

Dec. 12, 1944.

H. D. TICHENOR

2,364,829

BOX

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Fig. 1.

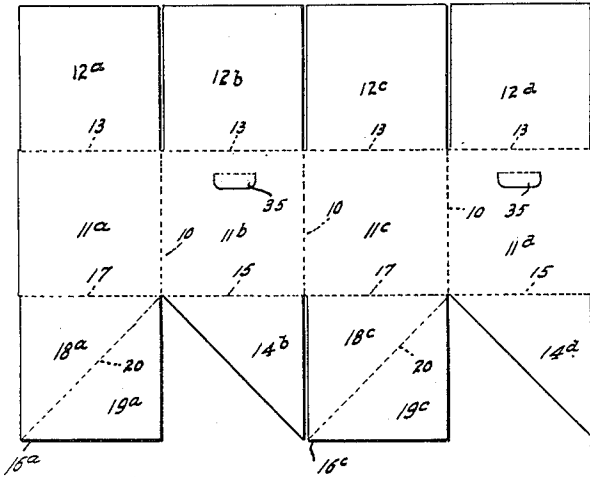


Fig. 2.

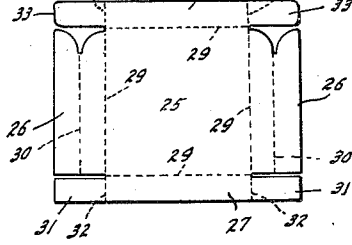


Fig. 3.

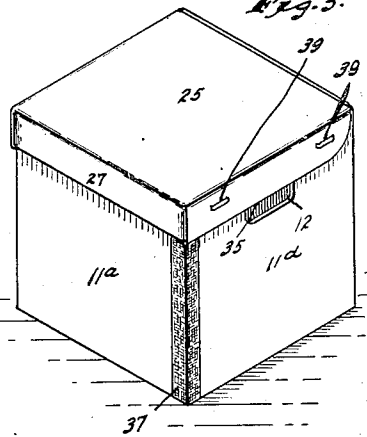


Fig. 4.

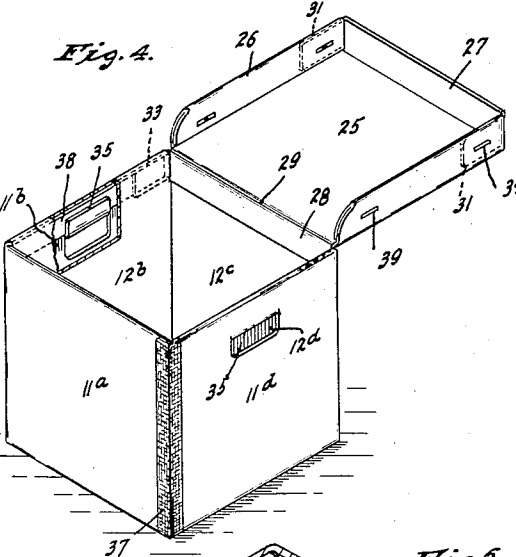


Fig. 5.

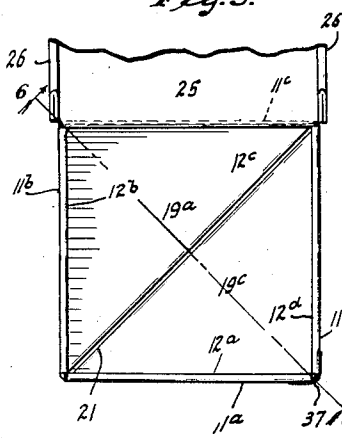
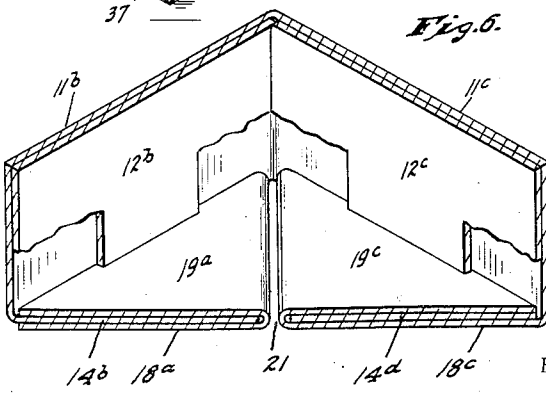


Fig. 6.



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UNITED STATES PATENT OFFICE

2,364,829

BOX

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Application October 22, 1942, Serial No. 462,890

4 Claims. (Cl. 229—39)

It is the object of my invention to produce a box or case which can be simply and economically manufactured from corrugated paper or like material, which can be stored and shipped in knocked-down condition, which can be easily erected, and which when erected will be strong enough and rigid enough to provide protection for its contents. A further object of my invention, is to provide for such a box or case a hinged cover which can readily be attached in the course of erection.

In carrying out my invention, I form the box from a blank having a central portion divided into four wall-panels by suitable score lines, such panels forming the walls of the box when the ends of the central portion of the blank are secured together. At the lower edges of two opposite side walls I provide triangular flaps which, when folded into the plane of the lower end of the box, substantially close such lower end leaving only a diagonal slot between the adjacent edges of the two flaps. At the lower edges of the remaining side walls additional flaps are provided, each of such additional flaps being divided into two parts by a diagonal score line. These latter flaps are so shaped that one-half of each can be inserted through the aforesaid slot and folded about the score line so as to embrace one of the triangular flaps. Each of the side walls has at its upper end a flap foldable inwardly of the box and engageable with the in-folded portions at the flaps at the bottom thereof in order to hold such latter flaps in place. The cover for the box is formed from a blank having an appropriately shaped central portion provided along its edges with flaps which are foldable to define side walls adapted to overlie the side walls of the box. One of the side walls of the cover is provided with extending tongues over which the flaps at the upper edges of two opposite side walls of the box are folded to hold the cover in place.

The accompanying drawing illustrates my invention: Fig. 1 is a view of the blank from which the case proper is formed; Fig. 2 illustrates the cover-forming blank; Fig. 3 is an isometric view of the completed box with the cover in place; Fig. 4 is an isometric view of the completed box with the cover open and parts of the box broken away; Fig. 5 is a plan view of the box-body; and Fig. 6 is a fragmental isometric view in section on the line 6—6 of Fig. 5.

The blank illustrated in Fig. 1 comprises an elongated rectangular body portion divided by transverse score lines 10 into wall panels 11. Each of such wall panels is provided at its upper edge

with a flap 12 separated from the associated panel by a score line 13. Alternate ones of the panels 11, designated in the drawing as 11b and 11d, are provided at their lower edges with triangular tongues 14 separated from the associated panels by score lines 15. Each of the other two panels, 11a and 11c, is provided with a flap 16, such flap being separated from the associated panel by a score line 17 and divided into two triangular halves 18 and 19 by a diagonal score line 20.

The two tongues 14b and 14d are so shaped that when the box is erected they may be folded into the plane of the lower end thereof to close such lower end except for a narrow diagonally extending slot 21 (see Fig. 6). Each of the flaps 16 is so shaped that it may be inserted through the slot 21 and folded about its score line 20 around one of the tongues 14. The tongues 14 with the flaps 16 folded respectively around them constitute a triple-thickness bottom of relatively high strength.

The cover of the box is conveniently made from a blank such as that illustrated in Fig. 2. The blank there shown has a central body portion 25 provided at two opposite edges with flaps 26 adapted to form side walls and at its remaining two edges respectively with a flap 27 adapted to form a front wall and a flap 28 adapted to form a rear wall. The flaps 26, 27, and 28 are separated from the central body portion 25 of the blank by score lines 29. The two flaps 26 desirably have a width double that of the flap 27 so that each may be folded longitudinally about a central score line 30 to form a side wall of double thickness. At its ends, the flap 27 is provided with tongues 31 separated from the remainder of the flap by score lines 32, while the flap 28 is provided with similar tongues 33 defined by score lines 34.

In order to facilitate handling of the box, two opposite wall-panels, shown as 11b and 11d, are provided in their upper portions with U-shaped cuts each of which, together with a score line joining the ends of the cut, defines a tongue 35.

Prior to erection of the box, the ends of the central portion of the box-blank—i. e., the free edges of the panels 11a and 11c—are joined together as by the application of a strip of gummed tape 37. In erecting the box, the blank with its ends secured together is opened so that adjacent panels 11 will be perpendicular to each other, and the two tongues 14 are folded into co-planar relationship in the open lower end of the box. The two outer portions 19 of the flaps 16 are next inserted through the slot 21 between the two

tongues 14 and are then folded about the respective score lines 20 into engagement with the inner faces of the tongues, as will be clear from Fig. 6. The two flaps 12a and 12c on the front and back walls of the box may then be folded inwardly to lie against the inner faces of such front and rear walls. Before the remaining flaps 12b and 12d are folded inwardly, the tongues 35 are pushed inwardly of the box and folded upwardly to the position illustrated in Fig. 4. If desired, in order to provide a better distribution of any lifting effort applied to the box at the upper edges of the holes left by inward and upward folding of the tongues 35, I may place above each tongue a flat strip 38 of wood or similar material which will extend along the upper edge of the associated side wall.

Before completing erection of the box beyond the extent just indicated, the cover is erected from the blank shown in Fig. 2. In erecting the cover, the flap 27 is folded into perpendicular relationship with the central portion of the blank, and the tongues 31 at the ends of such flap are next folded inwardly about the score lines 32 to bring the tongues into alignment with the score line 29 defining the inner edges of the respective side-wall flaps 26. The side-wall flaps are then folded about the score lines 29 and 30 to embrace the infolded tongues 31. To hold the cover erected, the two thicknesses of each flap 26 may be stitched together as indicated at 39.

The tongues 33 are then folded about the score lines 34 to lie perpendicular to the flap 28; and the cover is brought into association with the box in such a manner that the flap 28 will extend along the upper edge of the infolded flap 12c with the tongues 33 extending along the inner surface of the side walls 11b and 11d at the upper edge thereof. When the flaps 12b and 12d are then folded inwardly of the box, they will embrace the tongues 33 to hold the cover in place, and will also overlie the tongues 35 and reinforcing strips 38 to retain them in proper position. The flaps 12 have a length such that when folded inwardly of the box their edges will engage the infolded portions 19 of the flap 16 to hold such parts 19 in place.

The material used in forming the blanks for the box and cover is desirably the so called single wall box board, comprising a sheet of corrugated paper to opposite sides of which plane sheets are glued. When made of such material, the resulting box is exceptionally strong and rigid and well adapted to protect its contents.

Each of the strips 38 should have a width such that with the strip supported on the in-folded tongue 35, the upper edge of the strip will be

substantially coincident with the score line 13 between the associated side wall 11 and flap 12. With strips 38 of such width, lifting effort applied to the box at the upper edges of the holes left by the in-folded tongues 35 is transmitted through the strips 38 and distributed evenly over the entire width of the side walls.

The particular cover and cover-securing means illustrated and described above form the subject matter of my co-pending patent application Serial No. 535,153, filed May 11, 1944. The finger opening and its associated reinforcing strip 38 form the subject matter of my co-pending patent application Serial No. 535,154, filed May 11, 1944.

I claim as my invention:

1. In a box, four side walls of foldable sheet material, two opposite ones of said walls being provided respectively at their lower edges with triangular tongues folded into the co-planar relationship and shaped so as substantially to close the lower end of said box except for a narrow slot formed by spaced diagonal edges of said tongues, each of the other two side walls being provided at its lower edge with a flap substantially coextensive in area with the box bottom, each of said flaps being inserted through such slot and folded through 180° along a fold line coinciding with the diagonal edge of one of the tongues to embrace said tongue.

2. In a box, four side walls of foldable sheet material, two of said walls being provided respectively at their lower edges with triangular tongues folded into the co-planar relationship and shaped so as substantially to close the lower end of said box except for a narrow slot formed by spaced diagonal edges of said tongues, each of the other two side walls being provided at its lower edge with a flap substantially coextensive in area with the box bottom, each of said flaps being inserted through such slot and folded through 180° along a fold line coinciding with the diagonal edge of one of the tongues to embrace said tongue.

3. The invention set forth in claim 1 with the addition that each of said side walls is provided at its upper edge with a flap folded inwardly of the box into juxtaposition with the associated side wall and engaging one of said first named flaps to hold it in place.

4. The invention set forth in claim 2 with the addition that each of said side walls is provided at its upper edge with a flap folded inwardly of the box into juxtaposition with the associated side wall and engaging one of said first named flaps to hold it in place.

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