Feb. 3, 1925. 1,524,966

G. BOELMAN ET AL

COLLAPSIBLE BOX

Filed Oct. 30, 1923

Fig. 1.

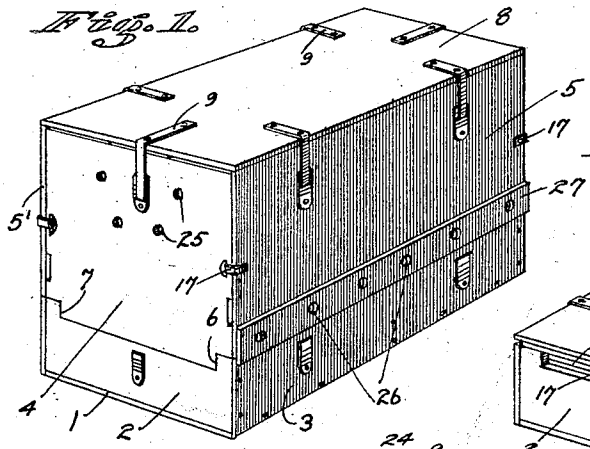


Fig. 2.

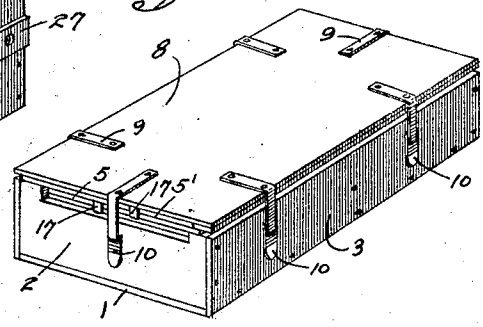


Fig. 3.

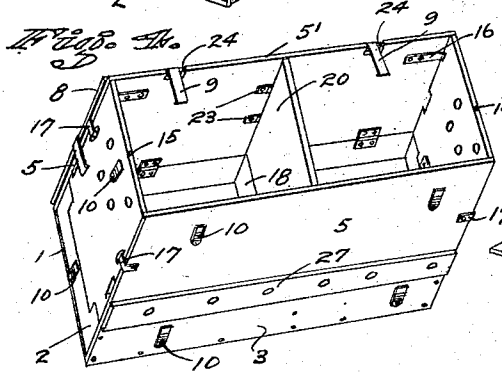


Fig. 4.

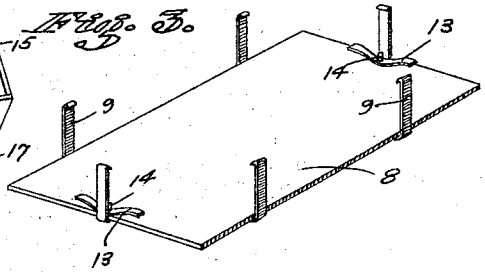


Fig. 5.

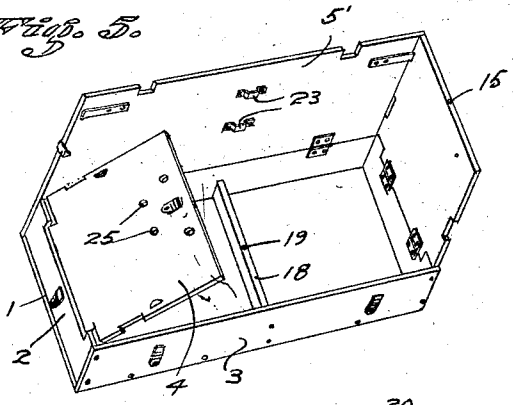


Fig. 7.

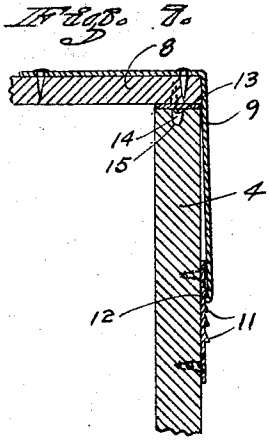
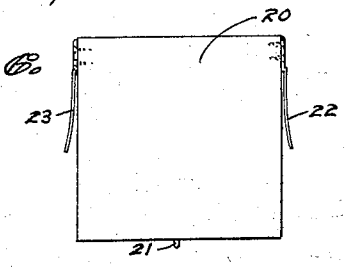


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE BOELMAN, OF GRIDLEY, AND ALFRED L. PETERSON, OF OROVILLE, CALIFORNIA.

COLLAPSIBLE BOX.

Application filed October 30, 1923. Serial No. 671,701.

To all whom it may concern:

Be it known that we, GEORGE BOELMAN and ALFRED L. PETERSON, citizens of the United States, residents, respectively, of Gridley, county of Butte, State of California, and Oroville, county of Butte, State of California, have invented a new and useful Collapsible Box, of which the following is a specification.

Our invention relates to collapsible boxes or crates as used for the shipment of eggs, fruit, etcetera, and has for its principal objects a box of this character having means for taking up all slack around the cover either when filled or collapsed and a box of this character which will insure a proper circulation of air to the foodstuffs which may be packed within it, also such a box adapted for use as a display or dispensing container for the goods.

We attain these features in the collapsible box construction shown in the drawings hereto and in which:

Figure 1 is a perspective view of our box as used for eggs, all set up as when packed ready for shipment; Figure 2 is a perspective view of the same knocked down, in collapsed form ready for return shipment.

Figure 3 is a view of the lid removed and turned upside down revealing the six spring hooks for holding it in place.

Figure 4 shows the box with lid removed and positioned along the far side with its hooks clasping the box and two of them lying in notches in the upper rear edge of the box.

Figure 5 shows the box in the position of Figure 4 but with the upper flap of the front side omitted to reveal the center cross brace and to show the method of folding the end flaps.

Figure 6 is a side view of the center partition which aligns with the center brace, and Figure 7 is an enlarged sectional detail of a portion of the lid and sides showing the co-operative relation of the clamping spring hooks and ratchet catches.

The style of box chosen for the illustrations is an egg crate, in which the eggs are placed in layers in the well known cardboard separators and which are returned in the box to the shipper. For such use our box when folded has a space in the bottom (as indicated in Figure 5) for the reception of the cardboard racks, but this lower space may be reduced to little or nothing for use with boxes where there is no return packing, it merely being necessary to hinge the sides and ends closer to the bottom.

In detail our box comprises a permanent bottom (1), fixed end and side strips (2) and (3) respectively, end and side flaps (4) and (5) respectively, hinged to the end and side strips to fold inwardly as indicated in Figures 4 and 5.

The fixed end strips are notched with folding ends matching as indicated at (6) and (7) to afford a resting shoulder for the front and back side flaps to lie upon when the crate is collapsed, as shown in Figure 2, the shoulder at (7) being higher than the one at (6) to allow for folding the front side first with the back lying evenly upon it. The front side also has an overlapping reinforcing strip (27) secured to it along its hinged joint to line up with the back flap (5′) to form a flat surface on the collapsed box for the lid.

The lid (8) is shown on the open box in Figure 1 and on the collapsed box in Figure 2, in both cases being held by six flat spring hooks (9) each gripping a ratchet toothed plate (10). These plates and hooks are shown better in Figure 7 and the plates are seen to have a series of fine teeth (11) for engaging the jaw (12) of the hook. The spring hooks spring inward to clasp the box and by forcing down upon the lid adjacent one hook at a time it will engage the farthest tooth and lock the lid without slack. The normal resiliency of the wood aids in this tight locking of the lid but in addition we place a flat bowed spring (13) at each end of the lid to form a yielding seat for the lid. To unhook the lid for opening the box either when collapsed or filled, it is only necessary to press down on the lid over one hook at a time and pry it from engagement with its plate (10).

In the center of each spring is a little pin (14) projecting therefrom and adapted for seating each in one of the holes (15) in the upper edge of the end flaps for aligning them.

When the sides and ends are unfolded to the position shown in Figure 4, small flat springs (16) spring away from the sides to prevent the return of the ends (unless pressed back). Also on the outside corners

of front and back flaps are small angles (17) to prevent outward bulging of the end flaps.

A central cross brace (18) is secured within the box and in its edge is a small hole (19) and a removable central partition (20) is adapted to fit over the brace aligned in the hole by a pin (21) and further by two side spring clips (22) which engage flat loops (23) secured to the front and rear flaps, it being only necessary to slide the partition straight down to effect this multiple engagement.

The rear flap of the box is notched at (24) to receive two of the lid spring hooks (9) when the lid is placed on the side of the box in dispensing the contents as suggested. At (25) in each end are holes both for lifting the box and for ventilation of its contents and co-operating in the latter function with a row of holes (26) through the reinforced portion of the front flap.

When using the box to display the contents, the lid instead of being clamped to the rear side of the box as shown in Figure 4, being the same size as the bottom may be placed under the box the same way.

We claim:

1. A collapsible box comprising hinged sides and ends adapted for folding inwardly, a detachable lid therefor having a plurality of dependent flat spring hooks along its edges and ratchet grip plates secured to the sides of the box adapted to engage the hooks.

2. A collapsible box comprising hinged sides and ends adapted for folding inwardly, a detachable lid therefor having a plurality of dependent flat spring hooks along its edges, ratchet grip plates secured to the sides of the box adapted to engage the hooks, and flat springs under the lid adapted to bear on the edge of the box to form a resilient seat.

3. In a structure as defined in claim 2, dowel means at opposite ends of the lid aligning with similar means on the edge of the box.

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