

April 16, 1935.

W. F. LUCE

1,997,909

BOX STRUCTURE

Filed May 2, 1934

3 Sheets-Sheet 1

Fig. 1.

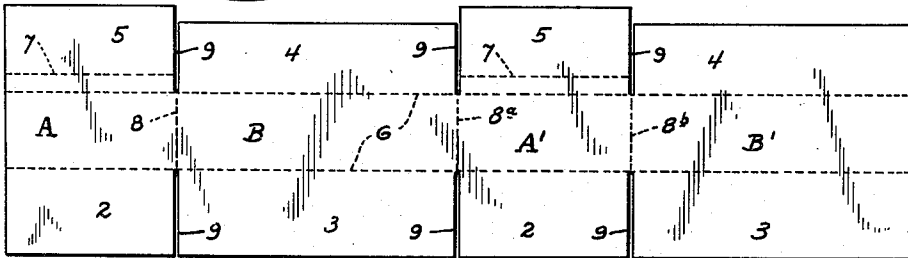


Fig. 2.

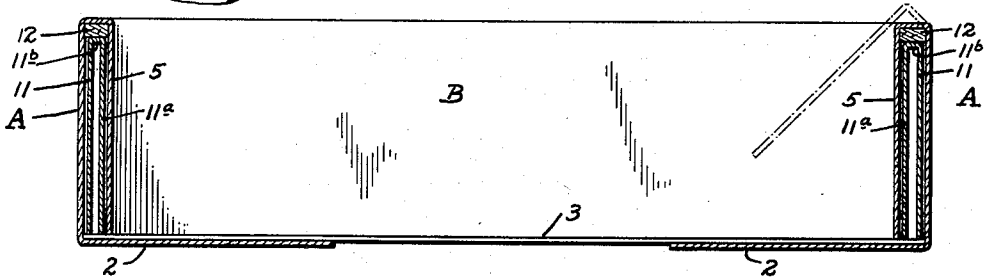


Fig. 3.

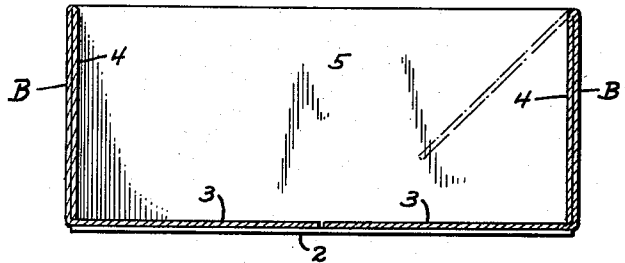
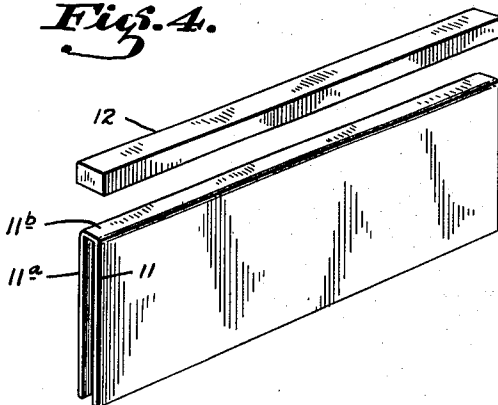


Fig. 4.



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Fig. 5.

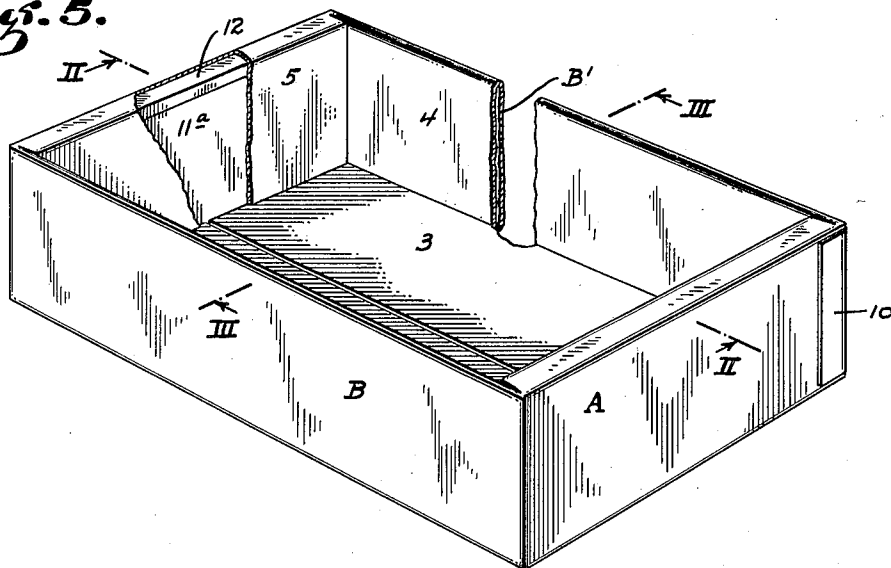
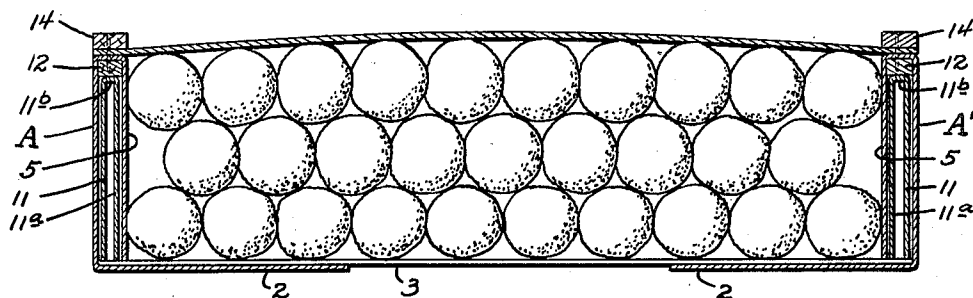


Fig. 6.



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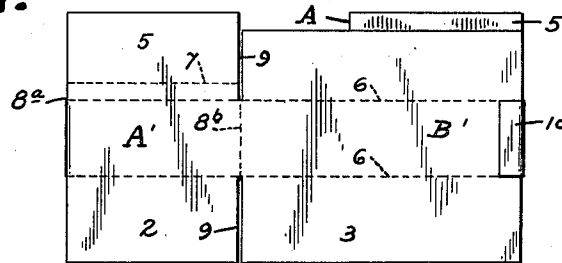
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BOX STRUCTURE

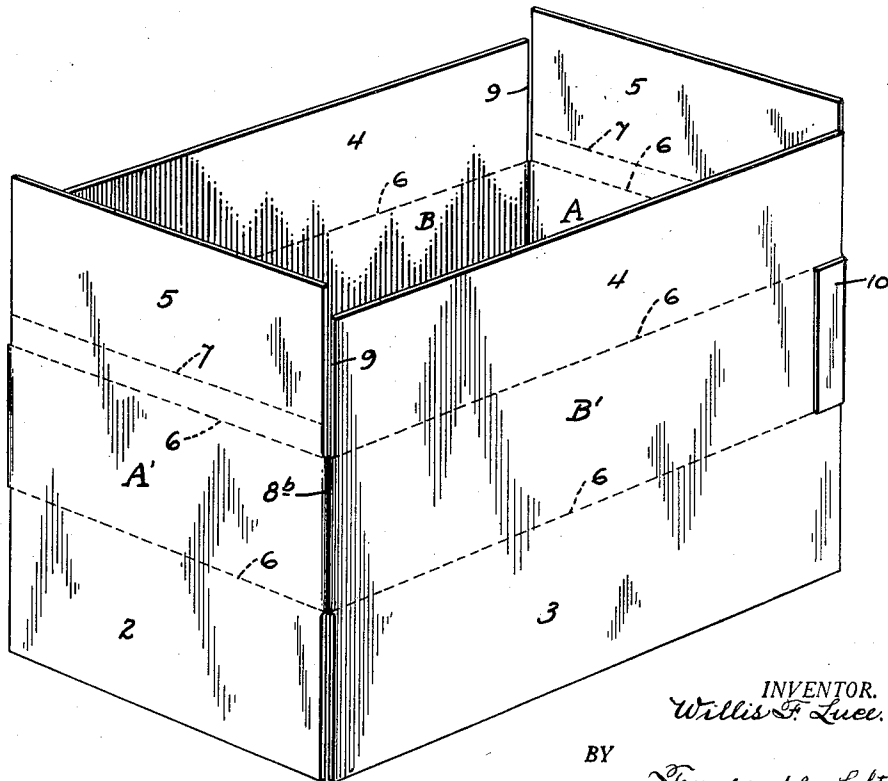
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Figs. 7.



Figs. 8.



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BOX STRUCTURE

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Application May 2, 1934, Serial No. 723,428

4 Claims. (Cl. 229—16)

This invention relates to box structures and particularly to boxes constructed of paperboard, fiberboard, and like material.

The object of the present invention is generally to improve and simplify the construction and operation of paperboard boxes; to provide a paperboard box that will have the same if not greater strength than a standard form of wooden box of the same size or dimension; to provide a paperboard box that may be shipped to the user in flat or knocked down form and which may be assembled and erected with a minimum of time and expense; to provide a paperboard box which is adapted to receive a wooden cover, or the like, the cover to be secured by nailing or otherwise; to provide a paperboard box in which the ends are heavily reinforced and capable of supporting heavy superimposed loads; to provide a paperboard box the interior of which forms cushioned surfaces; to provide a paperboard box in which the top edges of the box present smooth, rounded edges; and further, to provide a paperboard box which can be manufactured with a minimum of waste and comparatively low cost.

The paperboard box is shown by way of illustration in the accompanying drawings, in which—

Fig. 1 is a plan view of the blank from which the box is formed.

Fig. 2 is a central vertical longitudinal section of the box taken on line II—II of Fig. 5.

Fig. 3 is a cross section taken on line III—III of Fig. 5.

Fig. 4 is a perspective view of the nailing strip and the reinforcing member inserted in each end of the box.

Fig. 5 is a perspective view of the box partially broken away.

Fig. 6 is a central vertical longitudinal section of the box showing it packed with fruit and a cover applied.

Fig. 7 is a plan view of the box folded flat in knocked down form and ready for shipment to the user.

Fig. 8 is a perspective view of the box when partially erected.

Referring to the drawings in detail, and particularly Fig. 1, A and A' represent the two exterior end sections of the box, and B and B' the exterior side sections of the box; 2—2 represent the end bottom flaps, and 3—3 the bottom side flaps; 4—4 represent the interior side sections of the box, and 5—5 the interior end sections.

The blank is scored longitudinally along the dotted lines indicated at 6—6 and 7—7, and

transversely along the lines 8, 8a and 8b to form fold lines and it is cut out between the end and side sections as indicated at 9 to provide the proper clearance and to permit free folding when the box is assembled.

After the blanking and scoring operations are completed the blank is folded flat upon itself on the transverse score line 8a, see Fig. 7, and the end section A and the side section B' are then connected by means of tape, or the like, indicated at 10. The tape 10 forms one corner of the box and the score lines 8, 8a and 8b the other corners.

In erecting or assembling the box it is first extended to assume the position shown in Fig. 8. The end and side flaps 2 and 3 forming the bottom of the box are next folded inwardly on top of each other and are secured in that position by being glued, stapled, or otherwise fastened with relation to each other. The side sections 4—4 are then folded inwardly against the inner faces of the exterior side sections B and B' and double side walls are thus formed. The inner side sections 4—4 are cut so as to be slightly longer than the actual interior dimensions of the box and as such are frictionally secured when folded into place. The end sections of the box are heavily reinforced and this is accomplished by employing what may be termed combination fillers and reinforcing members. The fillers are best shown in Figs. 2, 4 and 6. They consist of pieces of fiberboard, or like material, bent centrally upon themselves to form a pair of supporting legs 11 and 11a and a head section 11b, which forms a support for a wooden slat or nailing strip 12 placed on top thereof. The fillers and slats are placed in position against the end sections A and A' and the end flaps 5 are then bent inwardly over the nailing strips and the fillers to cover the same and to form the inner end sections of the box. The end sections 5—5 are slightly wider than the interior dimension of the box and as such engage the side sections 4 with sufficient friction to retain their position when folded into place. Also, as they lie exterior of the inner side sections 4—4 they positively lock these members in place. With the end sections 5—5 folded into position the operation of assembling the box is completed.

If it is to be packed with fruit, this is accomplished as shown in Fig. 6 and when the box is packed the lid is applied. Almost any type of cover or lid can be employed, for instance a standard form of wood slats or fiberboard panels, or like material, may be substituted. When the

cover is applied, for instance, wooden slats, they may be nailed directly to the end sections as the cleats 12 positioned interior thereof will receive and hold the nails. But cleats, such as shown
 5 as 14, are preferably employed and the nails driven therethrough as shown in Fig. 6, as the employment of cleats permits a bulge pack and, furthermore, functions as spacers to prevent a
 10 superimposed load from exerting any pressure on the bulge pack.

A box constructed as here illustrated may be cheaply manufactured, first because it is cut out in blank form as shown in Fig. 1 and it may be
 15 simultaneously scored, manufacture of the blank being substantially identical to that employed in producing cardboard cartons, and the like. This type of manufacture is exceedingly cheap and lends itself to quantity or mass production.

The blank, after forming, scoring and cutting, is doubled upon itself and end A and side section B' connected by tape such as shown at 10. In this shape the blank can be said to be in its
 20 folded or flat knocked-down form and as such can be shipped to the user, and when required can be quickly erected and assembled as previously described.

The box, when completely assembled, is exceedingly strong and rigid in construction as the ends are heavily reinforced, not only by double end
 30 sections indicated at A and 5, but also by the filler consisting of the two legs 11 and 11a and the wood slat 12 supported thereby. Four sections of cardboard are thus presented in each end and a load of several hundred pounds can be supported
 35 without the box showing any tendency to yield. The wooden cleat also assists in reinforcing and strengthening; it keeps the ends from bulging outwardly and it, furthermore, serves to receive the nails when the cover is applied. The
 40 side and end walls of the box are doubled in construction and as such present cushioning surfaces. The bottom is also doubled and as such will present cushioning surfaces and, due to the fact that the sides and ends of the box are formed
 45 by bending the material along the score lines indicated at 7-7, smooth, rounded edges are formed all around the upper edge of the box. The box is thus ideal for the packaging of perishable or easily bruised commodities, such as fruits and the
 50 like.

Any type of cover may be employed. Ordinary wooden slats can be nailed on, or a cardboard or fiberboard panel, or like material may be employed, and if extra cleats are employed
 55 such as shown in Fig. 6 a bulge pack may be resorted to as the cleats function as spacers between superimposed boxes and thus prevent any pressure from being applied to the top of the bulge.

A box of this character also presents exterior surfaces which lend themselves to multi-color printing, thus permitting the application of trademarks, label designs, and other printed matter and such surfaces are always exposed as folded
 60 flaps such as used in paper cartons are entirely eliminated.

While certain features of the present invention are more or less specifically described, I wish it understood that various changes may be resorted to within the scope of the appended claims. Similarly, that the materials and finish of the
 5 several parts employed may be such as the manufacturer may decide, or varying conditions or uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A paperboard box having a bottom section, and integral side and end walls disposed vertical to the bottom, an extension on each side and end of the box and foldable inwardly on score lines forming the upper edge of the box, said extensions when folded assuming a vertical position parallel to the inner side and end faces of the box, a reinforcing section inserted in each end of the box and disposed between the double walls forming the ends of the box, and a nail receiving
 20 slat supported by said reinforcing section and covered by the paper forming the end walls of the box.

2. A paperboard box having a bottom section, and integral side and end walls disposed vertical to the bottom, an extension on each side and end of the box and foldable inwardly on score lines forming the upper edge of the box, said extensions when folded assuming a vertical position parallel to the inner side and end faces of the box, a piece of paperboard inserted in each end of the box and disposed between the double walls forming the ends of the box, said pieces of paperboard being bent upon themselves so as to be U-shaped in cross section, thereby forming two legs and a head, and a nail receiving slat supported by the head section so each piece of paperboard will be covered by the paper forming the double end walls of the box.

3. A paperboard box having a bottom section, and integral side and end walls disposed vertical to the bottom, an extension on each end section of the box and foldable inwardly on score lines forming the upper edge of the box, said extensions when folded assuming a vertical position parallel to the inner faces of the ends of the box and spaced therefrom, a piece of paperboard inserted in each end of the box and disposed between the double walls forming the ends of the box, said piece of paper being U-shaped in cross section, and a nail receiving slat supported by the sections of paperboard inserted in the end walls and covered by the paper forming the end walls of the box.

4. A paperboard box having a bottom section, and integral side and end walls disposed vertical to the bottom, an extension on each side and end of the box and foldable inwardly on score lines forming the upper edge of the box, said extensions when folded assuming a vertical position parallel to the inner side and end faces of the box, and a nail receiving reinforcing member insertable in each end of the box and disposed between the double walls forming the ends of the box.

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