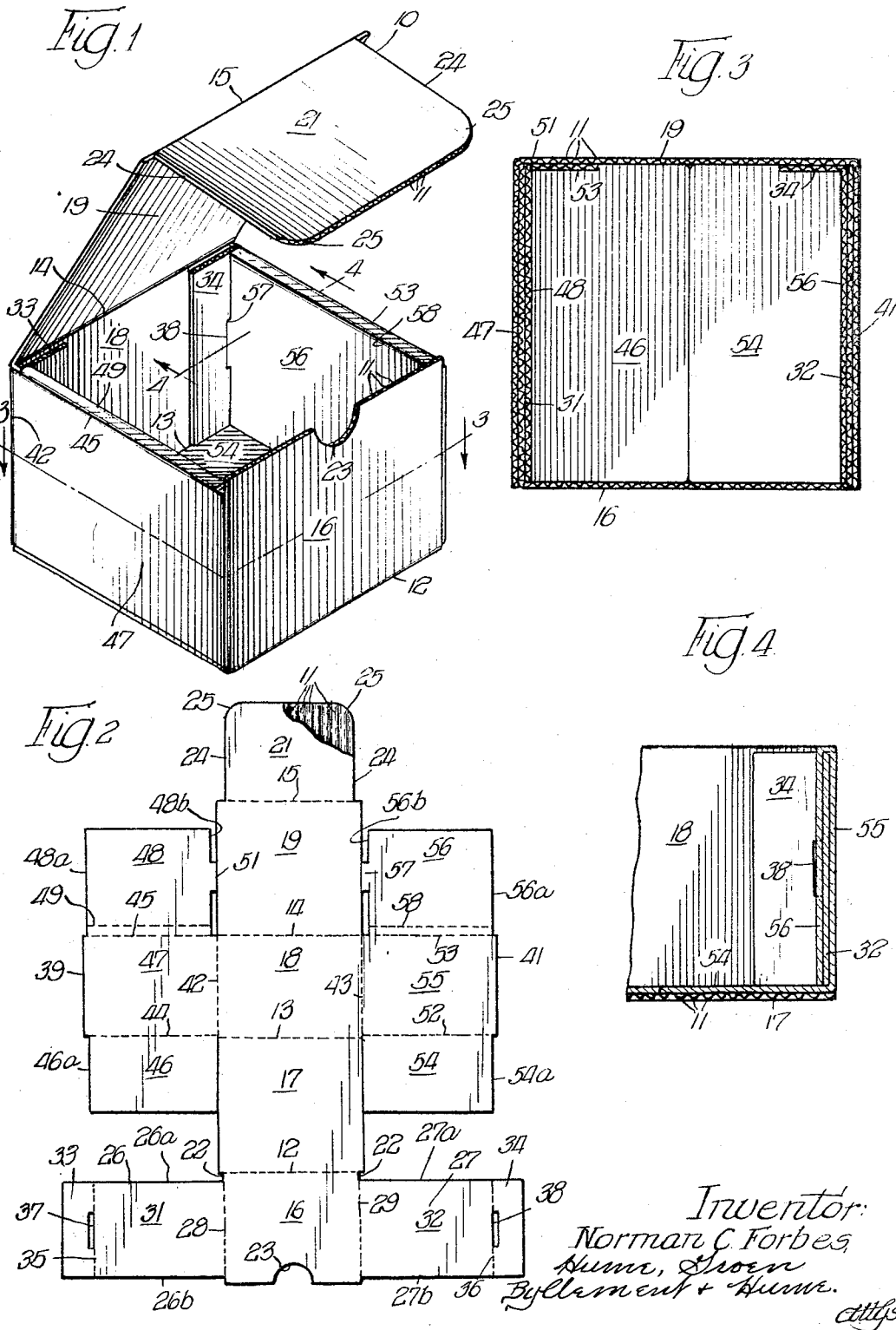
N. C. FORBES

3,269,638

BOX

Filed March 23, 1965

2 Sheets-Sheet 1



Aug. 30, 1966

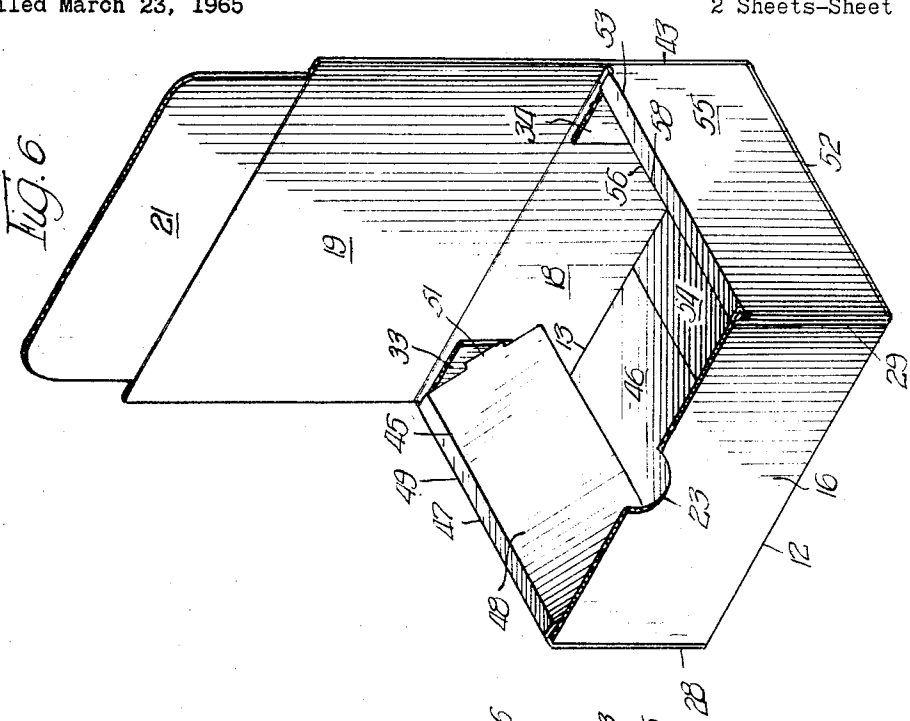
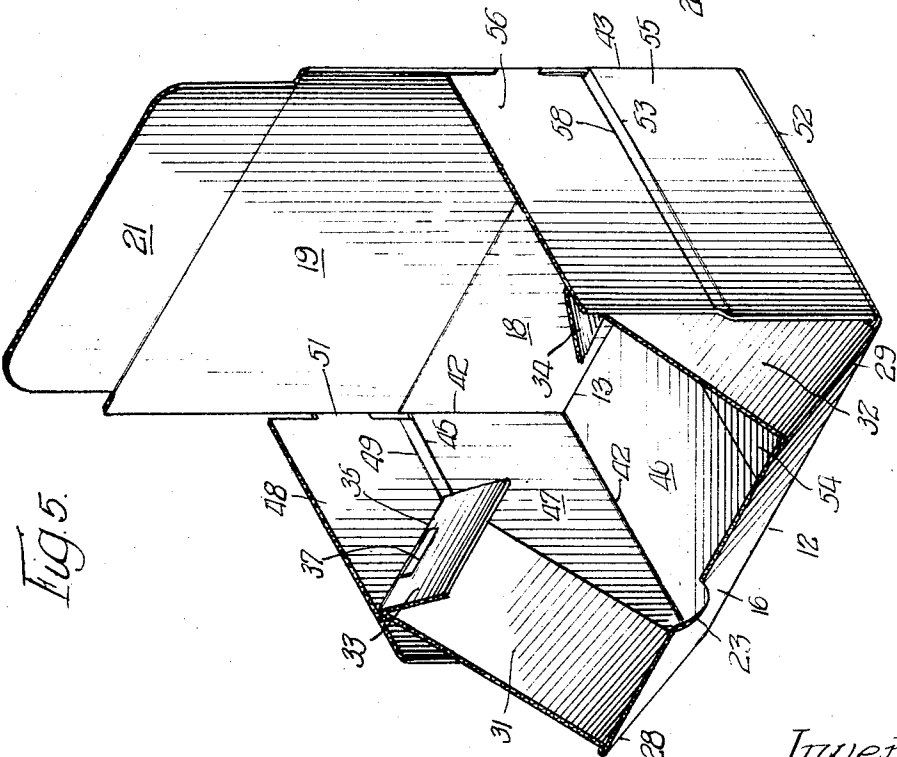
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BOX

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2 Sheets-Sheet 2



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1

3,269,638

BOX

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7 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 box made of corrugated paper wherein the principal scores run transversely of the corrugations thus facilitating faster folding and enhancing the strength of the assembled box.

It is another object of the present invention to provide a box made of corrugated paper which on each side includes an interior rear flap adjacent the rear wall provided with a locking aperture extending in the direction of the corrugations and a side locking panel provided with a locking tab projecting from one edge thereof which is received in the rear flap aperture so as to retain the box in its assembled form.

These and other objects and features of the present invention will be better understood by reference to the following detailed description and to the accompanying drawings, wherein:

FIGURE 1 is an isometric view of the box in assembled form.

FIGURE 2 is a plan view of the sheet form blank prior to the folding operations.

FIGURE 3 is a cross-sectional view taken generally at 3-3 of FIGURE 1.

FIGURE 4 is cross-sectional view taken generally at 4-4 of FIGURE 1.

FIGURE 5 is an isometric view illustrating the box in one partially assembled state.

FIGURE 6 is an isometric view illustrating the box in another partially assembled state.

Referring to FIGURE 2, it is seen that the box of the present invention is made of a sheet form blank 10 such as a double face corrugated paper which has a laminar construction consisting of intermediate corrugations 11 disposed between two surface sheets.

The corrugations 11 run longitudinally of the blank 10 as illustrated by the cut away portion in FIGURE 2. The four principal score lines 12, 13, 14, and 15 provided on the body portion of the blank 10 extend transversely of the corrugations 11, thus contributing to the ease with which the box may be folded into assembled condition.

The score 12 separates the front wall panel 16 of the main body portion from the bottom wall panel 17 of the main body portion. The second score 13 is spaced from the score 12 and separates the bottom wall panel 17 from the rear wall panel 18 of the main body portion. The score 14, in turn, is spaced from the score 13 and separates the rear wall panel 18 from the top wall panel 19 of the main body portion. Finally, the score 15 is spaced from the score 14 and separates the top wall panel 19 from the tucker panel 21 of the main body portion. Thus, the corrugations 12, 13, 14 and 15 are successively spaced in parallel relationship, all extending transversely of the corrugations 11.

The front wall panel 16 is provided with inset side edges 22 to facilitate the folding assembly. In addition, the front wall panel 16 is provided with a finger recess 23 to facilitate opening of the box when the box is in use.

The tucker panel 21 of the main body portion is similarly provided with inset side edges 24 and with rounded corners 25 to facilitate insertion of the tucker 21 inwardly adjacent the front wall panel 16 when the box is in use.

A pair of first side portions 26 and 27 of the blank 10 depend from the respective ends of the front wall panel 16

2

of the main body portion and are separated therefrom by scores 28 and 29, respectively, which extend in the direction of corrugations 11. The side portion 26 is divided into a side panel 31 and a rear flap 33 by a score 35 which runs parallel to the score 28. Similarly, the side portion 27 is separated into a side panel 32 and a rear flap 34 by a score 36 which runs parallel to the score 29. To facilitate the folding operations during assembly of the box, the side portion 26 is provided with inset edges 26a and 26b and the side portion 27 is similarly provided with inset edges 27a and 27b.

It is important to note that the rear flaps 33 and 34 of the respective first side portions 26 and 27 are provided with elongate apertures 37 and 38 which extend adjacent and parallel to the scores 35 and 36 from which the rear flaps 33 and 34 respectively depend. The function of the apertures 37 and 38 is to receive a locking tab in order to maintain the box in its assembled condition. This will be described with more particularity further on.

A pair of second side portions 39 and 41 of the blank 10 depend from the respective ends of the rear wall panel 18 and are separated therefrom by scores 42 and 43 which run in the direction of the corrugations 11. The side portion 39 is separated into three principal panels by the parallel scores 44 and 45, which run transversely of the corrugations 11.

The score 44 separates the bottom panel 46 from the side panel 47 of the side portion 39. It should be noted that the bottom panel 46 freely depends from the side panel 47 at the score 44. Further, to facilitate folding operation, the bottom panel 46 is provided with an inset edge 46a.

The locking panel 48 is separated from the side panel 47 of the side portion 39 primarily by the score 45. The locking panel 48 depends freely from the side panel 47 at the score 45 and is further provided with a score 49 in closely spaced parallel relationship with the score 45 so that the locking panel may be folded over and across the top of the side panel 31 of the side portion 26 during the folding operation. Like the bottom panel 46, the locking panel 48 is provided with an inset edge 48a to facilitate the folding operation. In addition, the panel 48 is provided on its opposite side with an inset edge 48b. A locking tab 51 projects from the edge 48b in a direction transverse to the direction of the corrugations 11.

On the opposite side of the main body portion, the side portion 41 depends from the main body portion at the score 43. The flap 41 is divided into three principal panels by scores 52 and 53 which run transversely of the corrugations 11.

The score 52 separates the bottom panel 54 from the side panel 55 of the side portion 41. The bottom panel 54 freely depends from the side panel 55 at the score 52 and is provided with an inset edge 54a to facilitate the folding operation.

The score 53 separates the locking panel 56 from the side panel 55 of the side portion 41. The locking panel 56 freely depends from the side panel 55 at the score 53 and is provided with an inset edge 56a and an inset edge 56b. The inset edge 56b is provided, in turn, with a locking tab 57 which projects therefrom in a direction transverse to the direction of the corrugations 11. In addition, the panel 56 is provided with a score 58 in closely spaced parallel relation to the score 53 so as to enable the locking panel 56 to be folded over and across the side panel 32 of the side portion 27 during assembly of the box.

The folding operation to assemble the box is illustrated in FIGURES 5, 6, and 7. First, the side portions 39 and 41 are folded inwardly about their respective scores 42 and 43 so that their respective side panels 47 and 55 are substantially normal to the rear wall panel 18. The bottom panels 46 and 54 of the side portions 39 and 41, respectively, are then folded upwardly about their respec-

tive scores 44 and 52. Next, the main body portion 10 is folded about score 13 so that the bottom wall panel 17 underlies the bottom panels 46 and 54 of the respective side portions 39 and 41. The rear flaps 33 and 34 of the first side portions 26 and 27, respectively, are then folded inwardly about the scores 35 and 36. The side panels 31 and 32 of the first side flaps 26 and 27, respectively, are next folded inwardly about the score 12 so as to dispose the side panels 31 and 32, respectively, of the side portions 26 and 27 inwardly adjacent the corresponding side panels 47 and 55 of the side portions 39 and 41 and normal to the rear wall panel 18. The rear flaps 33 and 34 of the side portions 26 and 27, respectively, are now adjacent to and bear against the rear wall panel 18 of the main body portion. To lock the assembly of the box, the locking panels 48 and 56 are folded at their scores 45, 49, 53, and 58, respectively, across the top of the side panels 31 and 32 of the side portions 26 and 27, respectively, and downwardly into the interior of the box, forcing the locking tabs 51 and 57 to be received and engaged in the apertures 37 and 38, respectively. The top panel 19 of the main body portion is folded inwardly about the score 14 and the tucker panel 21 of the main body portion is folded inwardly about the score 15. This completes the principal box assembly, and the resultant box structure is as appears in FIGURES 1, 3, and 4.

To close the box, the tucker panel 21 is inserted inwardly adjacent the front wall panel 16 of the main body portion.

It is important to note that, with the type of locking arrangement provided by the locking tabs 51 and 52 engaged in the apertures 37 and 38, respectively, the locking panels 48 and 56 are securely restrained against inadvertent displacement from their locked positions, particularly resisting any upward force tending to displace the locking panels 48 and 56.

Thus, it is seen that the present invention provides a box characterized by strength in its assembled form, by ease of assembly and efficient utilization of material, and particularly by unique locking arrangement which firmly maintains the box in its assembled condition.

While a specific embodiment of the present invention has been shown and described, it is to be understood that this is merely by way of example and not to be construed in any manner as a limitation. It is contemplated that certain modifications may be made within the scope of the claims without departing from the spirit of the invention.

What is claimed is:

1. In a corrugated paper box having a body portion including at least a front wall panel, a bottom wall panel, and a rear wall panel, a side wall and locking structure comprising: a first side panel depending from each side of said front wall panel and foldable into a position normal to said rear wall panel; a rear flap depending from the end of each of said first side panels and foldable into a position inwardly adjacent said rear wall panel, each of said rear flaps being provided with an elongate aperture adjacent and parallel to the intersection of said rear flap and the associated first side wall panel; a second side panel depending from each side of said rear wall panel and foldable into a position adjacent the outer surface of a corresponding one of said first side panels; and a locking panel depending from the top of each of said second side panels and foldable over the top of a corresponding one of said first side panels and into a position inwardly adjacent said corresponding one of said first side panels, each of said locking panels being provided with a locking tab adapted to be engaged in a corresponding one of said rear flap apertures so as to retain said box in assembled condition.

2. The side wall and locking structure as defined in claim 1 wherein each of said locking tabs projects in a direction normal to the corrugations in the associated locking panel and each said aperture extends in the direction of the corrugations in the associated rear flap.

3. In a corrugated paper box having a body portion including at least a front wall panel, a bottom wall panel, and a rear wall panel, a side wall and locking structures comprising: a pair of first side panels each depending from and separated from said front wall panel by a score defining a side of said front wall panel, said first side panels being foldable into respective positions normal to said rear wall panel; a pair of rear flaps each depending from and separated from one of said pair of first side wall panels by a score, said rear flaps being foldable into respective positions inwardly adjacent said rear wall panel, each of said rear flaps being provided with an elongate aperture adjacent and parallel to said score separating said rear flap from the associated first side panel; a pair of second side panels each depending from and separated from said rear wall panel by a score defining a side of said rear wall panel, said second side panels being foldable into positions adjacent the outer surfaces of said first side panels; and a pair of locking panels each depending from and separated from one of said pair of second side panel by a score defining the top of said second side panel, each of said locking panels being foldable over the top of a corresponding one of said first side panels and into a position inwardly adjacent said corresponding one of said first side panels, each of said locking panels being provided with a locking tab adapted to be engaged in a corresponding one of said rear flap apertures so as to retain said box in assembled condition.

4. The side wall and locking structure as defined in claim 3 wherein each of said locking panels is provided with a score in closely-spaced parallel relation to said score separating said locking panel from the associated second side panel so as to facilitate folding said locking panel over the top of the corresponding first side panel into a position inwardly adjacent said corresponding first side panel.

5. A box comprising: a sheet form blank scored to form a five panel body portion; a pair of two panel first side portions; and a pair of three panel second side portions; said body portion having a front wall with one of said pair of two panel first side portions connected at each respective end thereof, a bottom wall, a rear wall having one of said three panel second side portions connected to each respective end thereof, a top wall on one side of said rear wall, and a tucker on one side of said top wall, each of said first side portions having a side panel foldable into position normal to said rear wall and a rear flap foldable into position inwardly adjacent said rear wall, each of said second side portions having a bottom panel foldable into position adjacent said bottom wall, a side panel foldable into position outwardly adjacent the side panel of a corresponding one of said pair of first side portions, and a locking panel foldable to overlie said side panel of said corresponding one of said pair of first side portions, said top wall adapted to overlie said bottom wall in spaced relation thereto and said tucker adapted to be inserted inwardly adjacent said front wall, the rear edge of each of said locking panels having a locking tab and each of said rear flaps of said pair of first side portions having an aperture therein adapted to receive a corresponding one of said locking tabs.

6. A box as defined in claim 5 wherein said sheet form blank is made of double face corrugated paper with the corrugations running a direction transverse to the scores separating the walls of said body portion and wherein, said locking tab projects in a direction transverse to the direction of said corrugations and said apertures extend in the direction of said corrugations.

7. A box comprising: 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 side portion on each side of said body portion and connected thereto along a score formed in the direction of the corrugations and substantially co-extensive with said front wall, each of

5

said first side portions being scored in the direction of the corrugations to include a side panel and a rear flap; and a second side portion on each side of said body portion connected thereto along a score formed in the direction of the corrugations and substantially co-extensive with said rear wall, each of said second side portions being scored transversely of the corrugations to include a bottom panel, a side panel, and a locking panel, said second side portions being successively folded to place the bottom panels thereof adjacent said bottom wall with said side panels of said second side portions adjacent the outer surfaces of the corresponding side panels of said first side portions and with said locking panels of said second side portion folded into the box over the corresponding side panels of said first side portions to lie in-

6

wardly adjacent said side panels of said first side portions, said locking panels each being substantially co-extensive in area with the corresponding side panel of said first side portion and having a locking tab projecting from the edge thereof adjacent the rear wall when the box is assembled, said rear flap of each of said first side portions having an aperture adjacent and parallel to the score separating said rear flap from said side panel of said first side portion to receive the corresponding locking tab so as to retain the box in an assembled condition.

No references cited.

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