March 26, 1940. J. P. BRUNT ET AL 2,195,236

CHANNEL VENTED BOX

Filed July 6, 1936 2 Sheets-Sheet 1

Fig. 1.

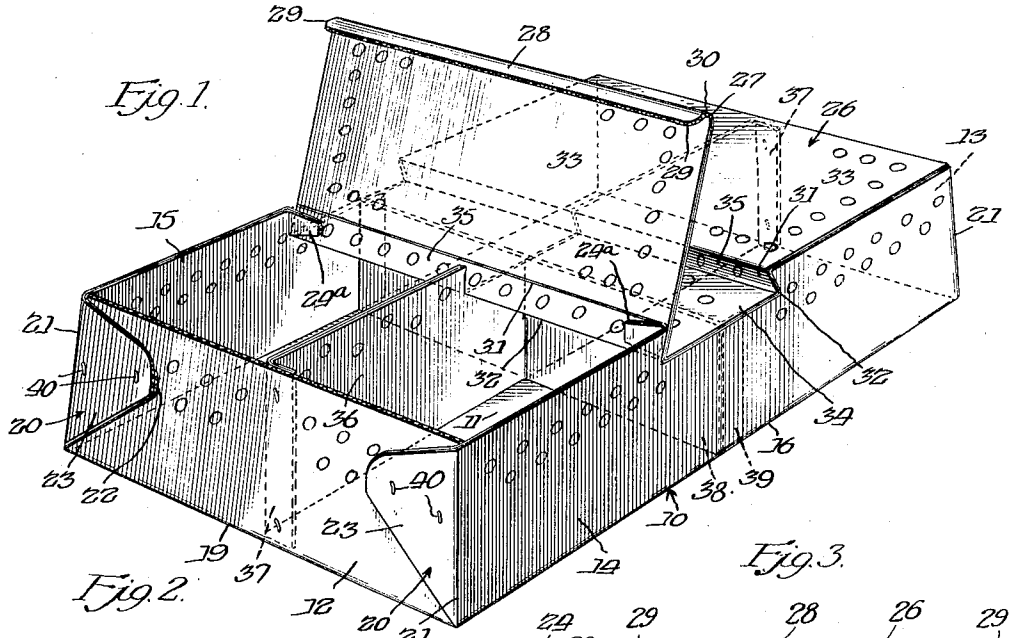


Fig. 2.

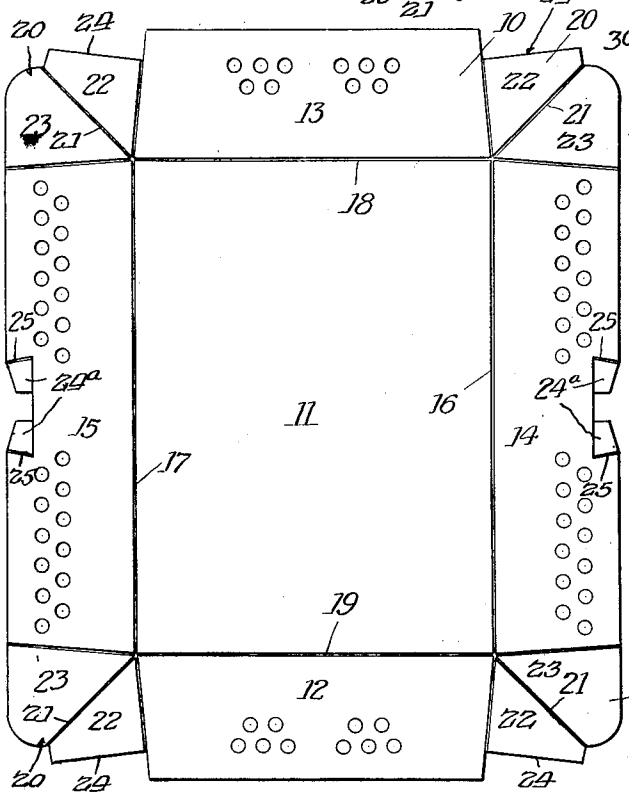
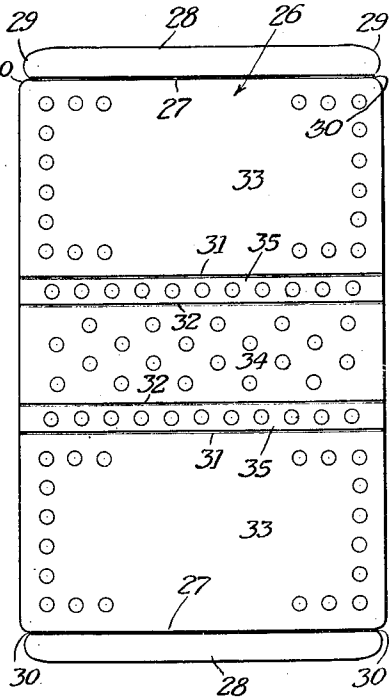


Fig. 3.



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Fig. 4.

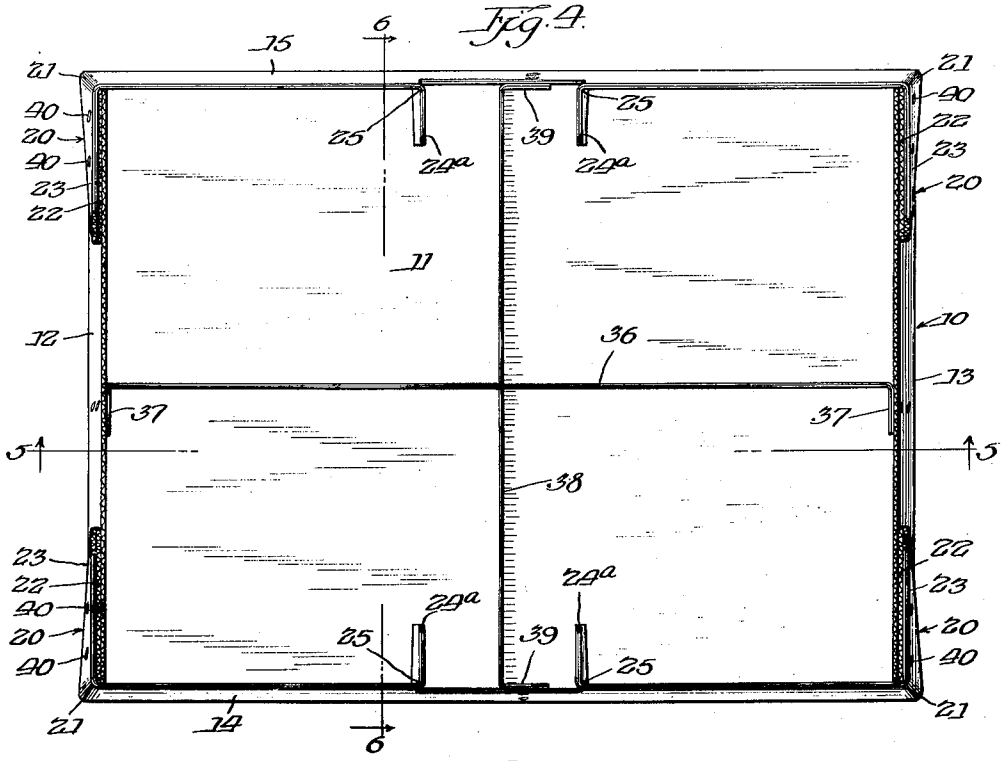


Fig. 5.

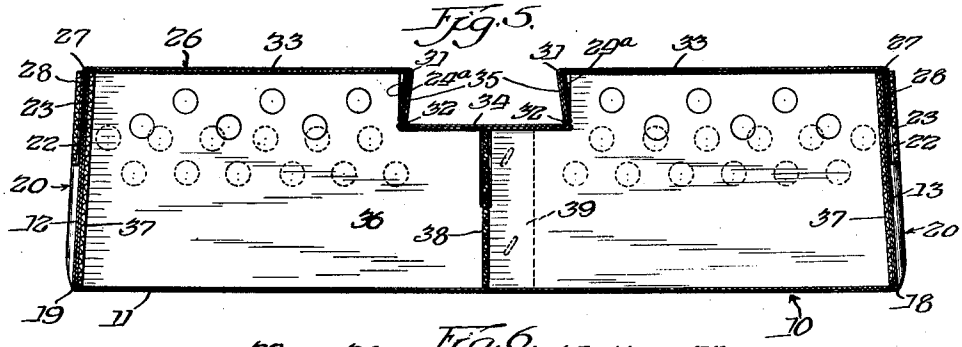
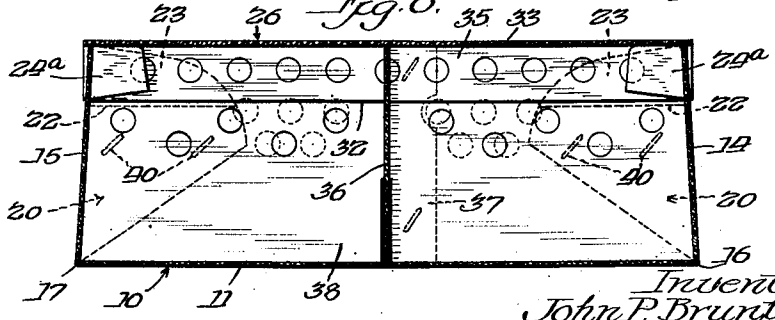


Fig. 6.



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UNITED STATES PATENT OFFICE

2,195,236

CHANNEL VENTED BOX

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Application July 6, 1936, Serial No. 89,030

9 Claims. (Cl. 229—6)

Our invention relates to a channel vented box and has particular reference to a box of the type in which various live objects are transported, such as baby chicks and the like, and may also be used for other articles, as vegetables, fruit and the like, which require ventilation during the course of shipment.

Our invention has to do primarily with a box having inclined sides and ends, and a cover having a channel therein, which is so formed that the cover is locked in position. The channel may extend either horizontally or transversely of the box, with vent openings therein which are positioned in the sides and the bottom of the channel portion of the lid so that regardless of how these boxes may be packed during the course of shipment, there is an opportunity for the free circulation of air from the inside of the box, and regardless of how other boxes or cartons are packed at the sides of the container or on top thereof, the vents will not be closed nor the circulation of air prevented even though the boxes may be stacked in close formation.

Another and further object of our invention is the provision of a vented channel box which is made of corrugated fiber board, solid fiber board, paper board or other similar material, which is shipped in flat sheets and can be set up at the place where the box is intended to be used, by stitching, stapling or riveting, or by any other appropriate means, thus effecting a material saving in freight rates and allowing for easy transportion of the parts used for making the box.

Another further object is the provision of a channel vented box with inclined walls, providing a box which is tapered in a vertical direction, which is easy and simple to manufacture and easy for the user to set up and lock the cover to the body, both at the channel portion of the top and the ends of the cover, and with inclined sides of the box which effectually provide means whereby air may be circulated completely around the box and pass in and out of the box without any of the vents thereof being closed, either by the piling of the boxes themselves on top or at the side of one another, or any other boxes, or by piling material on top of the box, as is usually the case in ordinary boxes of this type in which vent openings are provided.

Another and further object of our invention is the provision of a box having a channel formed in the upper edges of the sides of the box, with a cover therefor which is fitted into the channel and scored thereacross in such manner that the cover may be used as a hinge and one side of the cover closed while the other is opened, particularly for the filling and removal of chicks and the like from the box. This is particularly desirable, since in putting a large number of chicks in a container it is difficult to keep them confined while the box is being filled or emptied, as the case may be.

This application is a continuation in part of our application Serial No. 57,773, filed January 6, 1936.

These and other objects of the invention will be more fully and better understood by reference to the accompanying sheets of drawings, in which—

Figure 1 is a perspective view of our improved box, with cover applied thereto;

Figure 2 is an elevational view of the blank used for the formation of the container portion of the box;

Figure 3 is an elevational view of a cover of the box;

Figure 4 is a top plan view of the container portion of the box with the cover removed;

Figure 5 is a longitudinal sectional view on the line 5—5 of Figure 4; and

Figure 6 is a cross-sectional view on line 6—6 of Figure 4.

Referring now specifically to the drawings, in which like reference characters refer to like parts throughout, a blank, designated as a whole by the reference character 10, is shown having a bottom section 11, end portions 12 and 13, and side portions 14 and 15, with longitudinally extending score lines 16 and 17 extending along the marginal edge of the bottom section 11 at the sides thereof and which intersect transversely extending score lines 18 and 19 which extend between the bottom section 11 and the end portions 12 and 13. The score lines 16 and 17 beyond the intersection with the transverse lines 18 and 19 are inclined toward each other, with the score lines 18 and 19 also inclined toward each other as they cross the sides 14 and 15 of the box, so that when the lower section of the box is fashioned into a receptacle, the sides 14 and 15 and the ends are inclined, preferably inwardly, thereby providing a receptacle which is narrower across the top than at the bottom, and is also less in length at its top than at the bottom. This order may be reversed if so desired in order that inclined sides and ends be provided.

Corner portions 20, 20 integral with the sides 14 and 15 and the ends 12 and 13 are provided having score lines 21 extending diagonally thereacross from the juncture of the longitudinally ex-

tending score lines 16, 17 and the transversely extending score lines 18, 19, to substantially the corner portions of the box, dividing the corner portions 20 into sections 22 and 23. The sections 22 are cut along the line 24 in order to provide, when the blank is formed into a receptacle, a space between the ends 12 and 13 of the box and the portions 23 which are folded around the ends of the box, to receive the tucked-in end portions of the cover, as will be hereinafter described. Centrally located with respect to the side portions of the upper end of the box are wing portions 24a, 24a, which are cut along their bottom sides and folded inwardly, with vertical fold lines 25 being provided which are inclined so the distance at the top is lesser than at the bottom of these openings in the sides of the box and within which a channel section of the cover is fitted when the box is in its assembled position.

The cover of the box is formed of a blank designated as a whole as 26 and which has score lines 27, 27 extending transversely thereacross adjacent the ends of the box, with depending integrally formed portions 28, 28 being shown having rounded ends 29, 29, and with notches 30, 30 being provided between the body of the cover 26 and the portions 29, which, in effect, form tongues which fit over the ends 12 and 13 of the box blank and are tucked in between the ends 12 and 13 of the box and the corner sections 23, 23 when the box is assembled. The cover 26 is of sufficient width, as shown, to extend slightly over the upper edges of the sides 14 and 15 of the box, while the depending portions 28 are slightly less in width than the cover and fashioned to fit tightly against the side portions 14 and 15 and are held in frictional engagement over the ends of the box and form closure members to retain the lid of the box in closed position.

Other transversely extending score lines 31, 31 are formed, extending across the mid-section of the box, with other score lines 32, 32 being provided so that in effect the section 27 is composed of lid-portions 33, 33, a bottom channel section 34, and vertically extending side channel sections 35, 35. The lid 26 when folded is bent along the fold lines 31, 31 and also along the fold lines 32, 32, and when in position the side channel sections are inclined outwardly and seat against the angular fold lines 25, 25 in the side portions and against the wing portions 24a, 24a, the channel section thereby being wider at the bottom than at the top so that in effect the lid is secured to the container at the middle thereof and hinges along the fold lines 31, 31. Punch-outs are provided both in the side sections, the bottom sections, the lid portions, and also in the sides and ends of the containers so that with the tapered box and the vented channel, circulation of air to the inside of the container is still possible due to these vent openings regardless of how the containers are stacked. These punch-outs are cut through but the portion of the box allowed to remain in the hole to be easily punched out by the shipper to provide proper ventilation, depending on the temperature conditions under which the chicks are shipped, and the like.

A longitudinal dividing wall 36 is provided having angularly disposed ends 37, 37 which are fitted against the end portions and stapled or otherwise secured to the end portions, while a transverse member 38 is provided having angularly disposed ends 39, 39 which are stapled or otherwise secured to the sides of the box, thereby dividing the container into four compartments, the two walls 36 and 38 being cut one from the upper edge and the other from the lower and fitted together to form a sealing wall extending in both directions to the bottom of the container.

In manufacture of the box, the flats, such as 11 and 26, are manufactured and shipped to the user in bales or boxes in flat condition. When the user desires to set up the boxes for use, the section 11 is folded along the fold lines 16 and 17, and 18 and 19, and the corner portions 20 are thereupon folded upon themselves along the transverse fold lines 21, and against the ends 12 and 13 of the lower section with the portions 23 being imposed upon the portions 22. Staples 40, 40 are inserted through the portions 23 and 22, and the ends 12 and 13 of the box, the staples being inserted low enough to pass through both the corner portions 22 and 23, thereby fashioning a tapered box as shown in Figure 1. The outer ends of the portions 22 being cut off on the line 24, a space is provided between the ends 12 and 13 and the portion 23 of the corners, within which portions of the cover 26 are tucked when the box is closed.

The dividing walls 36 and 38 are shipped in flat condition and when the container is formed, as above described, they are placed in the container and have their ends bent and stapled to the sides and ends of the container particularly as shown in Figure 4, thereby dividing the bottom of the container into four compartments and also providing a strengthening means for the bottom of the container. The partition extending parallel with the channel is slightly lesser in height than the sides and the end, while the other partition is notched to receive the channel and extends up sufficiently high for the lid to rest on it when placed in position in the box.

The wing portions 24a are folded inwardly along the lines 25. The cover portion is folded along the fold lines 31 and 32 so that the lower section of the channel portion is fitted on the upper edges along the wing portions 24a, this channel section 34 being wider at the bottom than the channel is at the top so that the cover is held in position on the container when fitted against the undercut fold lines at the ends of the wing members 24a.

In this condition the box can be filled, one side being closed as shown when the filling of the compartments on that side is completed, and the other side left open until these sections have been filled, whereupon the cover is closed and the end members 28 turned downward and tucked into position over the ends 12 and 13 of the box between the sections 23 and the ends of the box with a wedge fit, the cover being held closed by frictional engagement of the rounded ends of members 28 engaging against the sides 14 and 15 of the box adjacent the fold lines, with the corners of the box fitting into the notches 30, 30 in the lids, thus securing the box lid in closed position.

While we have described more or less precisely the details of construction, we do not wish to be understood as limiting ourselves thereto, as we contemplate changes in form and the proportion of parts and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit or scope of our invention.

We claim:

1. A container comprising a receptacle section having bottom and enclosure walls in angular relation with the bottom, one pair of enclosure walls having recesses therein in their upper edges wider at their bottoms than at the top, and a cover of foldable material for said receptacle portion having a channel portion adapted to fit and lock into said recesses, the channel portion having slanting side walls and a bottom wall, and having partial cutouts in said side walls and bottom wall.

2. A container of foldable material comprising a receptacle section having a bottom wall, side and end walls, the side walls having recesses therein of greater width at the bottom than at the top, and having inwardly turned portions to support the channel portion of the cover, the cover having a channel portion adapted to fit into the recess in the walls and to lock therein.

3. A container comprising, in combination, a lower section composed of a bottom, end and side walls, corner portions integrally formed with said side and end walls and folded upon themselves and secured to said end walls, the side walls having undercut cut-away portions in their upper edges intermediate their ends, and a cover for said lower section having a channel section intermediate its ends fitted into the side walls and against the undercut edges and having its end portions fitted over the ends of the box with portions thereof extending between the end walls thereof and the corner portions.

4. A container comprising, in combination, a lower section composed of a bottom and enclosure walls, corner portions integrally formed with said enclosure walls and folded upon themselves and each corner portion being secured to one of said enclosure walls, one pair of oppositely positioned enclosure walls having undercut cut-away portions in their upper edges intermediate their ends whereby recesses are formed therein, and a cover for said lower section having a channel section intermediate its ends fitted into the said recesses in the enclosing side walls and against the undercut edges and having end portions fitted over the ends of one pair of enclosure walls with portions extending between the enclosure walls and the corner portions.

5. A container comprising, in combination, a lower section having a bottom, end and side walls with corner portions integrally formed therewith and folded upon themselves and against the end walls and secured thereto, the side walls having recesses therein with undercut edges, and a cover for said lower section having a channel section intermediate its ends having side walls adapted to fit into the undercut recesses and having free ends adapted to fit over the upper edges of the end walls with portions extending between the end walls and one part of the corner portion, the width of said free ends of said cover being substantially equal to the length of the end wall at its top edge.

6. A container comprising, in combination, a lower section having a bottom, end and side walls with corner portions integrally formed therewith and folded upon themselves and against the end walls and secured thereto, the side walls having recesses therein with undercut edges, and a cover for said lower section having a channel section intermediate its ends having side walls adapted to fit into the undercut recesses and having free ends adapted to fit against a portion of the end walls with portions extending between the end walls and one part of the corner portion, the width of said end portions of said cover being substantially equal to the length of the end wall at its top edge and the said end portions having notches at each end adjacent the said cover.

7. A container comprising, in combination, a lower section having a bottom, end and side walls with corner portions integrally formed therewith and folded upon themselves and against the end walls and secured thereto, the side walls having recesses therein with undercut edges, and a cover for said lower section having a channel section intermediate its ends having side walls adapted to fit into the undercut recesses and having free ends adapted to fit over the upper edges of the end walls with portions extending between the end walls and one part of the corner portion, the width of said end portions of said cover being substantially equal to the length of the end wall at its top edge, the said end portions having notches at each end adjacent the said cover.

8. A container comprising a receptacle section composed of bottom and enclosure walls having undercut recesses in the upper edges of one pair of oppositely positioned walls, and a cover for said receptacle having a channel portion interfitting into the said undercut recesses whereby the said cover is in locked engagement with the said receptacle section of the container.

9. A container comprising a receptacle section composed of bottom and enclosure walls having undercut recesses in the upper edges of one pair of oppositely positioned walls, intermediate the ends thereof, and a cover for said receptacle having a channel portion intermediate its ends interfitting into the said undercut recesses whereby the said cover is in locked engagement with the said receptacle section of the container and its ends are free to move to open and closed position over said receptacle.

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