

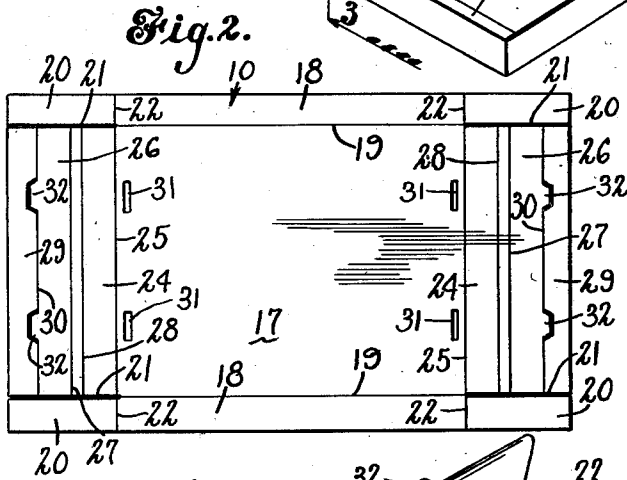
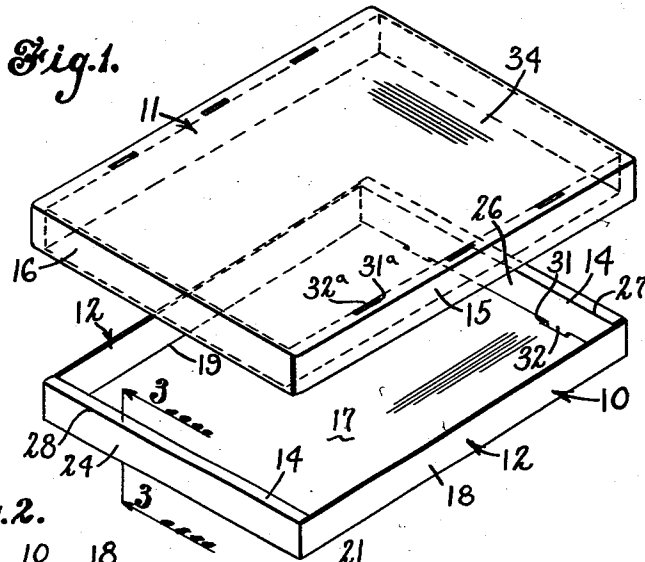
May 3, 1955

J. A. WITTSTEIN  
PACKING CARTONS

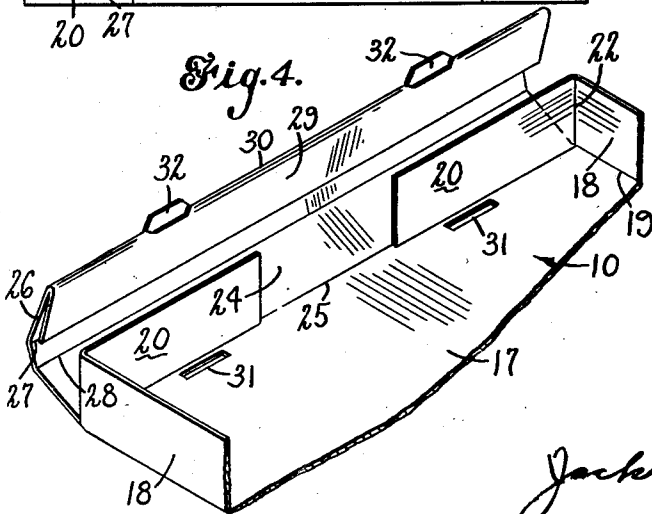
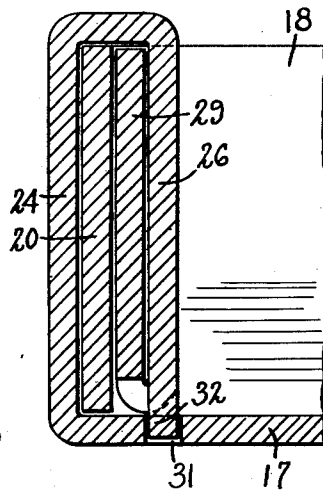
2,707,587

Filed May 7, 1952

2 Sheets-Sheet 1



*Fig. 3.*



INVENTOR  
*Jack A. Wittstein*  
BY  
*Rockwell & Parholow*  
ATTORNEYS

May 3, 1955

J. A. WITTSTEIN  
PACKING CARTONS

2,707,587

Filed May 7, 1952

2 Sheets-Sheet 2

Fig. 5.

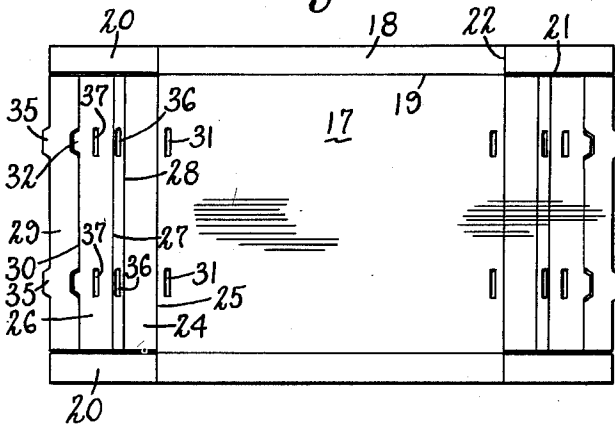


Fig. 6.

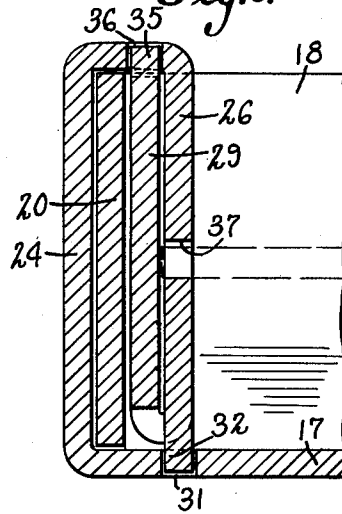


Fig. 7.

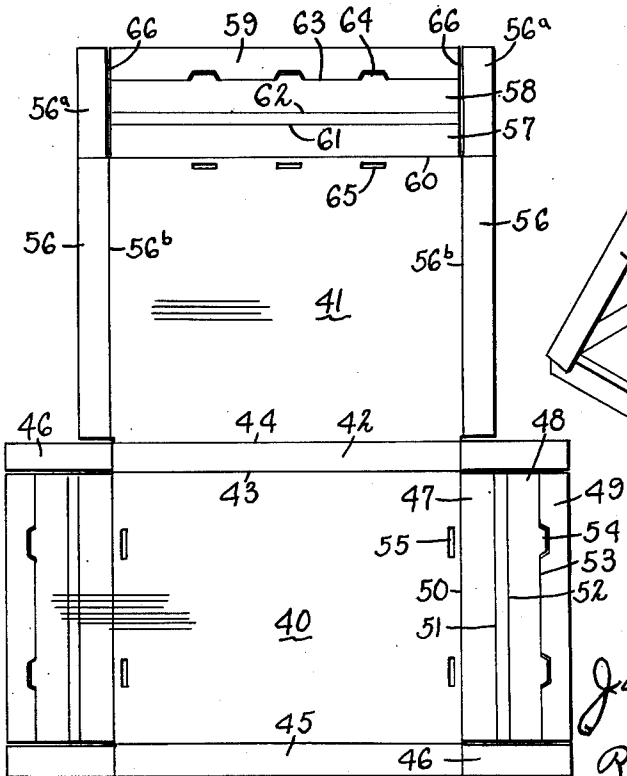
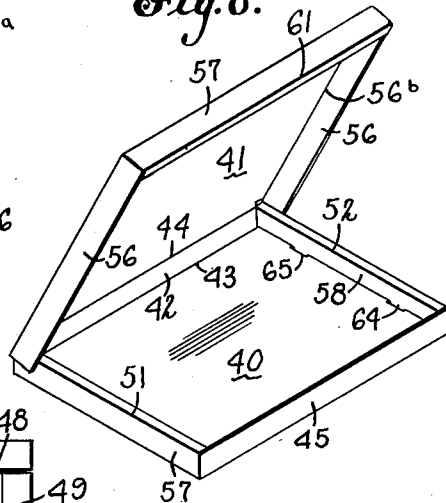


Fig. 8.



INVENTOR  
*Jack A. Wittstein*  
BY  
*Rockwell Berthelaw*  
ATTORNEYS

1

2,707,587

**PACKING CARTONS**

Jack A. Wittstein, Hamden, Conn.

Application May 7, 1952, Serial No. 286,495

4 Claims. (Cl. 229—34)

This invention relates to a packing carton and more particularly to a carton, case or box in which articles may be packed for shipment or for other purposes, the construction of the carton being such that it will be strong and durable, and protect the article packed therein against damage during handling.

As illustrated, the carton consists of a lower or bottom member and an upper or cover member. Each of these members is preferably constructed from a single sheet of material which may be blanked out in the desired form and thereafter assembled without the use of stitching, staples, glue or other fastening means. By avoiding the use of extraneous fastening elements, economy in manufacture is secured and at the same time any unevenness or projections on the various parts of the carton are avoided so that the inner surfaces of the completed carton will be smooth and even.

While the carton may be made of a variety of materials and is not limited in this respect, I have illustrated a carton made of corrugated board, for example, although it can be constructed of folding box board, coated stocks, solid fiber board, or even of metal. Each of the two members of the box described above comprises a main body portion or panel having a flange at each end and side edge thereof, the flanges lying in planes at right angles to the body portion and preferably being formed integrally with the body portion. In the preferred form of my invention, the flanges at the end portions of one of the members will be reinforced or comprise a plurality of plies of material, while the flanges along the side portions of the other member will be similarly constructed. The side flanges of the first member and the end flanges of the second member, as illustrated, comprise only a single ply although this may be varied, if desired. When the two sections of the box are placed together as they will be in use, the edge flanges of one overlie or overlap the edge flanges of the other preferably throughout the depth of the carton so that if the reinforced end flanges of one member and the reinforced side flanges of the other member comprise, for example, four plies of material, the assembled carton when in use will be provided with sides and ends which will comprise five plies of material, i. e. a single ply of one member and four plies of the other member.

These flanges which will normally be vertically disposed when the carton is in use provide for shock resistance and cushioning of the article packed therein so as to prevent breakage during handling and also provide compression strength and resistance to a crushing force or weight which might tend to crush these walls in a vertical direction.

One object of the invention is to provide a new and improved packing carton in which articles may be safely packed for handling.

A still further object of the invention is to provide a new and improved carton having top and bottom members, each preferably formed of a single sheet of material, which sheet is so constructed that it may be formed into a box member having a main body or panel portion and side flanges, at least some of the side flanges comprising a plurality of plies of material and serving to lock the other flanges in place.

A still further object of the invention is to provide a

2

carton or like member of the character described wherein each box blank may be assembled and secured in its final form without the use of stitching, stapling, adhesives or other extraneous fastening devices.

5 Still another object of the invention is to provide a carton of the character described comprising a top or cover member and a bottom member, each of said members having end and side flanges adapted to overlap when the two members are assembled, the end flanges of one of said members being reinforced by being formed of a plurality of plies and the side flanges of the other member being similarly reinforced whereby the resulting carton, when the two members are assembled, will be reinforced upon all four sides.

15 To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

20 Fig. 1 is a perspective view of the top and bottom members of a carton embodying my invention;

Fig. 2 is a top plan view of the completed blank for forming the bottom portion of the carton;

Fig. 3 is a sectional view on line 3—3 of Fig. 1;

25 Fig. 4 is a perspective view of the end portion of the bottom member of the carton showing the manner of assembling or folding the parts thereof;

Fig. 5 is a view similar to Fig. 2 showing a modified form of my invention;

30 Fig. 6 is a sectional view similar to Fig. 3 of the carton constructed from the blank shown in Fig. 5;

Fig. 7 is a plan view of a blank for constructing a further modified form of carton; and

Fig. 8 is a perspective view of a carton formed from the blank shown in Fig. 7.

35 To illustrate a preferred embodiment of my invention I have shown in Fig. 1 of the drawing a carton comprising a lower or bottom member designated generally by the numeral 10 and a top or cover member designated generally by the numeral 11.

40 The bottom portion is provided with side walls or flanges 12 and with end walls or flanges designated by the numeral 14, while the cover is similarly provided with side walls or flanges 15 and end walls or flanges 16. It will be understood that the width of these flanges is substantially equal to the depth of the box so that when the parts are assembled and the lower or bottom portion is received telescopically between the flanges of the top portion, the side and end walls will overlap throughout substantially their entire height.

45 As will also be explained, the end walls 14 of the bottom member are reinforced or comprise a plurality of plies, and the side walls of this member are of single ply thickness, while the converse is true of the cover member in that the side walls of the cover member are made of a plurality of plies, while the end walls 16 comprise a single ply. It will be understood, therefore, that when the two box parts are assembled, each wall will consist of the reinforced flange member of one section and the single ply or unreinforced flange of the other section. It will be understood, however, that the flanges 12 and 16 may not necessarily be of single ply thickness but may be made of a plurality of plies, if desired. The present method, however, has been found to be a convenient way to reinforce all four walls of the completed carton to a sufficient extent without producing an undue bulk.

50 In Fig. 2 of the drawing there is shown in plan view the blank from which the member 10 of the box is made. This blank comprises a main body or panel portion 17 provided with side flanges 18 separated from the body portion by weakened or creased lines 19 so that they can be folded into planes at right angles to

the part 17. It will be noted that the flanges 18 are provided with end portions 20 which are completely cut from the remainder of the blank along the lines 21 and join the flanges 18 along fold lines 22 so that these members 20 may be folded inwardly when the parts of the members are assembled, as shown in Fig. 4.

At each end of the blank are end sections which are so constructed that they may be folded to form the reinforced ends of the bottom member 10, these reinforced ends being shown in section in Fig. 3. As illustrated, each of these end portions comprises three sections, an inner section 24 separated from the portion 17 by a creased or weakened line 25, an intermediate section 26 separated from the section 24 by the fold lines 27 and 28, and an outer section 29 separated from the section 26 by the creased or fold line 30. The sides of these sections are, of course, separated from the end portions 20 of the flanges 18 by reason of the fact that the material is completely severed along the lines 21. The body portion or panel 17 of the member 10 is provided with a plurality of openings or indentations 31, there being two of these openings as illustrated, and tongues 32 are cut from the outer section 29 of the end members which, as will be hereinafter explained, are adapted to be received in the openings 31 so as to lock the parts together in assembled relation.

In assembling or setting up the bottom member 10 of the carton, the side flanges 18 are bent upwardly along the lines 19 to stand at substantially right angles to the panel 17. The end portions 20 of the flanges 18 are then turned inwardly on the fold lines 22 so that these members lie over the fold line 25 at the end of the panel 17. It may here be noted that while the members 20 do not quite meet, as illustrated, so as to form a complete ply or wall at the end of the box, they may be made longer, if desired, so that they will be at the center line of the panel 17.

The end portions are then folded over to form the reinforced end walls 14, as shown more particularly in Figs. 3 and 4. The section 29 is first folded over along the line 30 so that it is superposed on the section 26, as shown in Fig. 4, and the struck out tongues 32 will stand outwardly from the fold line 30, as shown. The superposed sections 26 and 29 are then brought upwardly and folded inwardly and downwardly over the portions 20, as shown in Fig. 4, along the fold lines 27 and 28 so that the sections 26 and 29 lie upon the inner faces of the members 20 and the tongues 32 are received in the openings 31 to lock these members together. It may be noted that the fold lines 27 and 28 are slightly spaced apart to allow space between the sections 25 and 26 for the section 29 and the members 20.

The final position of the parts is shown in Fig. 3 wherein it will be noted that the tongues 32 are securely locked in the openings 31 and the section 29, which was the outer of the sections 25, 26 and 29, as shown in Fig. 2, has now become the intermediate section, the section 26 becoming the inner member or wall of the reinforced end of the box, and the member 25 becoming the outer wall or ply. It will also be seen that the members are locked in place by the engagement of the tongues 32 in the openings 31 and that the side flanges 18 are locked in place by means of the end portions 20 being held between the plies of the end section so that the entire assembly is held together without the use of any extraneous fastening means such as stapling, gluing, or stitching. Moreover, it will also be noted that the inner surfaces of the side and end flanges of the box as well as the surface of the bottom panel 17 are completely smooth and devoid of any projections such as is sometimes the case when a flap or part of one section is secured to the surface of an adjacent section. The interlocking of the tongues 32 in openings 31 lies below the upper surface of the box bottom so that there are no projections on the bottom panel to interfere with articles lying flatly thereon.

The top member 11 of the box is constructed like that which has been described in connection with the bottom member 10 except that in case of the top member of the box the end flanges 16 are of single ply thickness or unreinforced, while the side flanges 15 are constructed, as shown in Fig. 3, in connection with the end portions of the bottom member 10. That is, these side portions of the member 11 are provided with sections similar to 25, 26 and 29, shown in Fig. 2, and projecting tongues 32<sup>a</sup> are cut from the outer section corresponding to 29 to be received within openings 31<sup>a</sup> formed in the body portion or panel 34. If the carton is rectangular in shape and is of greater length than width, it may be that more openings 31<sup>a</sup> will be required along the sides of the member 11 than are used along the ends of the member 10. As shown, there are two openings 31 in the latter member while three openings 31<sup>a</sup> with a corresponding number of tongues 32<sup>a</sup> are provided along the sides of the member 11. It will also be understood that while the openings 31, as shown in Fig. 3, are cut entirely through the bottom panel 17 of the box, this will not be necessary in all cases as it will suffice to merely provide an indentation within which the tongues 32 are received, which indentations need not extend entirely through the material.

It will be apparent, therefore, that each of the end sections of the bottom member of the carton consists of four plies, as shown in Fig. 5, while similarly the side flanges of the top member of the box comprise a similar number of plies. When the two members are assembled, each flange will consist of five plies, that is the four upon one member and the additional overlapping flange of the other member, so that each of the flanges or walls of the box will comprise a plurality of plies of material, five as here shown, which will not only provide adequate cushioning against jars and shocks, but will also provide compression strength to resist a crushing force from above. It will, of course, be understood that the flanges 12 and 16 need not necessarily be restricted to a single ply of material although this will be found adequate with the box constructed as herein set forth. It may also be noted that when the box is constructed of corrugated board, as illustrated, the fold lines of the end sections such as lines 25, 27, 28 and 30 will preferably be made across the grain of the material. In this case it would be found convenient for the grain of the material to run lengthwise of the carton in the bottom member and crosswise of the carton in the cover member 11 so that in the latter the folds which are made at the sides of the box will also be across the grain of the latter.

In Fig. 5 of the drawing I have shown a slightly modified form of my invention in which the folds or sections of the reinforced wall flanges are locked in two places instead of one. In this instance the blank is constructed in a manner similar to that shown in Fig. 2, and like reference characters are applied to corresponding parts. However, the construction differs from that shown in Fig. 2 in that tongues 35 are provided at the outer edges of the outer sections 29 and openings 36 are provided between the fold lines 27 and 28 to receive these tongues when the section 29 is folded over upon the section 26 in assembling the parts of the bottom member. In this manner the end wall of the box will be locked in two places, as shown in Fig. 6, the tongues 35 locking in the openings 36 at the upper edge of the wall, while the tongues 32 lock in the openings 31 at the bottom of the end wall and as previously described.

In some instances it may be desirable to secure an article in the carton to prevent any play or rattling thereof and also in some instances it may be desirable to suspend the article between the top and bottom of the carton so that it will not come into engagement with these parts of the carton. Where the articles have projecting parts or may be provided with projecting parts,

5

this may readily be accomplished by providing openings 37 in the panel 26 to receive such projecting parts on the articles which are to be packed. It will be noted in Fig. 6 that as the section 26 becomes the inner wall of the end member, the openings 37, which will be made of the size and shape to receive the projecting part of the article, will be in position to receive such part and in that manner suspend the article between the top and bottom of the box.

In Figs. 7 and 8 of the drawings, I have shown a further modified form of carton in which the bottom and cover members are formed integrally from one sheet of material, the top being hinged to the bottom along one edge. In this instance the complete carton is reinforced upon only three sides, the fourth side being of single ply thickness.

The blank is shown in Fig. 7 of the drawings and comprises the bottom panel or body portion 40 and the top body portion or panel 41, the two being connected by one of the side flanges 42 which is separated from the members 40 and 41 by the fold lines 43 and 44. At the other side edge the panel 40 is provided with the flange 45 and the flanges 42 and 45 are provided with the end members 46 which are folded inwardly as were the end members 20 described in connection with Figs. 1 to 4 of the drawings.

Likewise, at the ends of the panel or body portion 40 are the sections 47, 48 and 49 separated from the panel 40 and from each other by the crease or fold lines 50, 51, 52 and 53. Tongues 54 are struck out from the section 49, and openings 55 are provided in the portion 40 to receive these tongues. It will be understood that the construction of the sections 47, 48 and 49 at each end of the panel 40 are like the corresponding members shown at each end of the panel 17 in Fig. 2 and are designed to be folded, as shown in Figs. 3 and 4 to form reinforced end walls for the box.

The cover portion of the box of which the body portion 41 is a part is provided with flanges 56 at each side edge of the body portion and with sections 57, 58 and 59 at the upper edge thereof, which sections are designed to be bent or folded along the lines 60, 61, 62, and 63. Tongues 64 are struck out from the section 59 and openings 65 are provided in the body portion 41 to receive these tongues as before. Likewise, the end portions 56<sup>a</sup> of the side flanges 56 are separated from the adjacent portion of the sections 57, 58 and 59 by the lines 66 which are cut entirely through the material to permit these portions 56<sup>a</sup> to be folded inwardly as has already been explained.

The complete box made from the blank shown in Fig. 7 is illustrated in Fig. 8. In making the completed box from the blank, the sections at the ends of the panel 40 are folded inwardly as has been described in connection with Fig. 4, and the flanges 42 and 45 are folded upwardly, the wing portions 46 being turned inwardly so as to be locked in place when the tongues 54 are received in the openings 55. This forms the bottom of the box. The flange 56 may then be folded on the lines 56<sup>b</sup> to stand at right angles to the body portion 41, the wing portions 56<sup>a</sup> can then be folded inwardly and the section 57, 58 and 59 can then be folded upon each other to form a reinforced side wall for the front of the carton. The fold line 44 will then act as the hinge for the cover and the resulting carton will be reinforced along three of its edges where the walls will be substantially of five ply thickness.

It will be understood that the construction is not limited to a wall of five ply thickness but may be of a greater or lesser number of plies and the same principle employed. Preferably, however, the wing members 20, 46 and 56<sup>a</sup> will always be folded inwardly as shown so as to be locked within the folds of the end walls so that the carton will be held together securely without the use of extraneous fastening means.

6

While I have shown and described some preferred embodiments of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. A carton or the like comprising a bottom member and a cover member, each of which comprises a body portion and flanges at the edges of the body portion lying at substantially right angles thereto, the flanges of the cover overlapping those of the bottom when the two parts are assembled, the alternate flanges of one of said members being integral with the body portion and each of such flanges comprising a plurality of plies folded together, tongues on the flanges at a fold line thereof adjacent the body portion when the flanges are in assembled position, and the side of the body portion of the member having openings therein adjacent the junction of the flange therewith to receive said tongues to secure the folds of the flanges in place against inward displacement relatively to the body portions, and additional tongues struck from the free edges of one of said plies, and the fold line between adjacent plies being provided with openings to receive said tongues.

2. A carton or the like comprising a bottom member and a cover member, each of which comprises a body portion and flanges at the edges of the body portion lying at substantially right angles thereto, the flanges of the cover overlapping those of the bottom when the two members are assembled, the alternate flanges of one of said members being integral with the body portion thereof, and each of said alternate flanges comprises three plies formed by reversely folding one section of the flange upon another along fold lines between the sections, the first of said sections being next to, projecting upwardly from, and integral with, the body portion, and the other two sections comprising reversely folded sections projecting downward from the first section and integral therewith and lying parallel with the first section in assembled position, tongues on each of the flanges projecting outwardly from the fold line between the two reversely folded sections, and the side of the body portion of the member adjacent said alternate flanges having openings therein to receive said tongues when the flange sections are folded to assembled position to secure the flanges in place against displacement relatively to the body portion.

3. A carton as in claim 2 wherein the end portions of the flanges adjacent said alternate flanges are folded inwardly to lie against the inner side of said first section, and said reversely folded sections lie inwardly of and in clamping engagement with said end portions of the other flanges.

4. A carton as in claim 2 wherein additional tongues project from the free edge of one reversely folded flange section remote from the body portion, and openings are provided in the fold line between said first section and the adjacent one of said reversely folded sections to receive said tongues.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

|           |           |               |
|-----------|-----------|---------------|
| 882,688   | Janicke   | Mar. 24, 1908 |
| 1,140,794 | Brown     | May 25, 1915  |
| 1,411,678 | Walker    | Apr. 4, 1922  |
| 1,574,396 | Hoy       | Feb. 23, 1926 |
| 2,217,503 | Bergstein | Oct. 8, 1940  |
| 2,218,360 | Rokol     | Oct. 15, 1940 |
| 2,456,841 | Rushing   | Dec. 21, 1948 |
| 2,465,169 | O'Connor  | Mar. 22, 1949 |
| 2,468,951 | Barter    | May 3, 1949   |

##### FOREIGN PATENTS

|         |        |               |
|---------|--------|---------------|
| 360,818 | France | Mar. 12, 1906 |
| 762,926 | France | Jan. 29, 1934 |