

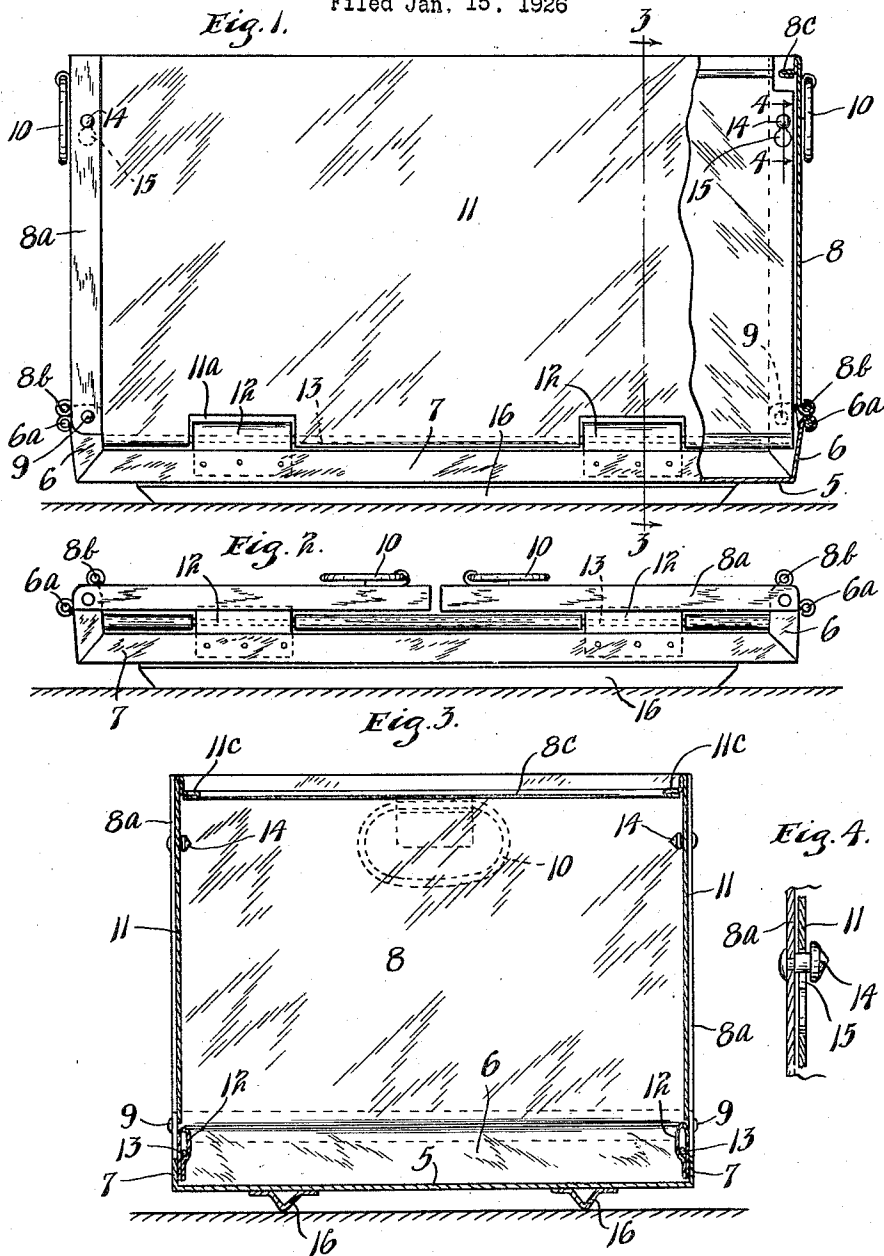
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COLLAPSIBLE CONTAINER

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## UNITED STATES PATENT OFFICE.

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## COLLAPSIBLE CONTAINER.

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This invention relates to collapsible containers adapted for wide general usage and especially applicable for egg crates, grocery boxes and shipping crates for poultry and vegetables.

The main object of the invention is to provide a simple but highly efficient collapsible box or other container which may be quickly set up and collapsed, the walls of which may be securely locked and rigidly held together when the device is set up.

It is a further object to provide such a device having hinged side and end walls capable of being collapsed in compact form, means being provided for readily swinging said walls into proper position for rigidly locking the same together.

A more specific object of the invention is to provide a collapsible container having hinged end walls provided with means for limiting the outwardly swung position thereof and slidably hinged side walls adapted to be swung to vertical position within said end walls and rigidly secured thereto by cooperating parts adapted to interlock when said side walls are swung to vertical position and raised or slid upwardly.

A still further object of the invention is to so construct such a device that the same will not slide on a supporting surface and that a plurality of said boxes or containers may be piled one upon the other both in set up and collapsed positions.

These and other objects of the invention will be apparent from the following description made in connection with the accompanying drawings wherein like characters refer to similar parts throughout the several views, and in which

Figure 1 is a side elevation, with some parts broken away, of an embodiment of the invention in set up position.

Figure 2 is a side elevation of the device in collapsed position.

Figure 3 is a vertical cross-section taken on the line 3—3 of Figure 1.

Figure 4 is a detailed vertical section on a larger scale showing the inter-engagement of the cooperating fastening members employed to secure the several walls in upright operative position.

In the embodiment of the invention illustrated a substantially rectangular bottom is indicated by the numeral 5 having relatively wide upturned end flanges 6 and relatively narrow upturned side flanges 7. It will be noted that end flanges 6 extend slightly at an oblique angle to the bottom 5, the purpose of which will later be described, and that the upper edges of said flanges are rolled about wires or rods forming the beads 6<sup>a</sup>. The end walls 8 are provided at their sides with inturned flanges 8<sup>a</sup>, the lower extremities of which are hinged by pivots 9 to the inturned portions of the end flanges 6. The bottom edges of ends 8 are rolled about wires or rods to form the horizontal beads 8<sup>b</sup> adapted to abut against beads 6<sup>a</sup> when said end walls are swung to substantially vertical position. Thus, beads 6<sup>a</sup> and 8<sup>b</sup> form stop members for maintaining the ends of the box in proper set up position.

The upper edges of end walls 8 are bent inwardly upon themselves, then outwardly at an angle and again inwardly to afford angular shoulders 8<sup>c</sup> adapted to support and engage the bottom of another similarly formed box.

Handles 10 are hinged adjacent the upper edge of ends 8.

Rectangular side walls 11 are provided having a pair of rectangular recesses 11<sup>a</sup> cut through the bottom portions thereof.

Upwardly projected hinge elements 12 are provided with vertical slots are secured to the side flanges 7 of bottom 5, being aligned with said recesses 11<sup>a</sup> in the bottom portions of sides 11. A rod 13 or other suitable pivot member is secured to the bottom edges of sides 11 traversing recesses 11<sup>a</sup> and passing through hinge elements 12. The sides 11 are thus slidably hinged to the side flanges 7 of bottom 5 and obviously swing within end walls 8. The upper edges of sides 11 are bent similarly to the upper edges of ends 8 to form the angular shoulders 11<sup>c</sup> extending in the same plane with flanges 8<sup>c</sup> when the sides are set up in operative position.

The inturned flanges 8<sup>a</sup> of the ends limit the outward swinging movement of sides 11, thereby maintaining the side walls in proper vertical position. Fastening members in the

form of studs 14 are secured to inturned flanges 8<sup>a</sup> of the container ends projecting inwardly and horizontally when the ends are set up. Cooperating fastening members  
5 are formed adjacent the side edges of sides 11 by inverted keyhole slots 15 adapted to be aligned with studs 14 when the walls are raised. It will be noted that the studs 14 have tapered heads, permitting easy engage-  
10 ment with slots 15.

Longitudinal rails or corrugations 16 are formed on the underside of bottom 5 disposed in spaced parallel arrangement and operative to support said container and pre-  
15 vent the same from sliding on a supporting surface.

#### *Operation.*

The operation of the device is probably  
20 obvious from the foregoing description but may be briefly summarized as follows:

In collapsed position the side walls are swung inwardly against bottom 5 and the end walls swung inwardly on the upper side  
25 of sides 11, substantially covering the same. When it is desired to set up the container the end walls are first swung to substantially vertical position, the beads 8<sup>a</sup> and 6<sup>a</sup> limiting the outward position thereof. The sides  
30 11 are then swung outwardly into engagement with the inturned flanges 8<sup>a</sup> of end walls 8. Sides 11 are then slightly lifted in the vertical slots formed by hinged members 12, whereupon the tapered heads of studs 14  
35 will be inserted through the larger or lower portions of slots 15. The sides may then be dropped, studs 14 slipping into engagement with the narrow portions of slots 15, thereby securely and rigidly locking the walls in up-  
40 right operative position.

This operation is accomplished in about two seconds, it being only necessary to swing the walls and slightly raise the sides and drop the same. Since the end flanges 6 of  
45 bottom 5 are bent at a slightly oblique angle the end walls will extend in planes slightly on the outer side of the end edges of the bottom 5. Thus, the bottom of a second container or box may be seated in the flanges 8<sup>a</sup> and 11<sup>a</sup> formed adjacent the top edges of the  
50 several walls. In this way several boxes may be piled one upon the other, the longitudinal corrugations 16 serving to prevent the boxes from slipping apart.

It is of course obvious that if desired a top may be supplied for the container of any suitable form. The form of the invention illustrated is especially adapted for use as a collapsible grocery box but the invention is  
60 of course equally applicable to crates, poultry coops, shipping cases and all forms of collapsible containers. It will of course be understood that various changes may be made in the form, details, proportions and

arrangement of parts without departing 65 from the scope of the invention.

What is claimed is:

1. A collapsible container having in combination a bottom, two pairs of oppositely disposed walls hinged to said bottom, one pair of said walls being slidably hinged  
70 thereto, and having retaining means adjacent the side edges thereof, retaining means adjacent the side edges of said other pair of walls adapted to lock with said first men-  
75 tioned retaining means after said walls have been swung to substantially vertical position, and said slidable pair lifted and thereafter lowered.

2. A collapsible container having in combination a bottom, a pair of oppositely disposed walls hinged to said bottom having inturned portions constituting retaining means extending from the side edges thereof, a second pair of oppositely disposed walls hinged  
85 to said bottom having retaining means adjacent the side edges thereof, one pair of said walls being capable of slidable movement on its hinge, said first mentioned retaining means being adapted to engage the side edges  
90 of said second mentioned pair of walls and adapted to interlock with said second mentioned retaining means when said walls are swung to substantially vertical position and said slidable walls slid upwardly and there-  
95 after lowered.

3. A collapsible container having in combination a bottom having upturned side and end flanges, ends hinged to said end flanges and sides slidably hinged to said side flanges and swingable within said ends, inturned flanges on the side edges of said ends adapted to engage the edges of said sides when said walls are set up, said sides and flanges on said ends having stud and slot engagement  
100 whereby said walls may be rigidly secured together after being swung to substantially vertical position and after said sides are slidably lifted and then lowered.

4. A collapsible box having in combination a substantially rectangular bottom provided with up-turned end and side flanges, ends hinged to said end flanges and swingable inwardly, hinge elements secured to said side flanges having vertical slots therein, sides  
110 having hinge elements adjacent their bottom edges working in said slots, inturned flanges on the side edges of said ends adapted to engage the edges of said sides to limit the outward swingable movement thereof, fasten-  
120 ing means on the inner sides of said flanges and cooperating fastening means adjacent the side edges of said sides adapted to lock with said first mentioned fastening members after said sides have been swung out-  
125 wardly and slid upwardly and then downwardly.

5. A collapsible container having in com-

5 bination a bottom, a pair of oppositely disposed inwardly swingable walls hinged to said bottom and a pair of oppositely disposed walls swingable within said first pair of walls and slidably hinged to said bottom, in-  
turned flanges on said first mentioned pair of walls carrying fastening studs thereon, said second walls being provided adjacent  
the side edges thereof with inverted keyhole slots whereby said walls may be locked rigidly together in upright position after said slotted walls are slid upwardly to engage said studs and then dropped.

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In testimony whereof he affixes his signature.

ALBERT N. EITSERT.