

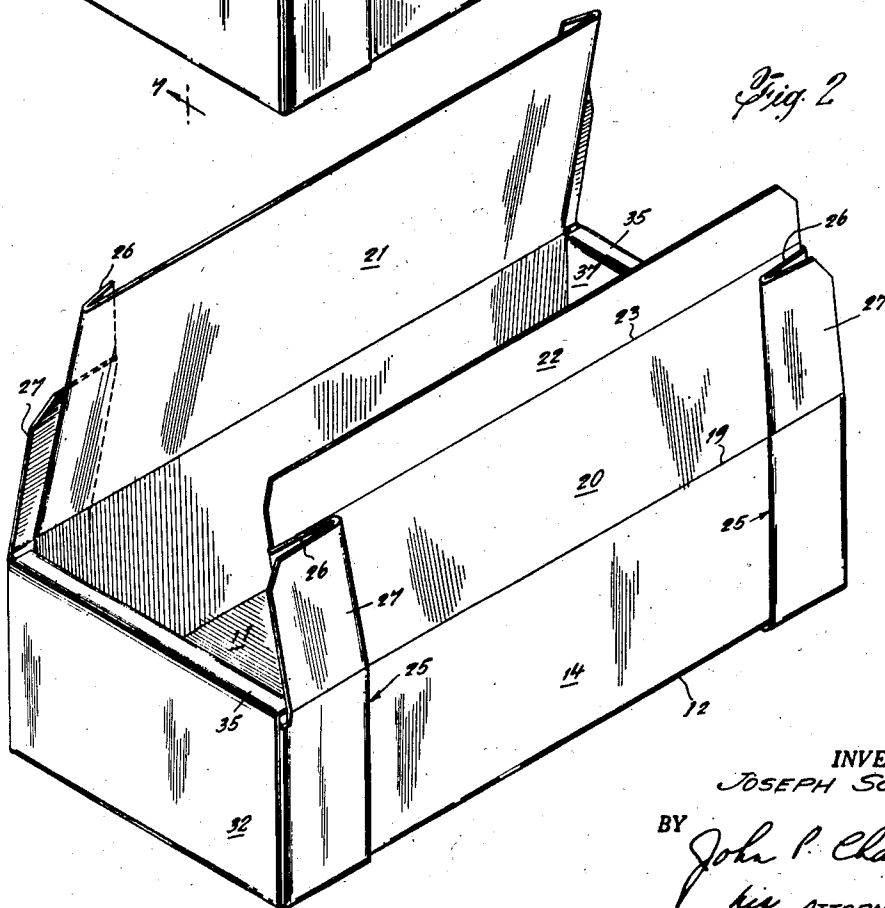
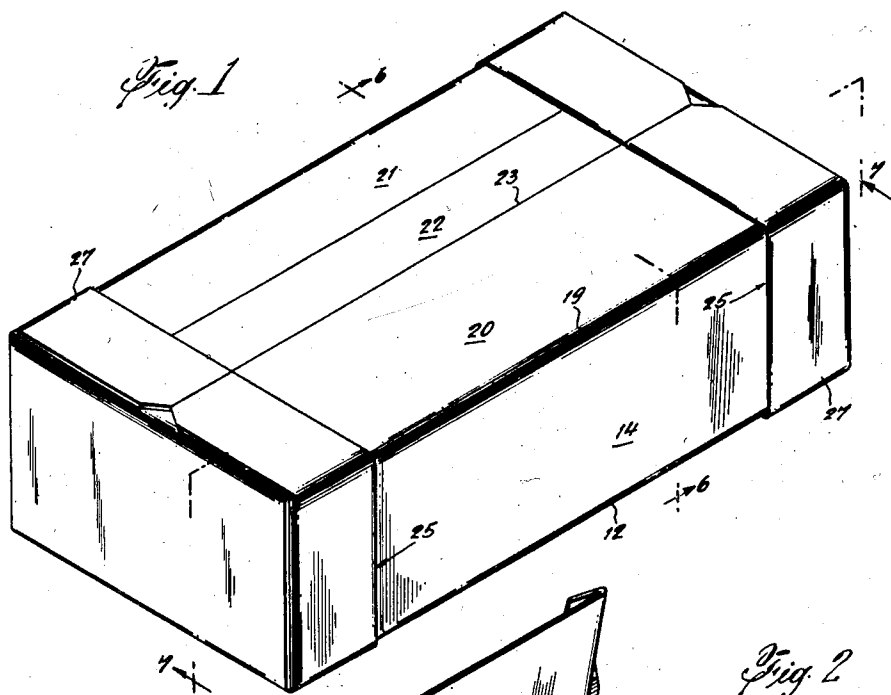
Nov. 23, 1948.

J. SCHER
FOLDING BOX

2,454,573

Filed Aug. 3, 1945

4 Sheets-Sheet 1



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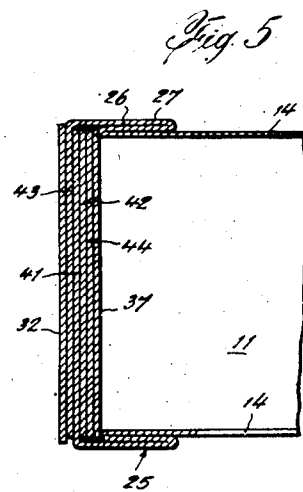
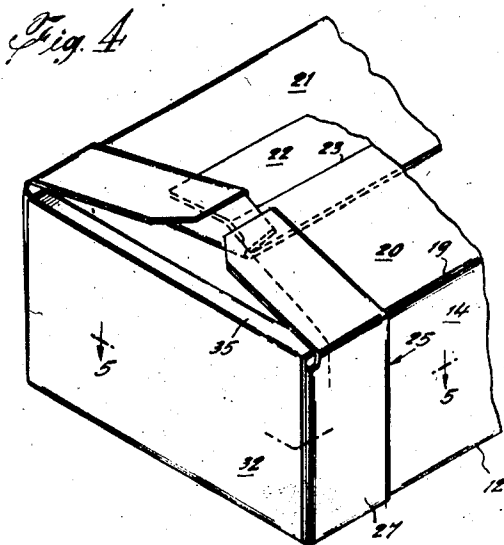
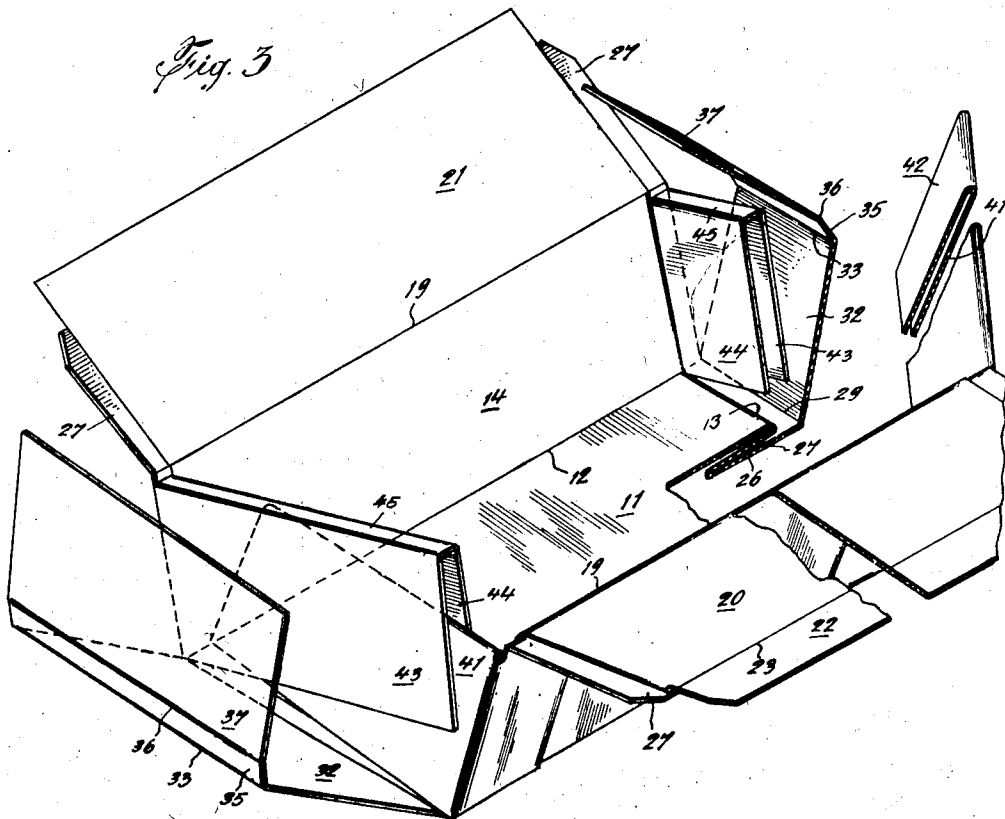
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4 Sheets-Sheet 3

Fig. 6

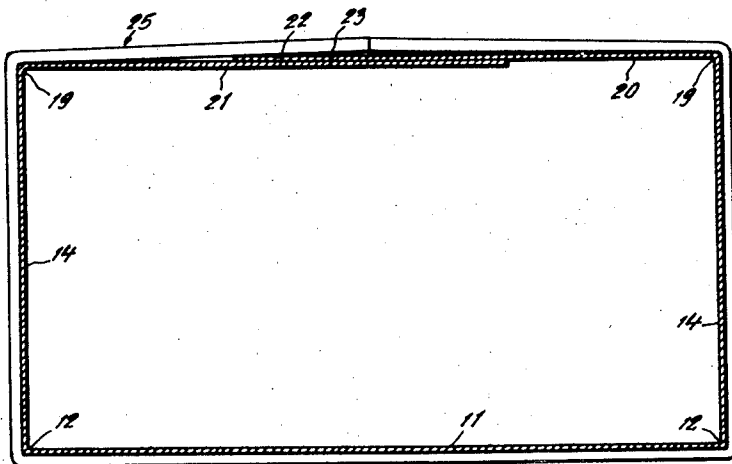
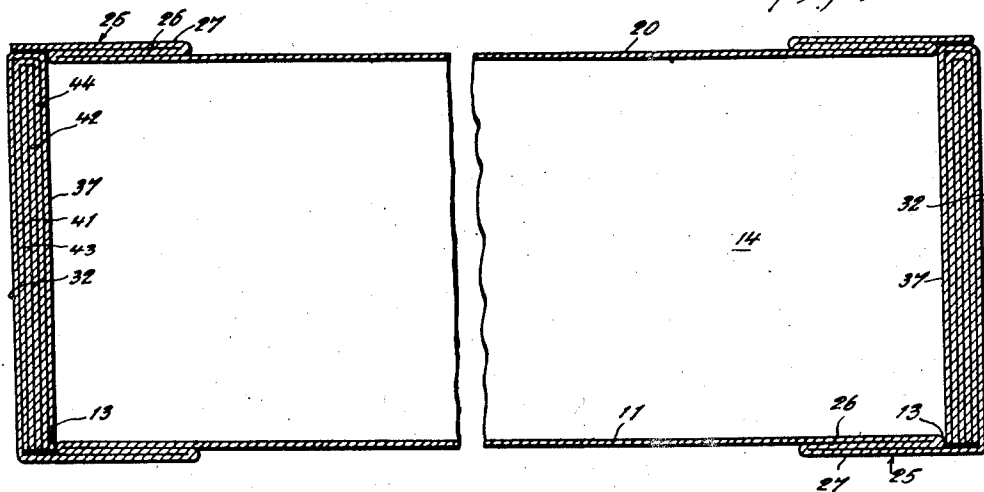


Fig. 7



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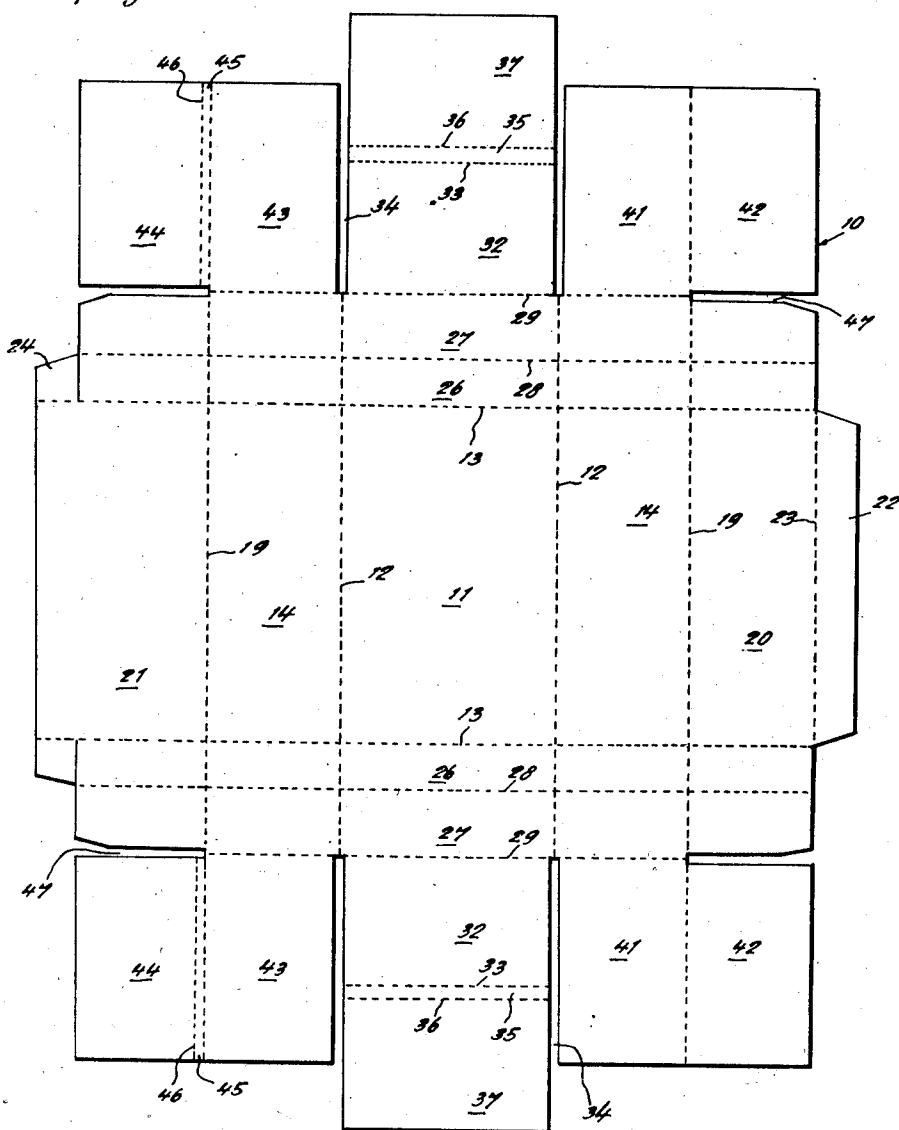
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4 Sheets-Sheet 4

Fig. 8



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UNITED STATES PATENT OFFICE

2,454,573

FOLDING BOX

Joseph Scher, New York, N. Y.

Application August 3, 1945, Serial No. 608,729

1 Claim. (Cl. 229—34)

1

This invention relates to folding containers, and has for its principal object the provision of an improved box of reinforced construction which is simple and inexpensive to construct, which may be shipped flat, and which may be set up in a minimum period of time.

The folding box of the present invention has particular application in the shipping of foods, particularly frozen foods including fruits, vegetables and meats, wherein a container having insulating value, as well as one having very considerable strength to allow of stacking of a considerable number of boxes, one upon the other, is desired. The box of the present invention, which, of course, will have many uses other than for the packing and shipping of frozen foods, is desirably formed from a single blank of material which is die-cut to shape and the lines of fold preferably formed at the same time.

The single blank includes interlocking top closure flaps as well as the bottom wall, multiple end walls of very considerable compressive strength, and reinforced side walls. The latter are of unique construction in that they provide a relatively narrow reinforcing band at each end of the box which not only reinforces the container vertically and laterally, but also provides means for spacing the container from the containers on each side as well as above and below such container. In addition to preventing crushing of the contents, these bands form an air space between containers over a major portion of the wall surfaces. All parts of the assembled container are so interlocked as to cause each vertical wall portion to cooperate with the other wall portion to make the box a true load carrying container. The multiple end wall construction is also unique, not only in that it provides a high order of compressive strength, but also in the interlocking arrangement and self-locking corner construction.

The box of the present invention affords a high order of protection for the contents, and cushions the articles, preventing breakage and other damage. Compared with an ordinary box of single wall construction, the box of the present invention is truly load carrying. The blank for the box, however, requires only a minor amount of extra material over what is required for single wall construction.

In the drawings:

Fig. 1 is a perspective view of a container forming an embodiment of the present invention.

Fig. 2 is similar to Fig. 1, but shows the container with the closure flaps in open position.

2

Fig. 3 is a perspective view showing the blank which is used in forming the container in partially assembled condition.

Fig. 4 is a broken perspective view showing the closure flaps in partially interlocked position.

Fig. 5 is a broken horizontal section taken on line 5—5 of Fig. 4.

Fig. 6 is a transverse section taken on line 6—6 of Fig. 1.

Fig. 7 is a broken vertical section taken on line 7—7 of Fig. 2.

Fig. 8 is a plan view of the blank used in forming the container.

The blank 10, which is illustrated in plan view in Fig. 8, may be formed from corrugated board, cardboard or any other suitable sheet material. This blank is preferably formed in one piece, is of generally rectangular shape, and includes a central portion 11 forming the base of the container, such base being defined by spaced, longitudinal fold lines 12 which extend the length of the blank, and by spaced, transverse fold lines 13 which extend the width of the blank. Adjacent the fold lines 12 are side wall portions 14 defined by fold lines 12 and by longitudinal fold lines 15 which likewise extend the full length of the blank. Adjacent the side wall portions 14 are closure flaps 20 on one side of the container, and 21 on the other side thereof. Closure flap 20 has attached thereto an extension 22 formed along longitudinal fold line 23. Closure flap 21 is of substantially the same shape as closure flap 20 plus extension flap 22, but need not have longitudinal fold line 23, fold line 23 being formed to facilitate interlocking of the closure flaps. The portion of closure flap 21 corresponding to extension flap 22 is somewhat longer than flap 22, as shown at 24 in Fig. 8.

It was earlier pointed out that a reinforcing band extends completely around the container when in closed position at each end of such closed container. This band, indicated generally by the reference numeral 25, is formed of two strips 26 and 27 extending transversely of the blank, the latter being slightly wider than the former for a reason which will be pointed out, strip 26 being defined by transverse fold line 13 and a transverse fold line 28. Strip 27 is defined by transverse fold line 28 and another fold line 29, both of which extend the full width of the blank.

Outer end wall 32 is carried along the central portion of strip 27 and is defined at its upper end by fold line 33. If the container is made from relatively heavy corrugated board, it will be desirable to form cut-out portions 34 on each side

of outer end walls 32. Adjacent the outer edge of outer end wall 32 is a short strip 35 defined by fold line 33 and a fold line 36, and adjacent the latter fold line is inner end wall portion 37. On the right-hand side of the blank, when viewed as in Fig. 8, an intermediate end wall 41 is formed along fold line 29, and carried along fold line 19 to the right of flap 41 is another intermediate end wall 42. On the opposite side of the blank, intermediate end wall 43 is carried along fold line 29, and flap 44 forming another intermediate end wall is carried by flap 43. Inasmuch as flaps 43 and 44 enclose flaps 41 and 42, a central portion 45 is formed between flaps 43 and 44, such portion being defined by fold line 19 and a fold line 46.

To assemble the container from the flat blank of Fig. 8, strips 27 are first folded inwardly along fold line 13 so that they overlie the outer surfaces of portions 11, 14, 20 and 21. Strips 27 are then folded outwardly along fold lines 28 so that they occupy the position shown in Fig. 3. Side walls 14 are next folded upwardly along fold lines 12. Next, outer end wall 32 is folded upwardly, and flap 42 is folded downwardly over flap 41. Flaps 41 and 42 are then moved inwardly, and next flap 44 is folded over flap 43 and the two are moved inwardly in closing folded flaps 41 and 42. Inner end wall 37 is next folded downwardly over flaps 41, 42, 43 and 44. This operation is repeated at the opposite end of the box, and the box is now assembled for packing. It will be noted that because of the fact that transverse strip 27 is wider than transverse strip 26, there is a space (see Figs. 3 and 4) between fold line 13 and the inner surface of outer side wall 32. The width of this space should be equal to the combined thickness of end walls 41, 42, 43, 44 and 37. Thus, when the latter end wall is moved downwardly into place, it is received and secured within the recess adjacent edge 13.

When the packing is completed, the closure flaps may be moved in closed position as follows. Closure flap 21 is moved downwardly to the position shown in Fig. 1, and closure flap 22 then moved downwardly. The opposed terminals of extension flap 22 are then moved into the recesses formed between closure flap 21 and strips 26 forming part of bands 25. This operation is facilitated by longitudinal fold line 23.

The box of the present invention is illustrated in the drawings as being formed with unapertured walls. In many instances, however, it will be desired to provide ventilation for the contents, and in such instances one or more of the walls may be formed with suitable openings.

While one form or embodiment of the invention

has been shown and described herein for illustrative purposes, and the construction and arrangement incidental to a specific application thereof have been disclosed and discussed in detail, it is to be understood that the invention is limited neither to the mere details or relative arrangement of parts, nor to its specific embodiment shown herein, but that extensive deviations from the illustrated form or embodiment of the invention may be made without departing from the principles thereof.

What I claim is:

A folding box including a base, inner and outer end walls, intermediate end walls, side walls, upper walls forming closure flaps, and integrally-formed reinforcing bands extending around the box at each end thereof, the box being formed from a single blank of sheet material having a plurality of intersecting fold lines defining such base and walls, the inner and outer end walls being disposed longitudinally of the base, the intermediate end walls being disposed longitudinally of the side walls, and the remaining walls being disposed laterally thereof and being defined at opposite ends thereof by a pair of spaced, transverse fold lines, each reinforcing band comprising a pair of adjacent strips of unequal width separated by a fold line and lying transversely of the blank between one of said transverse fold lines and adjacent the end wall portions the outer strip of each pair being wider than the inner strip, which strips are folded back in overlapping relation on the outer surface of the box, and forming an external fold line extending around the box at a point spaced from the end thereof, and an internal fold line extending around the box between the external fold line and such end, the internal fold line providing an internal abutment which is engaged by the inner end wall for retaining the latter in position,

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