July 15, 1952 W. R. FRANKENSTEIN 2,603,405

BOOK STYLE CARTON WITH INFOLDED SIDES

Filed Feb. 14, 1945 6 Sheets-Sheet 1

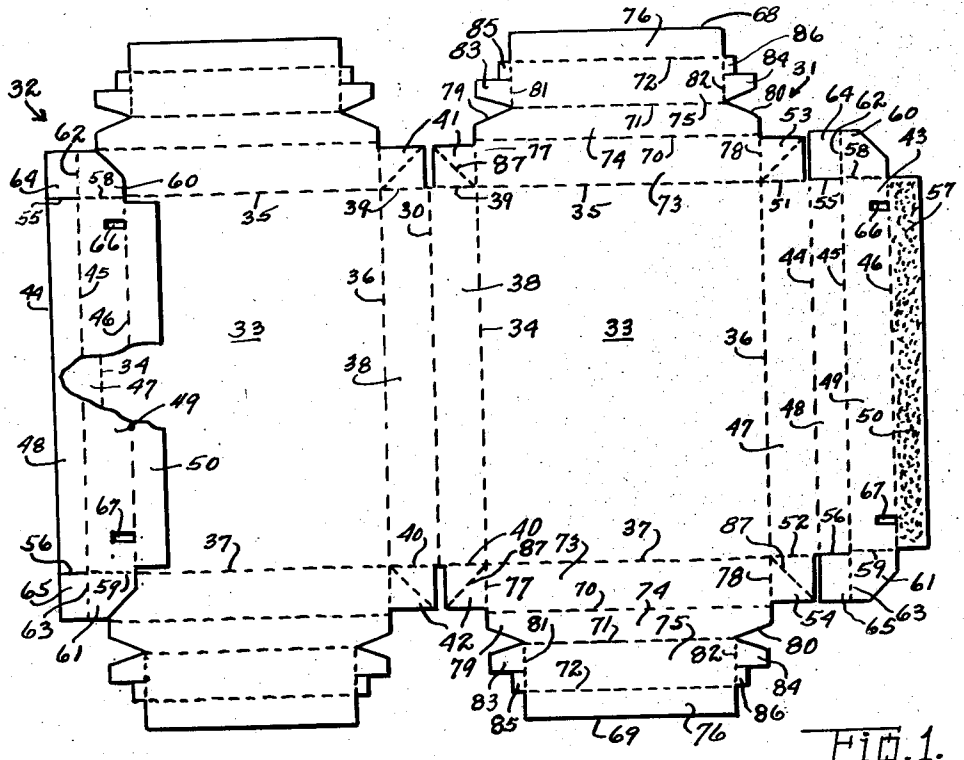


Fig. 1.

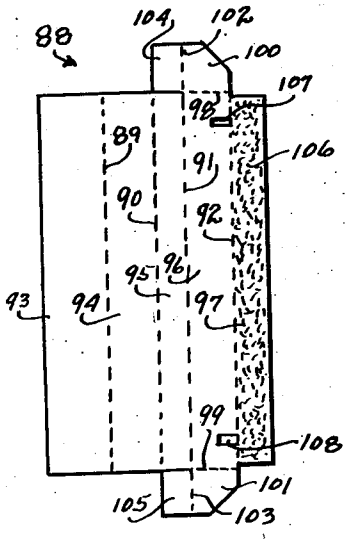


Fig. 2.

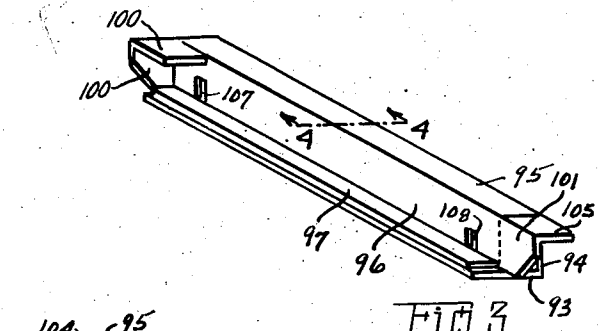


Fig. 3.

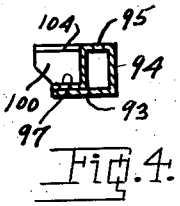


Fig. 4.

INVENTOR.
WILLIAM P. FRANKENSTEIN
BY Joseph A Rave
Attorney

July 15, 1952 W. R. FRANKENSTEIN 2,603,405

BOOK STYLE CARTON WITH INFOLDED SIDES

Filed Feb. 14, 1945 6 Sheets-Sheet 2

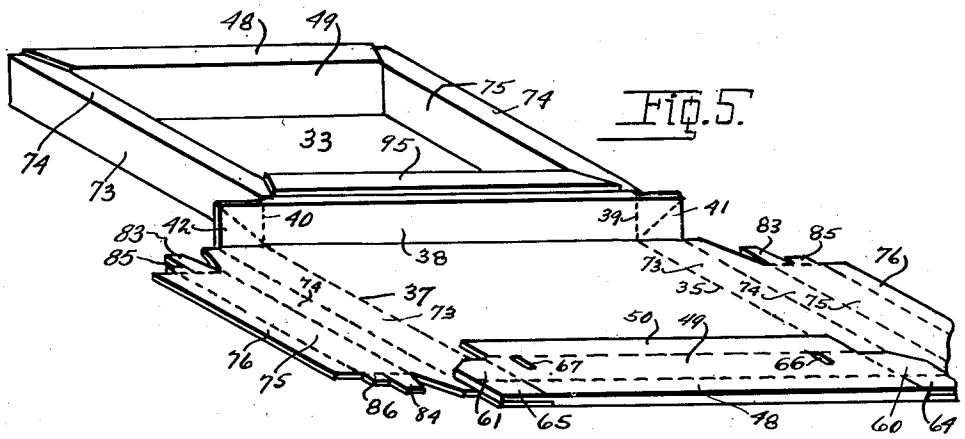


Fig. 5.

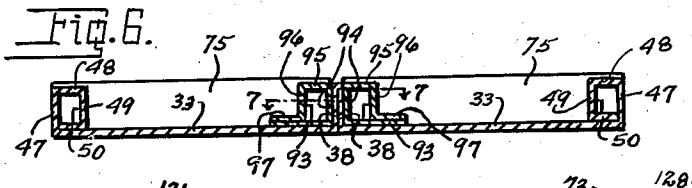


Fig. 6.

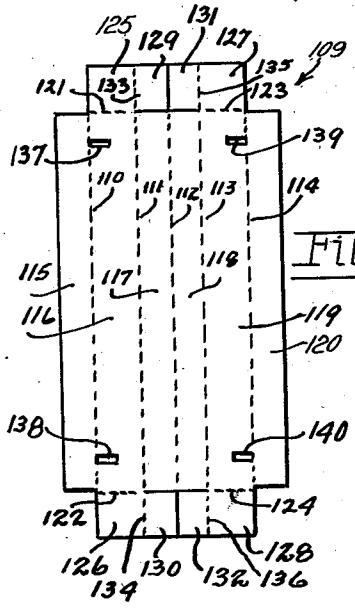


Fig. 8.

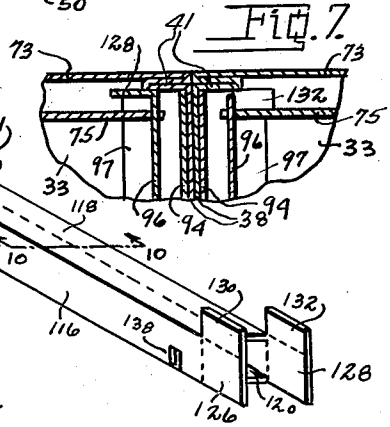


Fig. 9.

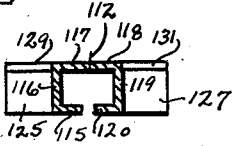


Fig. 10.

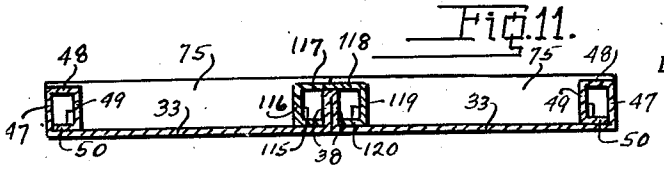


Fig. 11.

INVENTOR.
WILLIAM P. FRANKENSTEIN

BY Joseph A Rave
Attorney

July 15, 1952 W. R. FRANKENSTEIN 2,603,405

BOOK STYLE CARTON WITH INFOLDED SIDES

Filed Feb. 14, 1945 6 Sheets-Sheet 3

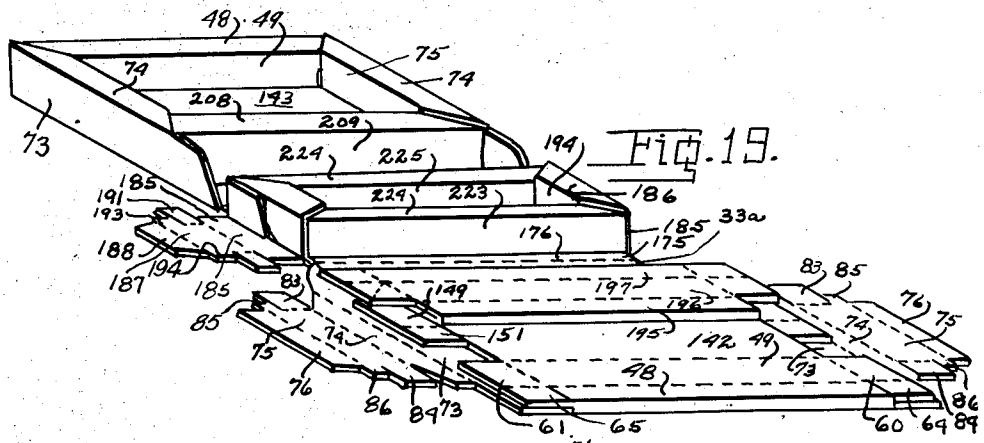


Fig. 19.

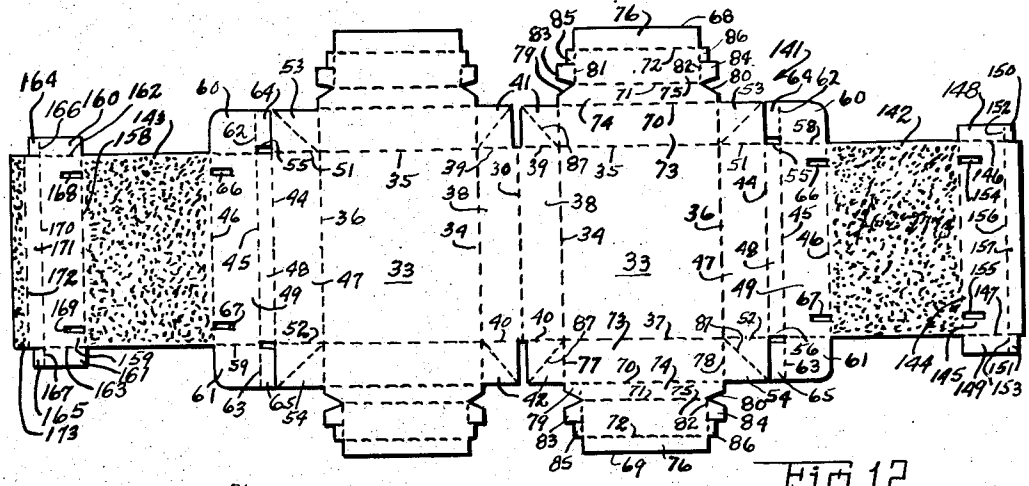


Fig. 12.

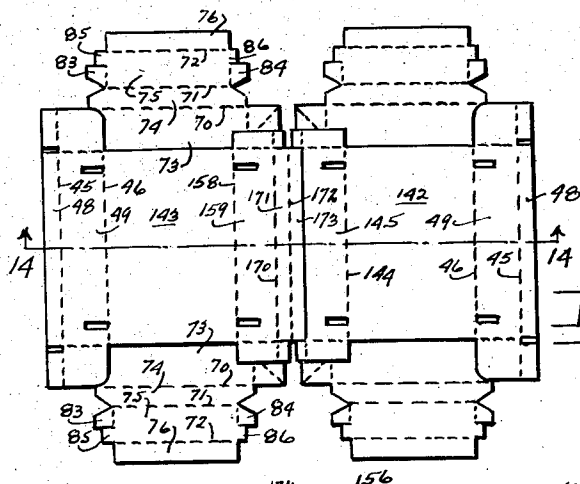


Fig. 13.

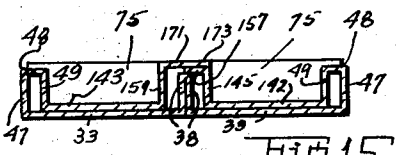


Fig. 15.

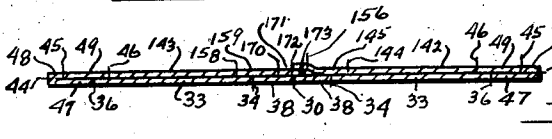


Fig. 14.

INVENTOR.
WILLIAM P. FRANKENSTEIN
BY
Joseph A Rave
Attorney

July 15, 1952 W. R. FRANKENSTEIN 2,603,405

BOOK STYLE CARTON WITH INFOLDED SIDES

Filed Feb. 14, 1945 6 Sheets-Sheet 4

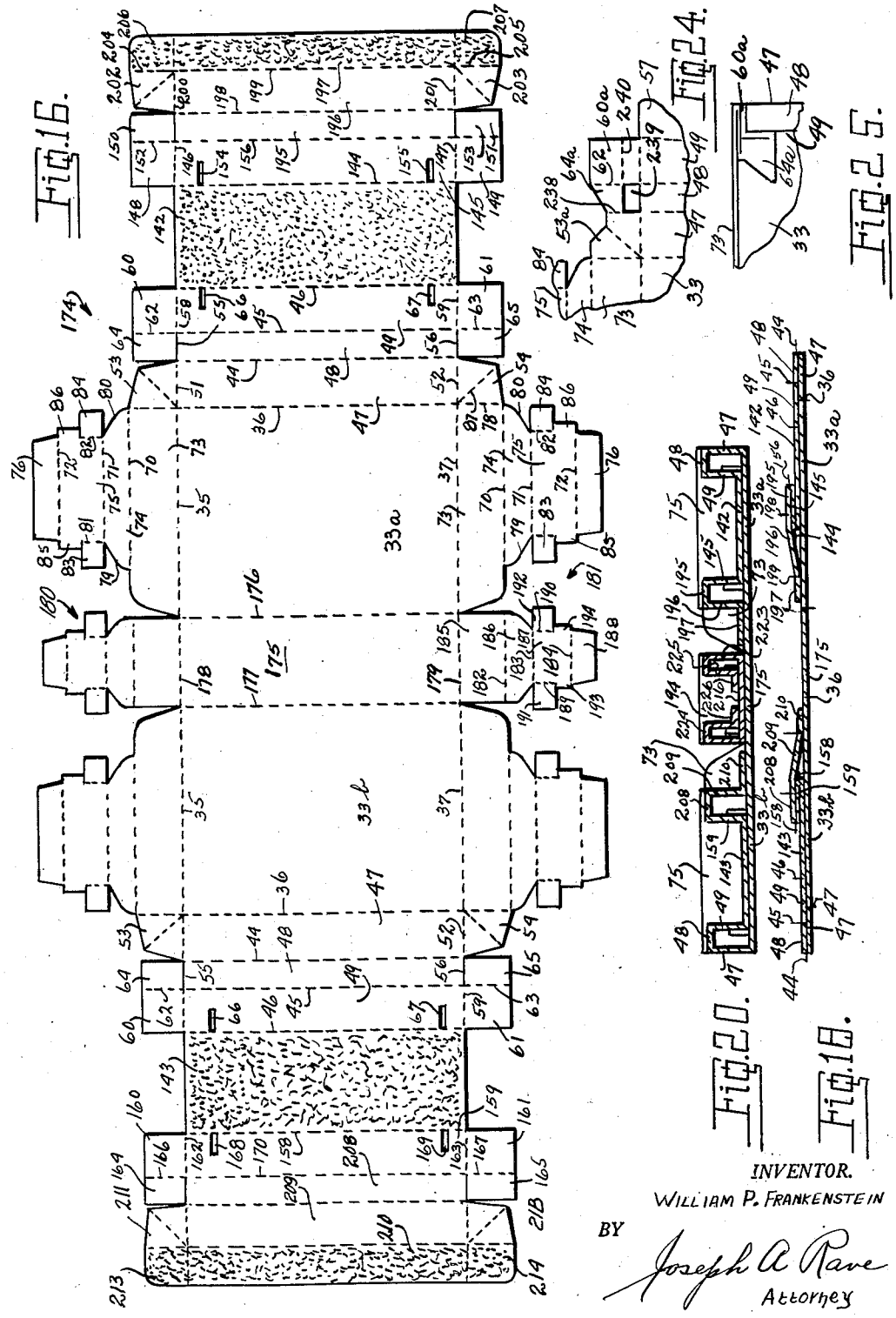


Fig. 16.

Fig. 24.

Fig. 25.

Fig. 20.

Fig. 18.

INVENTOR.
WILLIAM P. FRANKENSTEIN
BY
Joseph A Rave
Attorney

July 15, 1952 W. R. FRANKENSTEIN 2,603,405

BOOK STYLE CARTON WITH INFOLDED SIDES

Filed Feb. 14, 1945 6 Sheets-Sheet 5

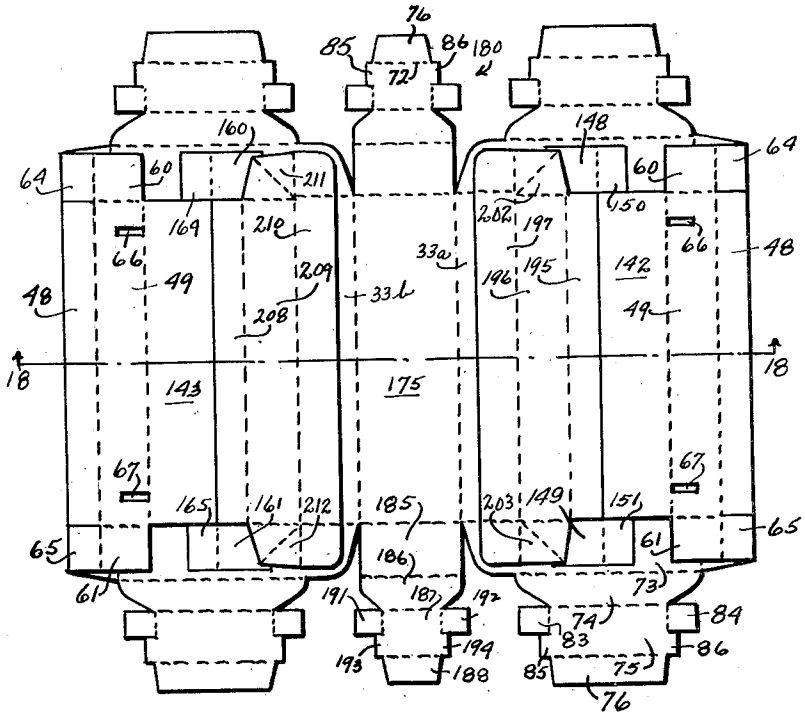


Fig. 17.

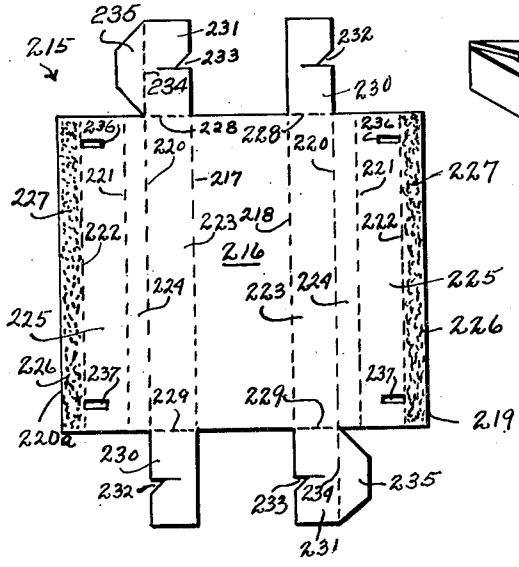


Fig. 21.

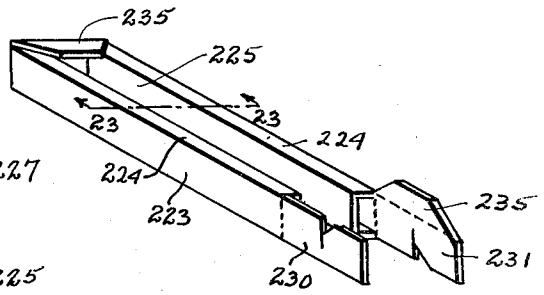


Fig. 22.

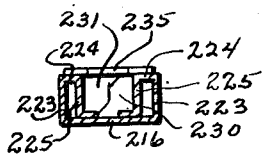


Fig. 23.

INVENTOR.
WILLIAM P. FRANKENSTEIN
BY
Joseph A Rave
Attorney

July 15, 1952 W. R. FRANKENSTEIN 2,603,405

BOOK STYLE CARTON WITH INFOLDED SIDES

Filed Feb. 14, 1945 6 Sheets-Sheet 6

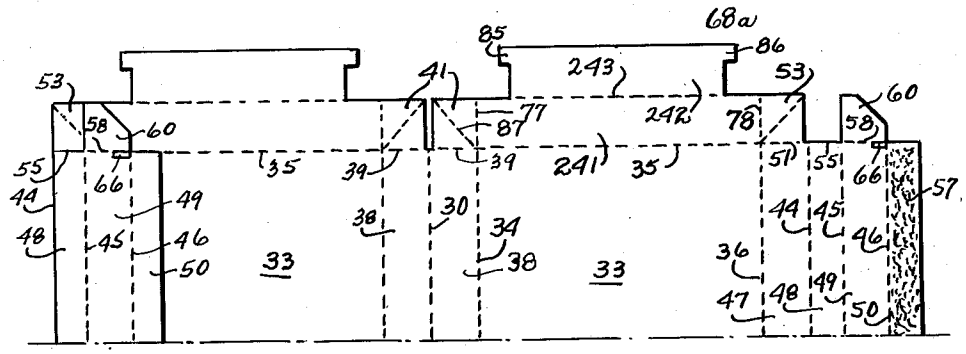


Fig. 26.

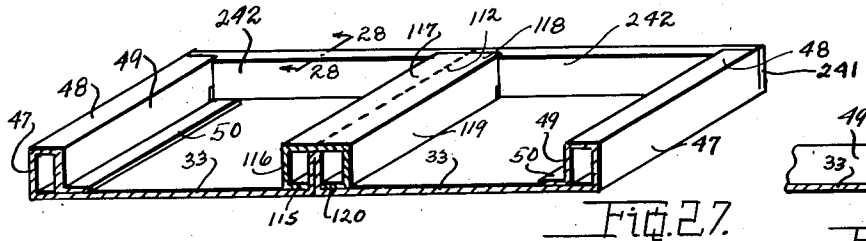


Fig. 27.

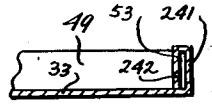


Fig. 28.

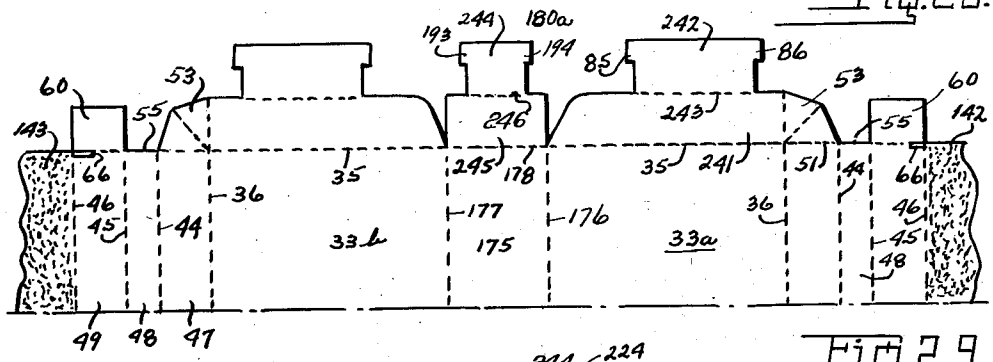


Fig. 29.

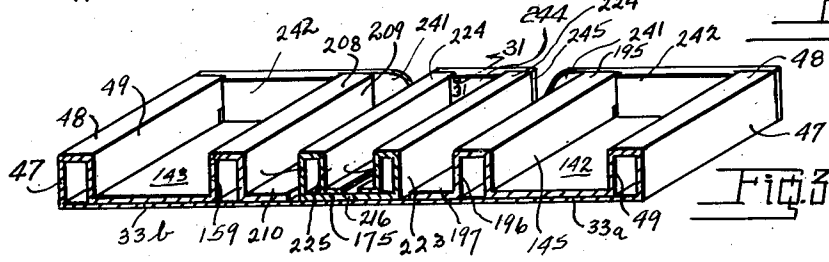


Fig. 30.

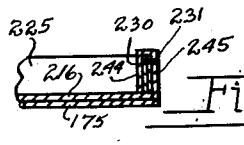


Fig. 31.

INVENTOR.
WILLIAM P. FRANKENSTEIN
BY
Joseph A Rave
Attorney

Patented July 15, 1952 2,603,405

UNITED STATES PATENT OFFICE

2,603,405

BOOK STYLE CARTON WITH INFOLDED SIDES

William P. Frankenstein, Cincinnati, Ohio

Application February 14, 1945, Serial No. 577,807

10 Claims. (Cl. 229—31)

1

This invention relates to improvements in cartons or boxes made of cardboard, paperboard, and similar material, and particularly to improvements in what is known as a "book-style" carton.

It is the principal object of this invention to provide a book-style carton or box in which the halves of the box are provided with hollow, spaced-apart walls.

Another object of the invention is the provision of a box or carton as set forth above in which the main portion of the same is formed from a single blank appropriately cut and scored.

Another object of this invention is the provision of a book-style carton which has an extremely rigid construction, wherefore it may be used for display purposes as well as shipping purposes without the use of an additional shipping carton.

A further object of this invention is to provide a book-style carton or box that is shipped to the user in a knock-down position, thereby saving on shipping space while the user is provided with a carton which, when set up, has the appearance of a rigid set-up box.

It is also an object of this invention to provide a knock-down book-style box which can be readily set up by the user without the use of setting up machinery or expensive box making experienced labor.

It is also an object of this invention to provide a book-style box or carton in which the general appearance of such a package has been materially improved.

Other objects and advantages of the present invention should be readily apparent by reference to the following specification considered in conjunction with the accompanying drawings forming a part thereof, and it is to be understood that any modifications may be made in the exact structural details there shown and described, within the scope of the appended claims, without departing from or exceeding the spirit of the invention.

In the drawings:

Fig. 1 is an extended plan view of a blank for forming one form of carton or box of this invention.

Fig. 2 is an extended plan view of a blank which forms one wall of the final assembly of the box of Fig. 1.

Fig. 3 is a perspective view of the blank of Fig. 2 set up as a wall ready for use.

Fig. 4 is a transverse, sectional view taken on line 4—4 of Fig. 3.

2

Fig. 5 is a perspective view showing one-half of the blank of Fig. 1 set up with the wall of Fig. 3 in position and showing the other half of the blank of Fig. 1 ready to be set up.

Fig. 6 is a longitudinal, sectional view through a set-up box employing the blanks of Figs. 1 and 2.

Fig. 7 is a fragmentary, horizontal, sectional view taken on line 7—7 on Fig. 6.

Fig. 8 is an extended plan view of a blank which will take the place of the blank of Fig. 2 to be employed with the blank of Fig. 1.

Fig. 9 is a perspective view, similar to Fig. 3, showing the blank of Fig. 8 in its set-up position.

Fig. 10 is a transverse, sectional view taken on line 10—10 of Fig. 9.

Fig. 11 is a longitudinal, sectional view through a box similar to that of Fig. 6, illustrating the employment of the blanks of Figs. 1 and 8.

Fig. 12 is an extended plan view of a blank for forming a box or carton of the book-style, and combining in the blank all of the walls of each half of the carton.

Fig. 13 is a plan view of the blank of Fig. 12 folded on itself as the blank is arranged before shipment to the user.

Fig. 14 is a sectional view longitudinally of the folded blank on line 14—14 on Fig. 13.

Fig. 15 is a longitudinal, sectional view through the box or carton resulting from the blank of Fig. 12.

Fig. 16 is an extended view of a blank for forming a book-style carton with a third compartment between the two compartments of the usual book-style carton.

Fig. 17 is a plan view of the blank of Fig. 16 folded and secured into the position in which it is shipped to the ultimate user.

Fig. 18 is a longitudinal, sectional view of the folded blank of Fig. 17 taken on line 18—18 on said Fig. 17.

Fig. 19 is a perspective view of the carton partly set up as formed from the blanks of Fig. 16 and Fig. 21.

Fig. 20 is a longitudinal, sectional view through a completely set-up carton resulting from the blanks of Figs. 16 and 21.

Fig. 21 is an extended plan view of a blank which forms the third compartment of the book-style carton of Figs. 19 and 20.

Fig. 22 is a perspective view showing the blank of Fig. 21 set up with one end completely assembled.

Fig. 23 is a transverse, sectional view through the set-up blank in Fig. 22 taken on line 23—23 on said Fig. 22.

Fig. 24 is a perspective view of a portion of any one of blanks 1, 12, and 16 showing a modification in the construction between the adjacent end walls of the main portion of each carton.

Fig. 25 is a view in plan showing the blank of Fig. 24 in a set-up position.

Fig. 26 is an extended plan view of a portion of a blank embodying the principles of this invention.

Fig. 27 is a perspective view partly in section showing a set up carton from the blank of Fig. 26.

Fig. 28 is a fragmentary sectional view through the end wall of the carton of Fig. 27 as seen from line 28—28 on said Fig. 27.

Fig. 29 is an extended plan view of a portion of a blank illustrating modifications therein embodying the principles of this invention.

Fig. 30 is a perspective view partly in cross section illustrating a carton set up from the blank of Fig. 29.

Fig. 31 is a fragmentary sectional view through one of the walls of the carton of Fig. 30 taken on line 31—31 on said Fig. 30.

Throughout the several views of the drawings similar reference characters are employed to denote the same or similar parts.

Referring first to Fig. 1, the box or carton of this invention is formed from a stamped or died blank symmetrical on each side of a transverse fold or score line and the blank will be described from this point, it being understood that each portion of the blank is substantially identical. Accordingly the blank of Fig. 1 is provided centrally with a score or fold line 30, having on one side thereof a portion 31 and on its other side a portion 32. As noted above, one of the portions will be described in detail, portion 31 for example.

The blank portion 31 comprises a central panel 33 bounded by fold or score lines 34, 35, 36, and 37 which form the sides or ends of the bottom 33. Extending from the score line 34 is a panel 38 whose other side is formed by the score line 30, which also, when the blank is set up, constitutes the hinge on which the portions of the carton fold from the closed to their opened positions. The panel 38 has its ends defined by fold or score lines 39 and 40 which respectively hingedly connect corner pieces 41 and 42 to the panel 38.

The other side 36 of the panel 33 hingedly connects an extension 43 which is provided longitudinally thereof with a plurality of fold or score lines 44, 45, and 46, providing in the extension 43 panels 47, 48, 49 and 50. In the erected carton the panel 47 constitutes the outer end wall, and has its opposite ends defined by score or fold lines 51 and 52. Said fold or score lines 51 and 52 hingedly connect to the end wall panel 47 corner pieces 53 and 54.

The panel 48 in the erected carton forms the top of the hollow side wall and has its ends defined by cut lines 55 and 56. The sides of this panel 48 are defined by score or fold lines 44 and 45 with the score or fold line 45 forming one side of the adjacent panel 49.

The panel 49 has its other side defined by fold or score line 46 and its ends by score or fold lines 58 and 59. The score or fold lines 58 and 59 respectively hingedly connect to the panel 49 tucking flaps 60 and 61, which are laterally defined by score or fold lines 62 and 63, which respectively connect thereto spacer flaps 64 and 65. Inwardly spaced from the ends of the panel 49 it is provided with slits 66 and 67 which cooperate with locking tabs on the end walls for holding the carton in erected position as will later be made clear.

The panel 50 extends from the score or fold lines 46 to the end of the blank and forms the glue flap for attaching the inner wall member to the panel 33, and for which purpose it is supplied with glue or adhesive 57.

Extending from each end of the bottom panel 33 are similar extensions 68 and 69 which are folded to form the end walls and since they are substantially identical in construction, it is deemed sufficient if but one of them be described in detail.

Accordingly, extension 69 is provided longitudinally with a plurality of score or fold lines 70, 71, and 72 forming panels 73, 74, 75, and 76. The panel 76 in the set-up carton forms the outer end wall member, and has its sides defined by the score or fold lines 37 and 70. The ends of the panel 73 are defined by score or fold lines 77 and 78 which respectively hingedly connect to the side panel 73 corner pieces 54 and 42.

The panel 74 which has its sides defined by score or fold lines 70 and 71, and its ends by cut lines which are extensions of the score or fold lines 77 and 78, and contoured as at 79 and 80 to add attractiveness to the finished carton.

The panel 75 in the set-up carton forms the inner end wall member, having its sides defined by the score lines 71 and 72, and its ends defined partly by score or fold lines 81 and 82, which respectively hingedly connect to the panel 75 spacer tabs 83 and 84. Extending from the panel 75 beyond its ends are locking lugs 85 and 86, which cooperate with the slits in the side wall inner wall members.

The panel 76 extending from the score line 72 to the end of the blank constitutes in the set-up carton a spacer flap for the inner and outer end wall members.

Each of the corner members 41, 42, 53 and 54 is provided diagonally thereof with a score or fold line 87, whereby the said corner members are folded on themselves in assembling the carton.

As the blank leaves the machine from being formed as above described, the portion of the side wall extension beyond the fold or score line 44 is folded onto the bottom panel 33 and outer side wall panel 47 to bring the adhesive 57 onto the said bottom panel 33. This folding is illustrated at the left-hand end of Fig. 1. It is in this position, that is, with each side wall forming portion 43 folded and secured inwardly of its end and secured to its bottom panel 33 that the blank is shipped to the user.

In the assembly of the parts just described, and with the carton laid out as in Fig. 5, the walls forming the perimeter of the extended carton are formed. In order to form the inner walls of each compartment a blank similar to that illustrated in Fig. 2 is employed for each of said inner walls. The blank 88 of Fig. 2 is longitudinally divided by score or fold lines 89, 90, 91, and 92 into a plurality of panels 93, 94, 95, 96, and 97. The panels are all substantially the same length which, in the main, is that of the blank with half the panel 96 having its ends defined by score or fold lines 98, and 99. This panel 96 constitutes the inner wall members of the inner wall assembly with the fold lines 98, and 99 hingedly connecting thereto tucking flaps 100 and 101. The tucking flaps 100 and 101 are respectively provided with a score or

fold line 102 and 103 for hingedly connecting spacer flaps 104 and 105.

The blank is assembled by folding the same on the fold or score line 90 to thereby bring the adhesive 106 on the panel 97 onto the panel 93. With the parts in this position they can be set up as illustrated in Fig. 4, at which time the panel 93 forms the bottom of the wall with panel 94 forming the outer wall member, panel 95 the top wall member and panel 96 the inner wall member. The inner wall member 96 is provided inwardly of its ends with slits 107 and 108, which cooperate with the locking lugs 85 of the main blank end wall inner wall member 75.

In order to complete the assembly of the carton, the blank is folded on the main or central fold or hinge line 30 with the panels 38 on each side thereof parallel in back to back position. The extensions 43 are then raised to have their inner and outer wall members 47 and 49 normal to the base 33. The blank 88 set up as seen in Fig. 3 is then placed one on each side of the panels 38 and with their outer wall member in contact with the inner face of their respective panel 38. The end wall extensions 68 and 69 of each portion is then folded by causing their end walls outer members 73 to be normal to the bottom panel 33. This will cause the corner members 41, 42, 53, and 54 to be folded on themselves on their score or fold line 87 and to be transversely of the panel 33 toward the center thereof. The said extensions 68 and 69 are then folded on their score line 70 to dispose the top panel 74 parallel with the bottom panel 33, whereupon the end spacer flaps 83 and 84 are folded normal to the inner end wall member 75 and at the same time the lower spacer flap 76 is likewise folded to be normal to the inner end wall panel 75. The inner end wall panel 75 is then folded into the carton to be normal to the bottom panel 33. The end wall extensions 68 and 69 are retained in their folded position by having their locking lugs 85 and 86 to respectively engage the adjacent slit 107 and 108 of the removable inner hollow wall and the adjacent slit 66 and 67 of the inner side wall member 49.

The foregoing results in a carton which, when extended, is as disclosed in Fig. 6, or as illustrated in the assembled portion of Fig. 5, and which can be folded to simulate a book along the central hinge or fold line 30, thereby bringing the tops 48 of the side walls and the tops 74 of each end wall, and the tops 95 of each removable wall into face contact with one another.

Instead of utilizing the blank 88 of Fig. 2 to form a separate wall in each of the book-style carton sections, these two walls may be made in a single blank such as disclosed in Figs. 8, 9 and 10.

Accordingly, the blank 109 of Fig. 8 is of a length substantially equal to that of blank 88, and is provided longitudinally with a plurality of score or fold lines 110, 111, 112, 113 and 114 forming between them and the ends of the blank panels 115, 116, 117, 118, 119 and 120. The panels 116 and 119 each form an inner wall member taking the place of the panel 96 of two blanks such as 88, and said panels 116 and 119 respectively have their ends defined by score or fold lines 121 and 122, and 123 and 124. The score lines 121 and 122 respectively hingedly connect to the ends of the panel 116 tucking flaps 125 and 126 while the score lines 123 and 124 hingedly connect to the ends of panel 119 tucking flaps 127 and 128. Each of the tucking flaps has respectively connected to it a spacer flap 129, 130, 131 and 132 through a score or fold line 133, 134, 135 and 136. Each of the inner wall member panels 116 and 119 is further provided near its outer end with a slit 137, 138, 139 and 140.

The panels 117 and 118 adjacent one another on each side of the score or fold line 112, constitute the wall top panel and respectively take the place of the top wall panel 95 of two blanks 88. The outer panels 115 and 120 are spacer panels and are adapted to be disposed beneath the wall top panels 117 and 118. In use, the blank of Fig. 8 is folded as illustrated in Figs. 9 and 10 with their tucking flaps normal to the inner wall members and the spacing flaps parallel with the top wall members. The folded blank of Fig. 8 is arranged with respect to the blank of Fig. 1 to have the contacting panels 38 of each section 31 and 32 disposed beneath the top wall panels 117 and 118, and with the spacer panels 115 and 120 disposed on the main panels 33 of the blank. This assembly will bring the score or fold line 112 in line with the score or fold line 30 of the main blank as illustrated clearly in Fig. 11, and which will act as a part of the hinge between sections 31 and 32. The assembled or completed carton utilizing the blanks of Fig. 1 and Fig. 8 will result in a book-style carton as illustrated clearly in Fig. 11. It will be understood that the combined inner walls are held in operative position by the end walls' extensions 68 and 69 of the main blank by having the formed extending portions 79 and 80 of the end wall top wall member 74 engaging the top walls 117 and 118 and with the locking flap 85 of the end wall inner wall members 75 inserted within the slits in the inner wall inner end wall members.

Instead of utilizing a single main blank as illustrated in Figs. 1 and 2, supplementary blanks as illustrated in Fig. 2 or a single supplementary blank as illustrated in Fig. 8, a single blank 141 as shown in Fig. 12 may be employed. The blank of Fig. 12 is substantially identical with that of Fig. 1 insofar as the two sections are concerned, their respective end walls, their connection to one another through the panels 38 and their side wall extensions 43 are concerned, except that the glue flap 57 of the extension 53 is considerably extended as indicated at 142 and 143, extending respectively from the inner wall members 49 of each side wall of the blank of Fig. 1. The glue flap or supplementary panel 142 has connected to it through a score or fold line 144, a panel 145 which constitutes the inner wall member of the carton inner wall and takes the place of the inner wall 96 of one of the blanks 88 and the inner wall panel 119 of the blank 109. This panel 145 has its ends defined by score or fold lines 146 and 147 which respectively hingedly connect to the panel 145 tucking flaps 148 and 149. Spacer flaps 150 and 151 are respectively hingedly connected to the tucking flaps 148 and 149 by score or fold lines 152 and 153. Inwardly of each end of the panel 145 it is provided with a slit 154 and 155.

The outer end of the panel 145 is defined by a score or fold line 156 which hingedly connects therewith a glue flap 157.

The glue flap or supplementary panel 143 at the other side of the blank 141, similar to the glue flap or supplementary panel 142 has connected therewith through a score or fold line 158 a panel 159 which forms the inner wall member of the inner wall of the other section and takes the place of the panel 96 of a second blank 88 or the panel 116 of the blank 109. The ends of

the panel 159 respectively carry tucking flaps 160 and 161 through score or fold lines 162 and 163. The tucking flaps, in turn, respectively have hingedly connected therewith spacer flaps 164 and 165 through score or fold lines 166 and 167. The panel 159, similar to the panel 145, is provided inwardly of its ends with slits 168, and 169.

Connected to the outer side of the panel 159 by means of a score or fold line 170 is a panel 171 which constitutes the top wall of the inner wall of one section of the carton. Hingedly connected to the said panel 171 by score or fold line 172 is a panel 173 which serves the dual purpose of forming the top wall member of the inner wall member of one of the sections, and has a glue flap to be engaged by the glue flap 157 at the other end of the blank 141.

After the blank 141 has been scored and cut as above described, the portions of the blank to the right of the outer wall member 47 is folded on the score or fold line 44 onto the main portion of the blank. The left-hand portion of the blank beyond the said outer wall member panel 47 is likewise folded on the score or fold line 44 onto the main portion of the blank. This brings the end of the glue flap 57 in line with the central hinge or fold line 30, and at the same time brings the hinge or fold line 172 in line with the hinge or fold line 30. The parts are then in the position illustrated in Figs. 13 and 14, and it is in this position that they are shipped to the consumer. The foregoing is as seen in Figs. 1 and 12.

It will be understood that with the blank folded as illustrated in Figs. 13 and 14, the glue flaps or supplementary panels 142 and 143 are secured to the main panels 33 of each section with their sides inwardly spaced from the sides of said main panels a distance equal to the width of the top wall members or panels 48. Now all the user need do is raise the said outer wall members 47 from their flat position to erect the said outer walls and at the same time break the main panel about the central hinge or fold line 30 to thereby set up the inner walls, again as illustrated in Fig. 15. In order to hold the walls in these erected positions, the end wall extensions 68 and 69 are then folded as above described, bringing the locking tabs 85 of each end wall flap into its respective slits.

The finished erected carton is as illustrated in Fig. 15 which, by comparison with Figs. 11 and 6, will be found to have substantially the same cross section and definitely the same exterior appearance.

A further modification of the invention is illustrated in Figs. 16 to 23 inclusive, whereby a book-style carton is provided with a central compartment between the usual compartments of the book-style carton. The modification of the main blank illustrated in Fig. 6 and that of the blanks illustrated at 141 in Fig. 12 and the main blank in Fig. 1 consists in eliminating the outer wall member of the inner walls and the formation of these outer wall members at the ends of the main blank.

Accordingly, the blank 174 of Fig. 16 has eliminated from it the central score or fold line 30 and the panels 38 on each side thereof, and in its place there is provided a panel 175 bounded on its sides by score or fold lines 176 and 177. The said score or fold lines 176 and 177 respectively take the place of the score or fold line 34 at the adjacent sides of main panels 33 of each section of the main blank. In addition, the said score or fold lines 176 and 177 act as hinges for the sections of the panels which fold onto one another. The ends of the panel 175 are respectively defined by fold or score lines 178 and 179 which respectively hingedly connect extensions 180 and 181 which are substantially identical in construction and formation, but it is deemed sufficient if but one of these extensions be described in detail.

Accordingly, extension 181 is subdivided by a plurality of score or fold lines 182, 183 and 184 which, together with the hinge fold line 179 and end of the extension 181 form panels 185, 185, 187 and 188. The panel 185 constitutes the outer end wall member of the third compartment, while the panel 186 constitutes the top wall member thereof. Panel 187 constitutes the inner wall member of the third compartment, and has hingedly connected respectively to its ends through score or fold lines 189 and 190 spacing flaps 191 and 192 which, when in operative position, space the inner and outer wall members 185 and 187 from one another. Additionally, the inner wall member 187 has projecting from its sides locking tabs 193 and 194 which act as means for holding the walls in their erected position. The remaining panel 188 is employed for spacing the lower ends of the inner and outer wall members 185 and 187 from one another.

The blank 174 of Fig. 16 further differs from the above described blanks and particularly blank 141 of Fig. 12 in that instead of the glue flap 157 and the combined glue flap and top wall member 173 of the blank 141, the blank 174 has beyond the inner wall member or panel 145 panels 195, 196, and 197 separated from one another by parallel fold or score lines 198 and 199. The panel 195 constitutes the top wall member of the section inner wall, while the panels 196 and 197 respectively constitute the outer wall member and the securing or glue flap of said wall. The said outer wall member panel 196 has its ends defined by fold or score lines 200 and 201 which respectively connect with said panel tucking flaps or corner pieces 202 and 203. Said tucking flaps or corner pieces are hingedly connected on score or fold lines 204 and 205 with extensions 206 and 207 of the glue flap 197.

The other end of the blank 174 is similarly constructed, that is, by comparison with the blank 141 and beyond the side wall panel 159 there is provided panels 208, 209, and 210 forming the inner section wall top wall member, outer wall member and glue flap. The outer wall member panel 209 and the glue flap 210 similar to the corresponding panels 196 and 197 are respectively provided at their respective ends with tucking flaps 211 and 212, and extensions 213 and 214.

A slight additional modification in the blank 174 occurs over that of the blank 141 and the blank of Fig. 1, in that the main panels 33*a* and 33*b*, while substantially identical to one another, are somewhat wider so as to accommodate the height of the central or intermediate compartment to be later described in detail, and illustrated clearly in Fig. 20. This extra width of the main panels 33*a* and 33*b* is utilized to receive the glue flaps 197 and 210 of Fig. 6. It will be noted from Fig. 16 that for this reason the end wall forming extensions 68 and 69 of each extension is offset from the center of the blank so that said end walls will cooperate with the inner side walls, while at the same time providing the space at the adjacent ends of the said panels to accommodate the intermediate compartment.

After the blank 174 is cut and formed as above described, the ends of the blank are folded on one

another similarly to that above described in connection with blank 141, in order to bring the intermediate or supplementary panels 142 and 143 into engagement with the main panels 33 and 34. The wall members which form the inner side walls of each section are then folded back on themselves as illustrated in Fig. 8 to bring the outer glue panels 197 and 210 onto the inner adjacent ends of the main panels 33a and 33b. This folding of the blank is illustrated in plan in Fig. 17, and in cross-section in Fig. 20, and it is in this position that the blank is shipped to the user. The intermediate compartment is formed from the blank illustrated in Fig. 21, and is independently set up as in Figs. 22 and 23, but being connected with the blank 174. The blank 215 in Fig. 17 comprises a central panel 216 which forms the bottom of the intermediate compartment and has connected to its opposite sides through fold lines 217 and 218 similar extensions 219 and 220. Each extension is provided with parallel score lines 220, 221 and 222, thereby providing between the score line 218 or 217 and the end of blank, panels 223, 224, 225 and 226. The said panels are to be folded normal to one another, thereby providing side walls of hollow or angular cross-section, and in which the panel 223 constitutes the outer wall member, the panel 224 the top wall member, the panel 225 the inner wall member, and the panel 226 the glue flap for securing the inner wall member to the bottom 16 after having had applied to it glue or the like 227.

The outer wall member panels 223 have their ends defined by score or fold lines 228 and 229 which respectively hingedly connect thereto tucking flaps 230 and 231. The tucking flaps 230 and 231 are attached to be interlocked with one another through locking notches 232 and 233 respectively in the flaps 230 and 231. One of said flaps, 231 for example, has hingedly connected to it through the score or fold line 234 a spacer flap 235 which is enclosed by the intermediate compartment end wall members formed by the extensions 180 and 181 of blank 174.

To assemble the carton the two main sections are erected from the blank 174 and set up as fully disclosed in the upper part of Fig. 19. That is, the side walls are raised from their flat to their upstanding position, whereupon the end wall extensions 68 and 69 are folded to their position causing the locking tabs 85 and 86 to enter the slits of the inner wall members. The blank 215 of Fig. 17 is then erected as illustrated at the upper end of Fig. 22, namely, by raising its side walls from their flat to their upstanding position and interengaging the tucking flaps 230 and 231 and folding the spaced flap 235 to lie parallel with the intermediate compartment bottom 216. The assembled intermediate compartment is then placed on the panel 175 of blank 174 as illustrated in Fig. 19, and the extensions 180 and 181 of this panel are then folded over the spacer flap 34 as illustrated clearly at the right-hand side of Fig. 9 to cause the locking flaps 193 and 194 of said extensions to enter locking slits 236 and 237 of the inner wall members 225 of the intermediate compartment.

The above results in a carton set up as illustrated in the upper end of Fig. 19 and as clearly illustrated in cross-section in Fig. 20. It will be noted that this carton is a book-style carton, similar to those above described, and which, when closed, permits the sections to fold on fold lines 176 and 177 to cause face contact of the top wall members of each compartment bounding walls. At the same time the outer wall members of the sections inner walls overlap the intermediate compartment, and, in fact, are designed to contact the upper wall member of the bounding walls of said intermediate compartment.

Each of the blanks above described shows the tucking flaps or corner members such as 53 in Fig. 1 as detached from the tucking flap 60 and spacer flap 64. In Figs. 24 and 25 a modification of this corner is illustrated, whereby the spacing flap is supported not only at one side, namely, at its top by the tucking flap 60, but is also supported by the tucking flap 53. This construction comprises the connection of the tucking flap or corner piece 53a through a score or fold line 238 with the adjacent end of the spacer flap 64a, the spacer flap 64a being connected by the score or fold line 62 with the tucking flap 60. The inner end of the spacing flap 64 instead of being separated from the top wall 48 by a cut line 55, has a portion thereof removed as at 239. In addition, the tucking flap 60 is provided with a cut or score line 240 which extends from the outer end of the cutout 239.

The set up of the parts as illustrated in Fig. 24 and just described, is as in Fig. 25, wherein the tucking flap 60a is disposed across the end of the wall assembly and then folded on the score or fold line 240 to be parallel with the inner end wall member. At the same time the tucking flap or corner piece 53a is folded on itself to lie between the tucking flap 60a and end wall outer member 73. With this construction the spacer flap has its inner end supported by the remainder of the tucking flap 60a and its outer end supported by the tucking flap 53a. In other words, this construction constitutes or forms a bridge for the spacing flap 64a instead of having the spacing flap merely projecting between the inner and outer foldable end wall members. At the same time the operation of folding the tucking flap 64 to be parallel with the bottom or main panel is eliminated.

It will be understood that the construction illustrated in Figs. 24 and 25 will be substituted at each corner of the main panels of each section of the carton, namely, the corner members 53 and 54 of the blanks illustrated in Figs. 1, 12, and 16 and the corner members 202, 203, 211 and 212 of the blank illustrated in Fig. 16.

In each of the foregoing cartons each of the four walls of each section is illustrated as having a cross-section of appreciable width and a top wall member of a width equal to the width of the wall. In the practice of the inventor this is not absolutely necessary as the walls, or certain of them may be made of a double thickness only as illustrated in Figs. 26 to 31 inclusive.

In order to effect this change the end walls, formed from the extensions 68 and 69, are slightly modified as illustrated in the blank of Fig. 26. This modified blank consists in making the extension 68a of but two panels 241 and 242 hingedly connected to one another by a hinge or fold line 243. The panel 241 forms the outer wall member while the panel 242 forms the inner wall member. In order to hold the walls in their erected position the inner wall member has at its outer ends locking tabs to cooperate with the slits in the adjacent side wall inner wall members.

The carton sets up substantially as the cartons

above described and as illustrated in Figs. 27 and 28.

The blank illustrated in Fig. 29 shows the extensions 180 and 181 of Fig. 16 arranged to be of merely double thickness and not of appreciable width. Accordingly the extension 180*a* is provided with two panels 244 and 245 connected with one another through a hinge or fold line 246. The said panels 244 and 245 form the inner and outer wall members for the third compartment and are adapted to enfold the tucking 230 and 231 of the blank 215 with the said tucking flap 231 having removed from it the spacer flap 235.

The carton formed from the blank of Fig. 29 sets up in the same manner as that formed from the blank of Fig. 16 except that end walls of the central compartment are of double thickness only instead of appreciable width.

From the foregoing it is believed now evident that there has been provided a book-style carton which accomplishes the objects initially set forth.

What is claimed is:

1. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide, in each section, a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other, said wall panels being hingedly connected to each other, substantially identical extensions from the remaining corresponding sides of said main panels, each extension being scored longitudinally and adapted to be folded on said scores to form complete walls of appreciable width and including an inner wall member, an outer wall member and a top wall member integral with and between said inner and outer wall members, and said hinge connection between the main panels wall panels acting as a hinge for the sections whereby they may be folded from an open extended position to a closed position with the top wall members in face contact.

2. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide, in each section, a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other, said wall panels being hingedly connected to each other, substantially identical extensions from the remaining corresponding sides of said main panels, each extension scored to be folded into walls and a compartment in each section with said walls of appreciable width and including an inner wall member, an outer wall member and a top wall member, and said hinge connection between the panel wall members acting as a hinge for the sections whereby they may be folded from on an open extended position to a closed position with the top wall members in face contact, and a removable section wall within each compartment adjacent its main panel wall panel and secured in position.

3. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide, in each section, a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other, said wall panels being hingedly connected to each other, substantially identical extensions from the remaining corresponding sides of said main panels, each extension scored to be folded into walls and a compartment in each section with said walls of appreciable width and including an inner wall member, an outer wall member and a top wall member, and said hinge connection between the panel wall members acting as a hinge for the sections whereby they may be folded from an open extended position to a closed position with the top wall members in face contact, and a separate removable wall within each compartment adjacent its main panel wall panel and secured in position.

4. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide, in each section, a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other, said wall panels being hingedly connected to each other, substantially identical extensions from the remaining corresponding sides of said main panels, each extension scored to be folded into walls and a compartment in each section with said walls of appreciable width and including an inner wall member, an outer wall member and a top wall member, and said hinge connection between the panel wall members acting as a hinge for the sections whereby they may be folded from an open extended position to a closed position with the top wall members in face contact, said main panel wall panels being adjacent one another when in erected operative position, and a removable wall within each compartment formed from a single blank scored to form a top wall member and an inner wall member on opposite sides of said main panels wall panels, and said top wall members having a score or hinge line between them which in the erected carton is in a vertical plane with the hinge connection between the main panels wall panels and which aligned hinge connection acts as the hinge on which the sections are folded.

5. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide in each section a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other and substantially identical extensions from corresponding sides of said main panels, certain of said extensions being adapted to be folded on themselves to complete walls at opposite sides of their main panel with each wall of appreciable width and including a top wall member, certain of said extensions being adapted to be folded on themselves to complete walls of double thickness at the remaining opposite sides of their main panel, and said blank being scored between the sections main panels wall panels whereby a hinge is provided so that the sections may be folded from an extended position to a closed position with the top wall members in face contact.

6. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide in each section a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other and substantially identical extensions from corresponding sides of said main panels, certain of said extensions being adapted

to be folded on themselves to complete walls at opposite sides of their main panel with each wall of appreciable width and including a top wall member, certain of said extensions being adapted to be folded on themselves to complete walls of double thickness at the remaining opposite sides of their main panel, and said blank being scored between the sections main panels wall panels whereby a hinge is provided so that the sections may be folded from an extended position to a closed position with the top wall members in face contact, said walls of appreciable width each including an inner wall member, and means for securing said inner wall member to its main panel.

7. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide, in each section, a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other, said wall panels being hingedly connected to each other, substantially identical extensions from the remaining corresponding sides of said main panels, each of said extensions being scored longitudinally and adapted to be folded on said scores to form complete walls with each of said walls including an inner and an outer wall member with at least one of said walls of each section of appreciable width and including a top wall member integral with and between its inner and outer wall members, said walls providing a compartment between themselves in each section and said hinge connection between the panel wall members acting as a hinge for the sections whereby they may be folded from an open extended position to a closed position with the top wall members in face contact.

8. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide, in each section, a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other, said wall panels being hingedly connected to each other, substantially identical extensions from the remaining corresponding sides of said main panels, each of said extensions being scored longitudinally and adapted to be folded on said scores to form complete walls with each of said walls including an inner and an outer wall member with at least one of said walls of each section of appreciable width and including a top wall member integral with and between its inner and outer wall members, said walls providing a compartment between themselves in each section said hinge connection between the panel wall members acting as a hinge for the sections whereby they may be folded from an open extended position to a closed position with the top wall members in face contact, and a removable wall within each compartment adjacent its main panel wall panel and secured in position.

9. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide, in each section, a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other, said wall panels being hingedly connected to each other, substantially identical extensions from the remaining corresponding sides of said main panels, each of said extensions being scored longitudinally and adapted to be folded on said scores to form complete walls with each of said walls including an inner and an outer wall member with at least one of said walls of each section of appreciable width and including a top wall member integral with and between its inner and outer wall members, said walls providing a compartment between themselves in each section said hinge connection between the panel wall members acting as a hinge for the sections whereby they may be folded from an open extended position to a closed position with the top wall members in face contact, and a removable wall within each compartment adjacent its main panel wall panel and secured in position, each removable wall formed from a separate blank scored to form an inner and an outer wall member with a top wall member integral with and between said inner and outer wall members and secured in position with its outer wall member adjacent the main panel wall panel of its section when the carton is in an open extended position.

10. A book-style carton comprising a pair of substantially identical sections formed from a single blank cut and scored to provide, in each section, a substantially identical main panel separated from one another by a wall panel hingedly carried by each main panel at its side adjacent to the other, said wall panels being hingedly connected to each other, substantially identical extensions from the remaining corresponding sides of said main panels, each of said extensions being scored longitudinally and adapted to be folded on said scores to form complete walls with each of said walls including an inner and an outer wall member with at least one of said walls of each section of appreciable width and including a top wall member integral with and between its inner and outer wall members, said walls providing a compartment between themselves in each section said hinge connection between the panel wall members acting as a hinge for the sections whereby they may be folded from an open extended position to a closed position with the top wall members in face contact, and a removable wall within each compartment formed from a single blank scored to form a top wall member and an inner wall member on opposite sides of said main panels wall panels, and said top wall member having a score or hinge line which in the erected carton is in a vertical plane with the hinge connection between the main panels wall panels and which aligned hinge connections act as the hinge on which the sections are folded.

WILLIAM P. FRANKENSTEIN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
834,527	Klein	Oct. 30, 1906
1,081,068	Vance	Dec. 9, 1913
1,680,028	Ryan et al.	Aug. 7, 1928
2,126,407	Payne et al.	Aug. 9, 1938
2,130,602	Smith	Sept. 20, 1938
2,296,389	Levkoff	Sept. 22, 1942
2,387,790	Williamson	Oct. 30, 1945