April 14, 1953 D. LEVKOFF 2,634,900

FOLDING BOX OR CARTON

Filed Nov. 1, 1949 2 SHEETS—SHEET 1

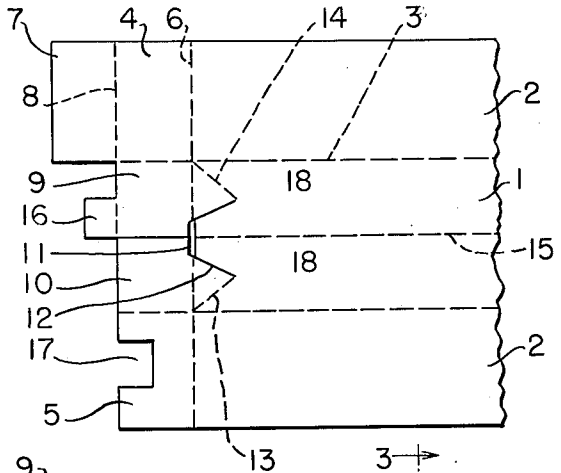


FIG. 1

FIG. 2

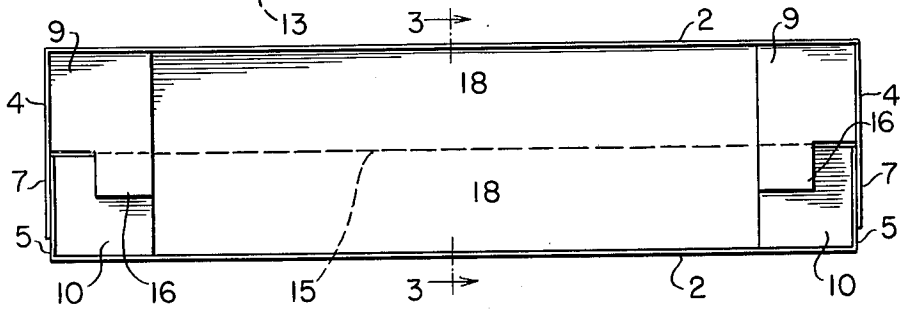


FIG. 4

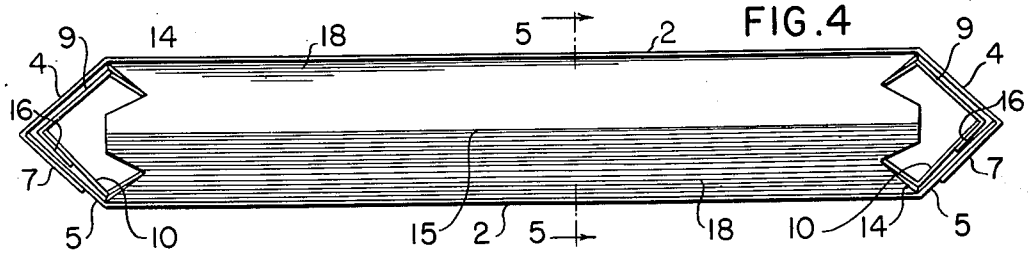


FIG. 3

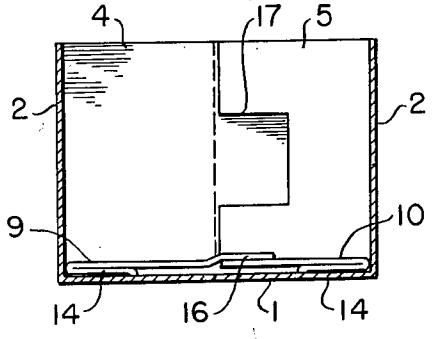
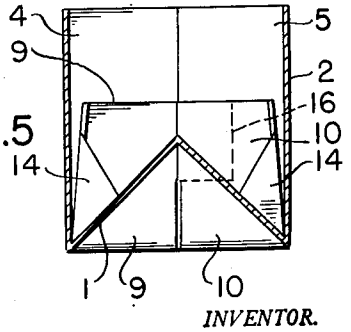


FIG. 5



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FOLDING BOX OR CARTON

Filed Nov. 1, 1949 2 SHEETS--SHEET 2

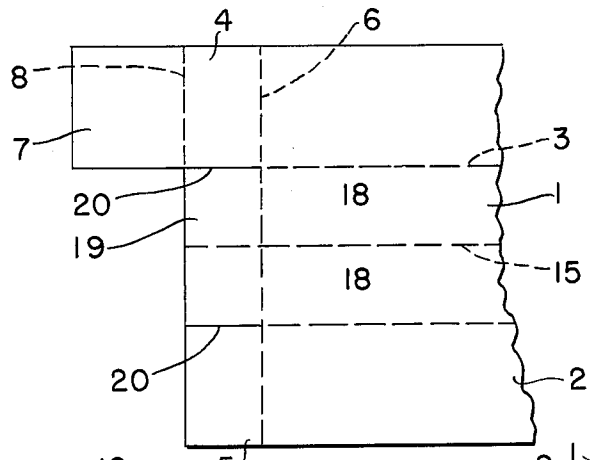


FIG.6

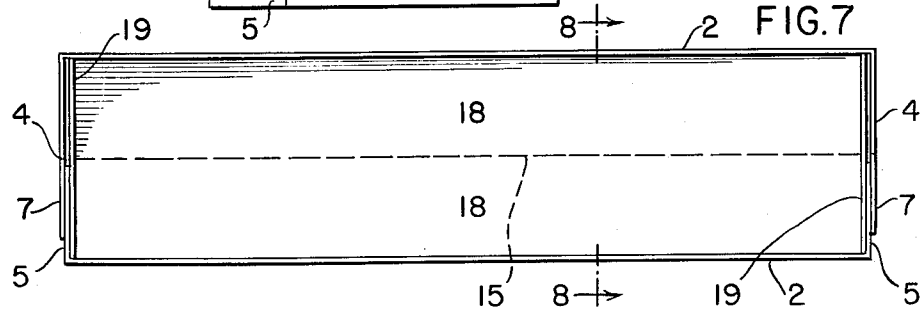


FIG.7

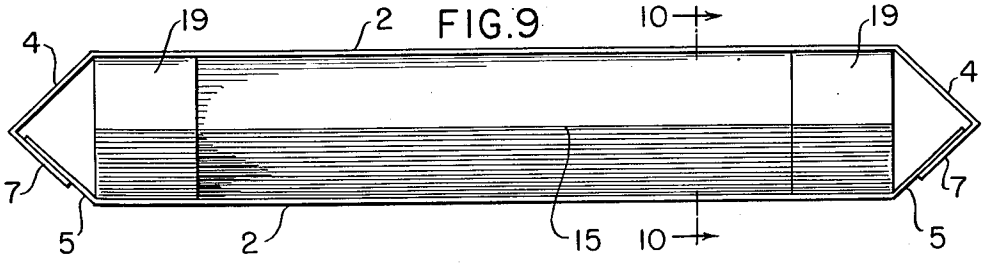


FIG.9

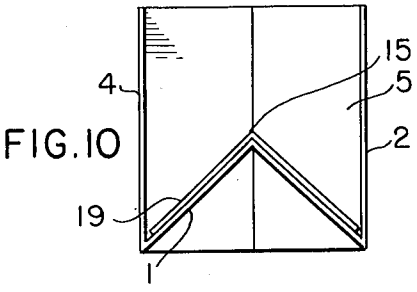


FIG.10

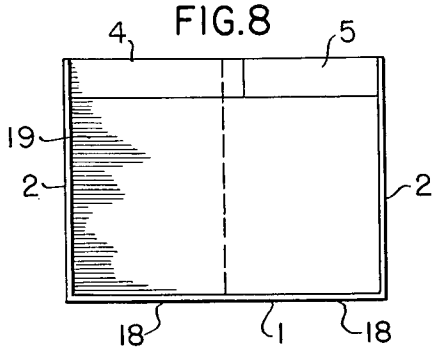


FIG.8

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FOLDING BOX OR CARTON

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6 Claims. (Cl. 229—41)

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This invention is an improvement in folding boxes or cartons, particularly boxes of sheet material such as cardboard, having the form of trays for containing merchandise.

An important object of the invention is to provide a box by making a blank of sheet material so shaped and scored for bending that parts thereof can be connected, and then the box can be set up for use or collapsed and flattened by folding it along the bottom and at the ends for convenience in storing or shipping.

Other objects and the advantages of the invention are made clear in the following description, and in the accompanying drawings are illustrated two preferred forms of the invention. But the disclosure is by way of example only, and I may alter the construction in regard to shape, size, arrangement of parts and other details without deviating from the essential characteristics of the improvement which are defined in the appended claims.

On the drawings:

Figure 1 is a plan view of a blank for making a box or carton according to this invention, half being shown.

Figure 2 is a plan view of the box in completed form and readiness for use.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a plan view of the box in partly folded condition.

Figure 5 is a section along line 5—5 of Figure 4.

Figure 6 is a plan of a blank for another form of box according to this invention, half being shown.

Figure 7 shows the last-named box in set-up form.

Figure 8 is a view along line 8—8 of Figure 6.

Figure 9 shows the modified box in partly folded state; and

Figure 10 shows a section along 10—10 in Figure 9.

The box illustrated in Figures 1 to 5 inclusive is fashioned out of blank of cardboard having a bottom section 1 and side sections 2, joined to the bottom 1 along score lines 3. At the extremities of the sides are the end sections 4 and 5, each of which is hinged to one of the side sections along transverse score lines 6. One of the end sections, such as the section 4, has a flap 7 connected to it along a score line 8. Connected to the sections 4 and 5 along the inner edges thereof and in line with the bottom are flaps 9 and 10, which can be bent about extensions of the score lines 3, between these flaps and the sections 4 and 5. The flaps 9 and 10 are cut free

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from each other, and partly free from the bottom 1 along cuts 11 at the opposed corners adjacent the bottom in line with the creases 6; and from a point at the end of each cut 11 a diagonal cut 12 extends into each extremity of the bottom 1. The inner ends of the cuts 12 are joined to the intersection of the score lines 3 and 6 by diagonal score lines 13; and between each of the cuts 12 and lines 13 is a triangular connecting flap 14, which is hinged to the adjacent flap 9 or 10 along an extension of the score line 6. One of these flaps, such as the flap 9, has a hinged tab 16 projecting from its outer end in the same direction as the extension 7; and the end section 5 has a recess 17 in its outer edge of the same width and depth as the width and length of the tab 16. In the bottom 1 is a longitudinal score line 15, running along the middle, in line with the opposed free edges of the flaps 9 and 10.

To give the box its form, the side sections 3 are bent up about the score lines 3, and the end sections are bent around the lines 6 till the flap 7 overlies the outer face of the section 5 and covers the recess 17. But first the flaps 9 and 10 are turned inward over the bottom, the connecting flaps 14 then being turned down against the bottom. The flap 4 and section 5 are then glued or otherwise fastened to each other. Such a movement of the parts causes the triangular connecting flaps 14 to turn upward about the score lines 13 till they lie flat against the bottom 1, and the flaps 9 and 10 then lie flat upon the flaps 14; the latter bending about the score lines along which they are joined to the flaps 9 and 10. The tab 16 is then glued to the flap 10, so that the free-cut opposed edges of the flaps 9 and 10, shown in Figure 1, are thus brought into registry or line with each other, as shown in Figure 2. The box can then be filled or otherwise put into use.

To collapse the box, the bottom is bent along the score line 15 in the middle and the ends along the score lines 8 to push the sections 4 and 5 outward while still joined together by the flap 7. The opposed edges of the flaps 9 and 10, connected by the tab 16, are now pushed up by the middle of the bottom, and the sides 2 push against the score lines along the junction of the flaps 9 and 10 and the triangular connecting flaps 14 till each flap with the connected triangular flap 14 lies in the same plane as the adjacent half 18 of the bottom and flat against the end sections 4 and 5. The tab 16 then fits snugly into the recess 17. The box is now col-

lapsed, but it can be set up again by pushing the ends towards each other. The sides are thus moved apart, the end sections 4 and 5 come into line, and the flaps 9 and 10 and the connecting flaps 14 are once more laid flat against the bottom 1.

In Figures 6 to 10, the box has a bottom 1, with hinged sides 2, and each end section 4 with a hinged flap 7 as before. The other end sections 5 have no recess. The bottom 1 has a flap 19 at each end, and of full width, hinged along an extension of the line 6, and bisected by an extension of the score line 15. Each flap 19 is cut free from the sections 9 and 10 along lines 20. When this box is set up, the flaps 7 are united to the sections 5, and the flaps 19 are raised and laid flat against the inner faces of the ends. To collapse this box, the flaps 19 are laid on the bottom 1, the middle of the bottom is forced up from below, the ends are bent along the lines 8 as the sides approach, and each flap 19 is bent along the score line through the middle and folded down upon the bent-up halves 18 of the bottom on each side of the line 15.

Both forms of the invention are thus simple in construction and easily made, readily set up and conveniently flattened to be stacked when necessary. Once the end sections 4 and 5 are connected by the flap 7, the box can be collapsed or set up at once merely by manipulating it as required.

The flaps 9 and 10 in both forms close the corners between the ends and the bottom 1.

Having described my invention, what I believe to be new is:

1. A box of sheet material having a bottom, sides and ends, the bottom having a score line dividing it longitudinally into halves and the ends comprising foldable sections hinged to the sides, each section having substantially the same width as the half of the bottom, and hinge-connected to the adjacent section, said box having flaps of the same width as the sections and hinged to the extremities of the halves of the bottom and to the lower edges of said sections, said flaps being cut free from each other, and hinged triangular flaps in the halves of the bottom each connecting one of the first-named flaps to the adjacent half of said bottom.

2. A box of sheet material having a bottom, sides and ends, the bottom having a score line dividing it longitudinally into halves and the ends comprising foldable sections hinged to the sides, each section having substantially the same width as the half of the bottom, and hinge-connected to the adjacent section, said box having flaps of the same width as the sections and hinged to the extremities of the halves of the bottom and to the lower edges of said sections, said flaps being cut free from each other, and hinged triangular flaps in the halves of the bottom each connecting one of the first-named flaps to the adjacent half of said bottom, one of the first-named flaps having a tab joining it to the other first-named flap.

3. A box of sheet material having a bottom, sides and ends, the bottom having a score line dividing it longitudinally into halves and the ends comprising foldable sections hinged to the sides, each section having substantially the same width as the half of the bottom, and hinge-connected to the adjacent section, said box having flaps of the same width as the sections and hinged to the extremities of the halves of the bottom and to the lower edges of said sections, said flaps being cut free from each other, and hinged triangular flaps in the halves of the bottom each connecting one of the first-named flaps to the adjacent half of said bottom, one of the first-named flaps having a tab joining it to the other first-named flap, one of said sections having a recess to receive said tab when the box is collapsed by folding the bottom along said score line, to move the halves of the bottom and the sides towards each other and bend the ends along the hinged connection of said sections, thus causing the first-named flaps to fold against the inner faces of said sections.

4. A box of sheet material having a bottom, sides and ends, the bottom having a score line dividing it longitudinally into halves and the ends comprising foldable sections hinged to the sides, each section having substantially the same width as the half of the bottom, and hinge-connected to the adjacent section, said box having flaps of the same width as the sections and hinged to the extremities of the halves of the bottom and to the lower edges of said sections, said flaps being cut free from each other, and hinged triangular flaps in the halves of the bottom each connecting one of the first-named flaps to the adjacent half of said bottom, the first-named flaps being partly freed from the bottom by short cuts in proximity to said score line, the triangular flap in each half of the bottom being hinge-connected along one edge to said half at the junction of said half and the adjacent first-named flap and along another edge extending diagonally from the common corner of said half and the adjacent end section and adjacent first-named flap, and being cut free along a line extending from the end of the last-named edge remote from said corner to the adjacent end of said short cut.

5. A box of sheet material having a bottom, sides and ends, the bottom having a score line dividing it longitudinally into halves and the ends comprising foldable sections hinged to the sides, each section having substantially the same width as the half of the bottom, and hinge-connected to the adjacent section, said box having flaps of the same width as the sections and hinged to the extremities of the halves of the bottom and to the lower edges of said sections, said flaps being cut free from each other, and hinged triangular flaps in the halves of the bottom each connecting one of the first-named flaps to the adjacent half of said bottom, the first-named flaps being partly freed from the bottom by short cuts in proximity to said score line, the triangular flap in each half of the bottom being hinge-connected along one edge to said half at the junction of said half and the adjacent first-named flap and along another edge extending diagonally from the common corner of said half and the adjacent end section and adjacent first-named flap, and being cut free along a line extending from the end of the last-named edge remote from said corner to the adjacent end of said short cut, one of the first-named flaps having a tab joining it to the other first-named flap.

6. A box of sheet material having a bottom, sides and ends, the bottom having a score line dividing it longitudinally into halves and the ends comprising foldable sections hinged to the sides, each section having substantially the same width as the half of the bottom, and hinge-connected to the adjacent section, said box having flaps of the same width as the sections and hinged to the extremities of the halves of the bottom and

to the lower edges of said sections, said flaps being cut free from each other, and hinged triangular flaps in the halves of the bottom each connecting one of the first-named flaps to the adjacent half of said bottom, the first-named flaps being partly freed from the bottom by short cuts in proximity to said score line, the triangular flap in each half of the bottom being hinge-connected along one edge to said half at the junction of said half and the adjacent first-named flap and along another edge extending diagonally from the common corner of said half and the adjacent end section and adjacent first-named flap, and being cut free along a line extending from the end of the last-named edge remote from said corner to the adjacent end of said short cut, one of the first-named flaps having a tab joining it to the other first-named flap, one of said sections having a recess to receive said tab when the box is collapsed by folding the bottom along said score

line to move halves of the bottom and the sides towards each other and bend the ends along the hinged connection of said sections, thus causing the first-named flaps to fold against the inner faces of said sections.

DAVID LEVKOFF.

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