June 23, 1942. H. PAXTON 2,287,194

MULTIPLE BOX

Filed Feb. 5, 1938 4 Sheets-Sheet 1

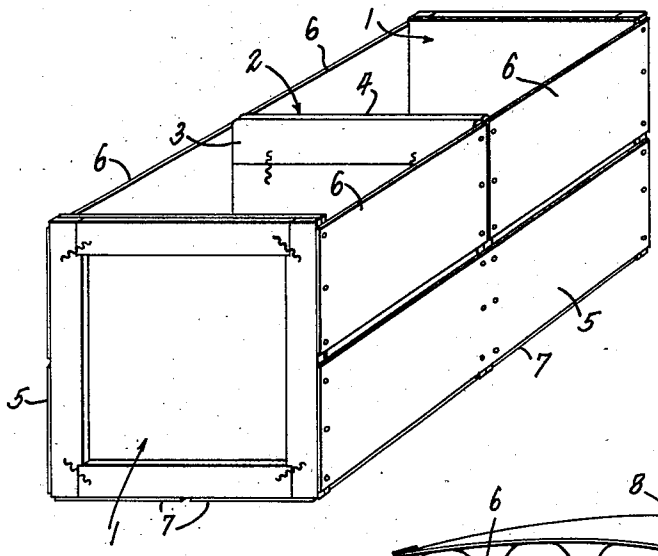


Fig. 1.

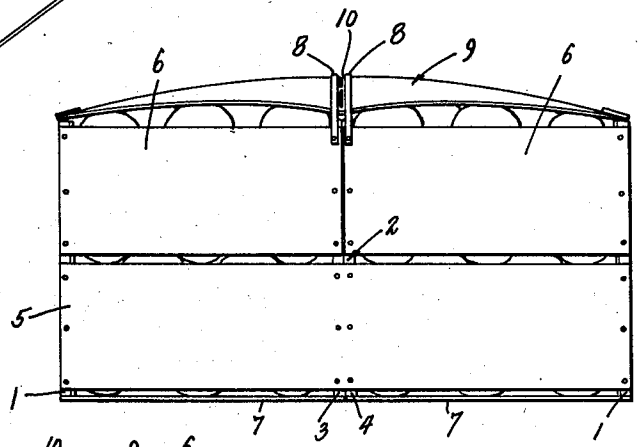


Fig. 2.

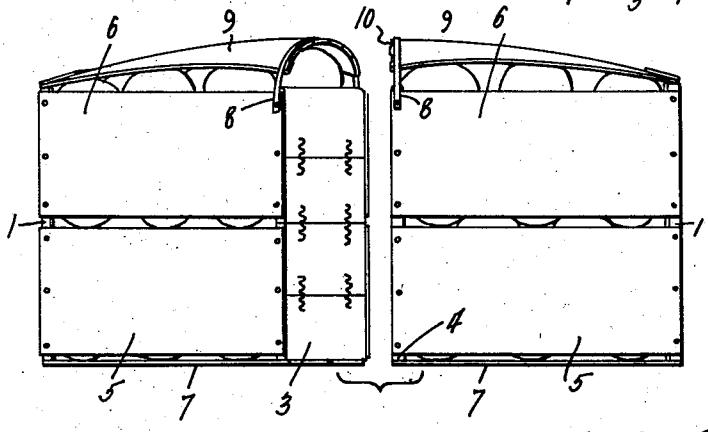


Fig. 3.

Inventor

Hale Paxton

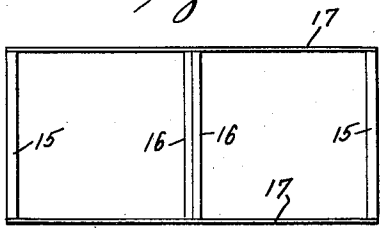
By Lyon & Lyon Attorneys

June 23, 1942. H. PAXTON 2,287,194

MULTIPLE BOX

Filed Feb. 5, 1938 4 Sheets-Sheet 2

Fig. 7.



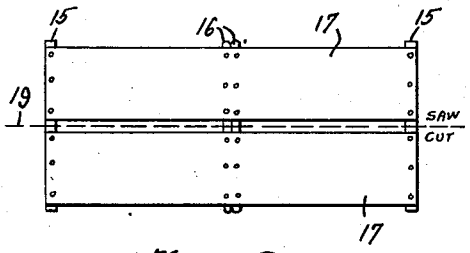
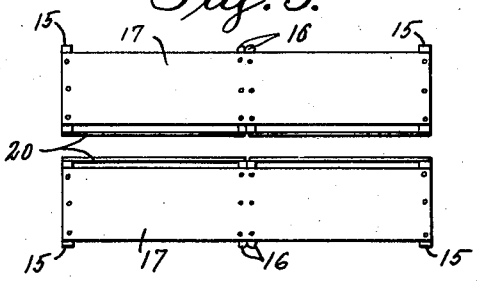


Fig. 8.

Fig. 9.



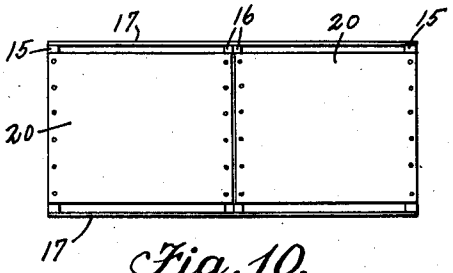


Fig. 10.

Fig. 4.

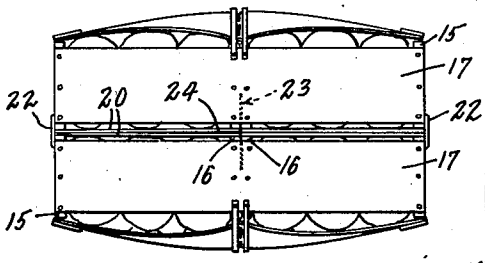
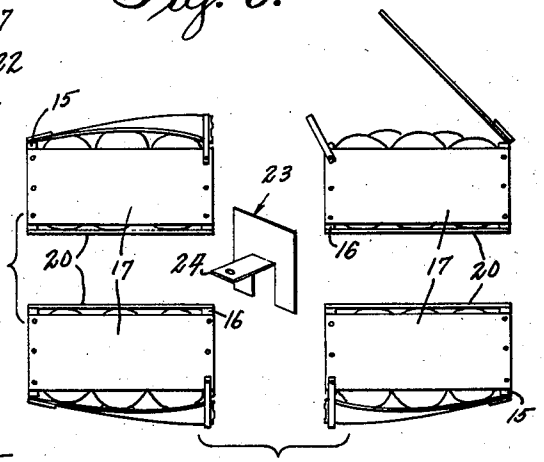


Fig. 6.



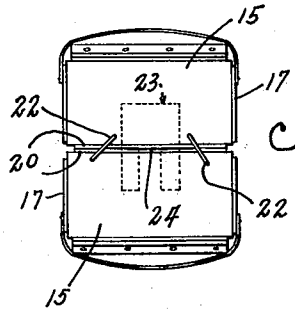


Fig. 5.

Inventor

Hale Paxton

By Lyon & Lyon

Attorneys

June 23, 1942. H. PAXTON 2,287,194

MULTIPLE BOX

Filed Feb. 5, 1938 4 Sheets-Sheet 3

Fig. 13.

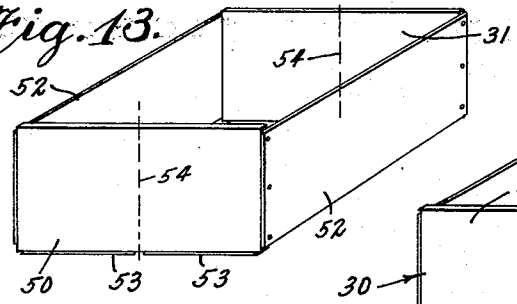


Fig. 15.

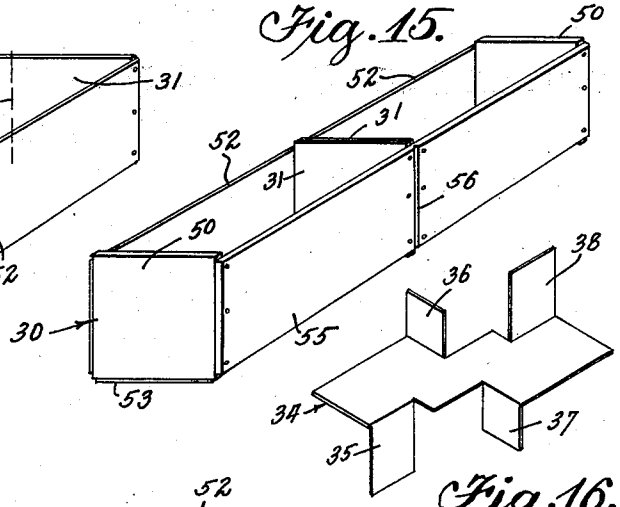


Fig. 14.

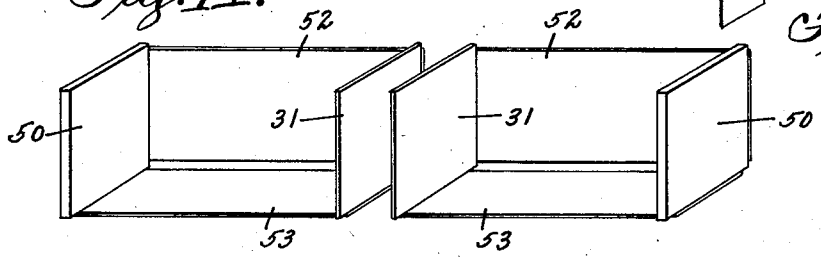


Fig. 16.

Fig. 11.

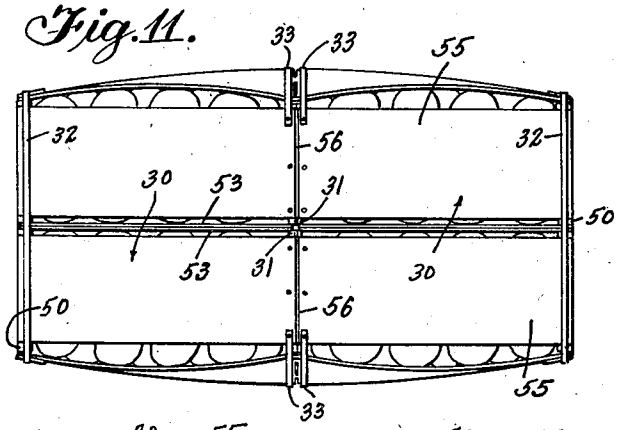
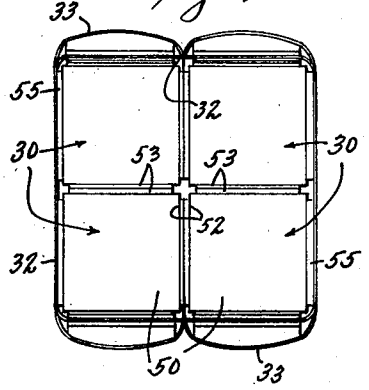


Fig. 12.



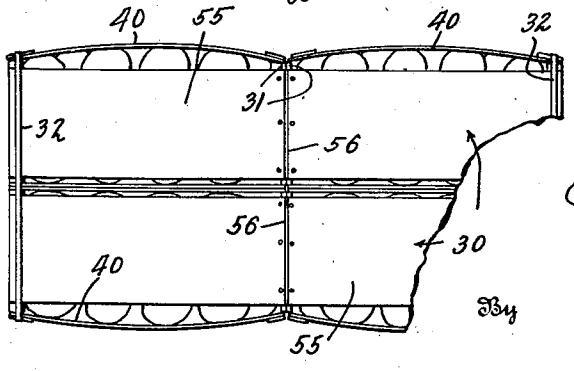


Fig. 17.

Inventor

Hale Paxton

By Lyon & Lyon

Attorneys

June 23, 1942. H. PAXTON 2,287,194

MULTIPLE BOX

Filed Feb. 5, 1938 4 Sheets-Sheet 4

Fig. 18.

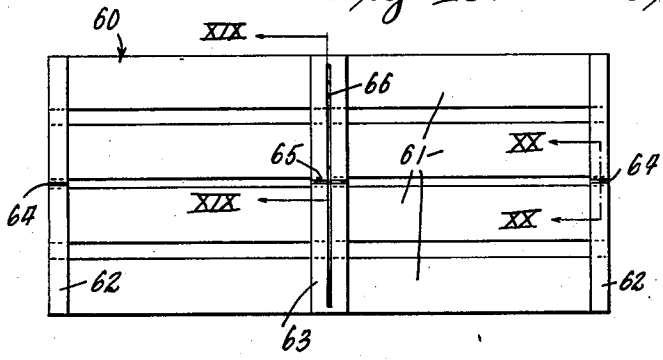
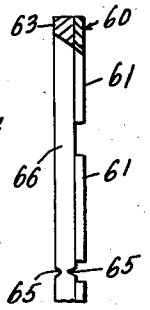


Fig. 19.



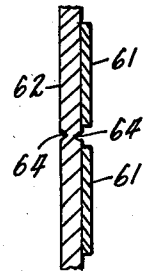


Fig. 20.

Fig. 21.

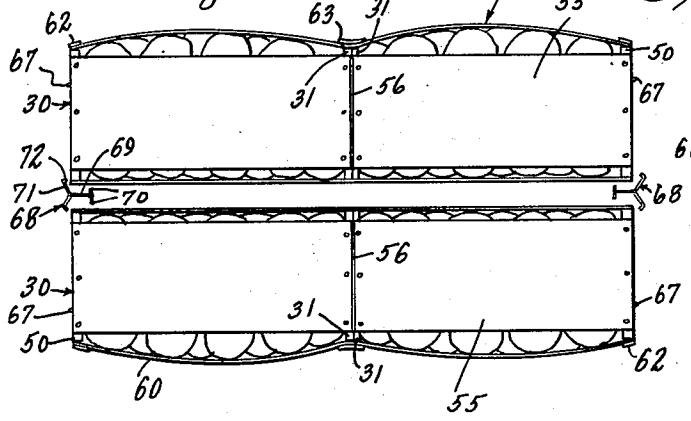


Fig. 22.

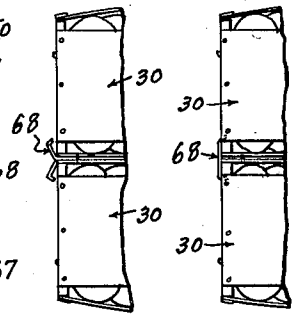
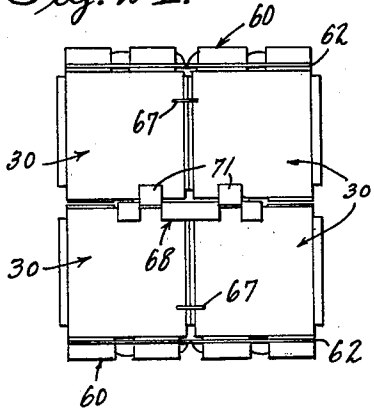


Fig. 23.

Fig. 24.



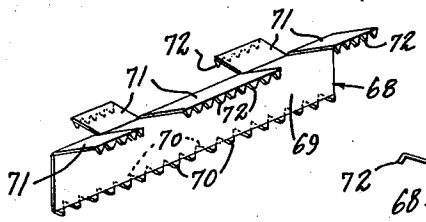


Fig. 25.

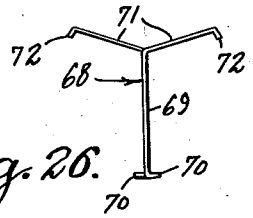


Fig. 26.

Inventor

Hale Paxton

By Lyon & Lyon

Attorneys.

Patented June 23, 1942 2,287,194

UNITED STATES PATENT OFFICE

2,287,194

MULTIPLE BOX

Hale Paxton, Santa Ana, Calif., assignor to Food Machinery Corporation, San Jose, Calif., a corporation of Delaware

Application February 5, 1938, Serial No. 188,910

6 Claims. (Cl. 217—5)

This invention relates to packing cases or boxes, particularly those employed for shipping fruits and vegetables, although the invention is not limited to use with any particular product.

A broad object of the invention is to facilitate the transportation and merchandising of goods.

A more particular object is to provide a practicable and relatively inexpensive method of handling goods, whereby they may be distributed in small or large quantities with substantially equal facility.

A feature of the invention is a packing box of standard dimensions that consists of a plurality of separate units, each by itself forming a complete closure, and being readily divisible from the others, whereby the box and its contents may be sold as a single unit to a purchaser desiring a large quantity of the product, or broken up into smaller units without disturbing the original pack for sale to purchasers of smaller quantities.

The invention will now be explained by describing in detail certain specific embodiments thereof as disclosed in the drawings.

In the drawings:

Fig. 1 is a perspective view of one form of box in accordance with the invention;

Fig. 2 is a side elevation view of a box similar to that shown in Fig. 1, with a fruit pack therein, and a lid attached thereto;

Fig. 3 is a view showing how the packed and lidded box shown in Fig. 2 may be separated into two units without disturbing the fruit packed therein;

Fig. 4 is a side elevation view of another form of packing box in accordance with the invention shown containing a pack of fruit, and lidded;

Fig. 5 is an end elevation view of the box shown in Fig. 4;

Fig. 6 is a side elevation view showing the box of Fig. 4 separated into four separate units;

Fig. 7 is a plan view of a box of the type shown in Fig. 4, in the initial stage of construction;

Fig. 8 is a side elevation view of the box in the same stage of construction as shown in Fig. 7;

Fig. 9 is a side elevation view showing the box of Fig. 8 cut into two units and bottom boards attached thereto;

Fig. 10 is a bottom view of one of the units shown in Fig. 9;

Fig. 11 is a side elevation view of still another form of packing box in accordance with the invention;

Fig. 12 is an end elevation view of the box shown in Fig. 11;

Fig. 13 is a perspective view of the elements of the box shown in Fig. 11 in the initial stage of construction;

Fig. 14 is a perspective view of the elements shown of the box in Fig. 11, in a later stage of construction;

Fig. 15 is a perspective view of the elements of the box shown in Fig. 11 in still a later stage of construction;

Fig. 16 is a perspective view of an anti-shear member that may be employed in a box of the type shown in Fig. 11;

Fig. 17 is a side elevation view of a box similar to that shown in Fig. 11 but with a different lid construction;

Fig. 18 is a plan view of an alternative form of lid that may be employed on an 8-unit package, such as is shown in Fig. 11;

Fig. 19 is a detail cross section in the plane XIX—XIX of Fig. 18;

Fig. 20 is a detail cross section in the plane XX—XX of Fig. 18;

Fig. 21 is a side elevation view of an 8-unit package incorporating the lid construction shown in Fig. 18, and a method of securing the upper and lower units together different from that shown in Figs. 11, 12 and 17, the upper and lower units being shown separated to illustrate the manner of attachment;

Figs. 22 and 23 are detail views of one end portion of the package shown in Fig. 21, illustrating successive steps in the interlocking of the upper and lower units;

Fig. 24 is an end elevation of the package shown in Fig. 21, with the units completely secured together;

Fig. 25 is a perspective view of a clasp employed to interlock the upper and lower units of the package shown in Figs. 21 to 24; and

Fig. 26 is an end view of the clasp.

Referring first to Fig. 1, there is shown a two-compartment box of the general type commonly used for shipping oranges, this box comprising two end members or heads 1—1 and a partition member 2 positioned midway between the end heads 1 and parallel thereto, the end and partition members being held together by side and bottom boards.

This box differs from the conventional orange box in that the partition 2 instead of consisting of a single head, comprises two heads 3 and 4, respectively, each of which may be of substantially $\frac{7}{16}$ inch thickness, placed alongside each other and spaced a relatively small distance apart. In fact, they may be substantially in contact with each other.

The box further differs from the conventional orange box in that some of the side and/or bottom boards instead of extending continuously from end to end of the box are of half length and extend only from one of the heads 1 to the nearest of the partition heads 3 and 4. Thus in the particular box shown in Fig. 1, one long board 5 is employed on the lower half of each side of the box, these long boards 5 being nailed not only to the end heads 1—1 but also to each of the center heads 3 and 4. The upper half of each side of the box, however, is closed by short boards 6, each of which is nailed only to one of the end heads 1 and to one of the center heads 3 and 4. The bottom boards 7 of the box are preferably all of the same length as the short side boards 6, each board extending only from one of the end heads 1 to the nearest of the center heads 3 and 4.

Although a box as described can be formed in various ways, a convenient mode of construction is first to construct the box with full length side and bottom boards and thereafter saw the top side boards, and the bottom boards off between the center heads 3 and 4. In this way the entire box can be nailed in a single series of nailing operations in a standard box making machine identical in all respects with those now employed except that it would be modified to drive a double row of nails through each board into the two center heads 3 and 4 instead of driving a single row of nails into a single center head, as is done in making the standard box. After the box has been nailed together, the upper side boards and the bottom boards can be very quickly sawed through.

The box as described is substantially identical in its dimensions with the standard orange box and may be packed and lidded in the same manner except that it is desirable to provide two center straps 8 over the lid 9, as shown in Fig. 2, each strap being nailed at its opposite ends to one of the center heads 3 and 4.

After the lid 9 has been attached, the box is sufficiently strong for shipping purposes, because of the strength imparted thereto by the continuous lower side boards 5 and the continuous lid 9. However, after the shipment has arrived at its destination if a purchaser desires to purchase one-half of a box of fruit instead of a whole box, the box may then be easily separated into two separate boxes by sawing through the bottom side boards 5 and the lid 9, the parted box, appearing as shown in Fig. 3, in which it will be observed that the pack of the fruit has in no sense been disturbed. This box greatly facilitates the merchandising of fruits to smaller dealers who take only half a box instead of a full box at a time.

Of course it is not essential that the side and bottom boards of the box be sawed in the exact manner disclosed. In some instances it may be desirable not to saw any of the boards prior to shipment, in which case the only departure from conventional practice is the provision of the double center head and the double straps 8. The box may then be parted at the destination by sawing through all the side and bottom boards and the lid. On the other hand in some instances it may be found unnecessary for shipping purposes to leave the entire side boards intact. To facilitate the sawing of the lid, the latter may be grooved or partly sawed through at different points therealong, as indicated at 10 in Fig. 2.

The box described is susceptible to being parted into two independent packing boxes. In some instances, it is desirable to split a standard box into more than two pieces. A practicable scheme for doing this will now be described with reference to Figs. 4 to 10, inclusive.

Referring first to Fig. 4, there is shown a packing case of the type used particularly for handling citrus fruit, which is readily separatable into four separate units without disturbing the pack. This box comprises two separate boxes of half the height of a standard box, secured to each other bottom to bottom for shipment, each box being separately lidded and strapped. Each unit is furthermore formed in accordance with the box described with reference to Figs. 1, 2 and 3, which is divisible into two longitudinal units by sawing through the side boards and/or the lid attached thereto.

Although the upper and lower units of the box shown in Fig. 4 are held together only by staples, as will be more particularly described hereinafter, it is practicable to form these units from a single unit. Thus referring to Fig. 7, the box may be constructed by first taking full-sized end heads 15 and double partition heads 16 (as has been described with reference to Fig. 1), and securing them together by nailing side boards 17 to the edges of all of the heads, as shown in Fig. 8. These sides may be nailed on in a conventional nailing machine. The unit is then separated into two distinct units by sawing through the end and center heads 15 and 16, respectively, along the line 19 in Fig. 8. This produces two half boxes without bottoms. A bottom piece 20 (Fig. 9) is then nailed to the bottom edges of each of the half boxes and after the nailing operation the bottoms are sawed through between the center heads 16 exactly as was described in connection with the box shown in Fig. 1. The completed half boxes are shown in Figs. 9 and 10.

Each of the completed half boxes is then packed and lidded independently in the manner described with reference to the unit of Figs. 1, 2 and 3. After the lidding and strapping operation, the two half boxes are then placed back to back, or rather bottom to bottom, as shown in Fig. 4, and secured together with staples 22 which are driven into the end heads of the two half boxes, two staples being used at each end of the box, as shown in Figs. 4 and 5.

Furthermore, it will be observed from Fig. 5 that the staples are preferably inclined at an angle of about 45° to the abutting bottom boards, with the ends of the two staples entering one-half box closer together than the opposite ends of the staples which enter the head of the other box. By so angling the staples, all tendency toward lateral shearing motion between the two half boxes is prevented.

It may also be desirable, in some instances, to provide a sheet metal element 23 extending between the center heads of the two half boxes to prevent longitudinal shearing motion therebetween. This element 23 may be formed of a single piece of flat metal, as shown in Figs. 5 and 6, and have a leg 24 bent outwardly at right angles and adapted to extend between the bottom pieces of the two half boxes to maintain the main portion of the shear plate along the junction line of the center heads of the two half boxes.

The box, after being assembled and packed as shown in Figs. 4 and 5, may be shipped to its

destination and then broken up either into two, three or four separate units for sale to small distributors. Thus it may be separated into two units by simply pulling the staples 22 from the opposite ends, thereby providing two complete boxes of half depth. Then either of the half boxes may be further separated into two boxes by sawing through the side boards 17 and the lid, as was described with reference to Figs. 1 to 3.

A convenient feature of the construction is that after the boxes have been sawed into two units, as shown in Fig. 3, or to better advantage in Fig. 6, the lid may be swung open for inspection by merely slipping the strap off the end of the lid as shown on the upper right-hand unit of Fig. 6. The lid may then be restored to normal position by pressing it back down and slipping the strap back over the lid.

In view of the fact that when the two half boxes are assembled together, as shown in Figs. 4 and 5, the bottoms of the two sections reinforce each other, the bottom walls may be made relatively thin, as compared to the thickness required in standard box construction. A thin veneer material is suitable for the bottom members.

The box last described consisted of four (4) separate units joined together into a single unit for shipping purposes. It is also practicable to provide a box consisting of even a larger number of units and a preferred form of construction of an 8-unit box will now be described with reference to Figs. 11 to 16, and Fig. 17.

Referring first to Figs. 11 and 12, there is depicted an assembly of four separate boxes 30, 30, 30 and 30, respectively, each of which boxes 30 is relatively long, narrow and shallow, and is provided with a double center partition consisting of heads 31, 31, respectively, closely positioned together and independently secured to the side walls of the unit whereby each of the units 30 may be broken up into two independent units in a manner similar to that described in connection with the boxes disclosed in Figs. 1 to 10. The four units 30 may be interconnected to each other by staples, as was disclosed in Figs. 4 and 5, but I prefer to combine the units by extending straps 32 completely around the four assembled units 30 at their opposite ends. These straps 32 are distinct from straps 33 individual to all the units 30 for securing the center portion of the lid on each unit.

An anti-shear member 34 (Fig. 16) serving the same general purpose as the member 24 in Fig. 6, may be inserted at the center of the box shown in Figs. 11 and 12 to prevent both longitudinal and lateral shearing motion between the four units 30. The member 34 may be stamped from a single piece of sheet metal and is provided with tongues or leaves 35, 36, 37 and 38, respectively, which extend between the different units and thereby prevent shearing motion of the units with respect to the member 34 and to each other.

A further advantage of the construction disclosed in Figs. 11 and 12 is that the inner side wall and the bottom wall of each of the units 30 may be made of relatively thin material completely sawed through between the center heads 31, and that side wall of each unit 30 which is exposed is partially sawed through or is heavily scored between the center heads 31 so that this side wall may be broken without sawing it, after the lid has been sawed through between the center straps 33. It is to be understood that in the construction shown in Figs. 11 and 12, each of the units 30 has a single lid substantially as shown in and described with reference to Fig. 2 and Fig. 4.

The necessity of using a saw to break each of the units 30 into two integral pieces may be entirely eliminated by separately lidding each half of each unit 30, as shown in Fig. 17. It will be observed in Fig. 17 that each half of each unit 30 is provided with a separate lid 40, one end of each lid being nailed only to one of the center heads 31. With this construction the two halves of each unit 30 are held together only by the continuous outer side board 55 after the end straps 32 have been removed and the four units 30 separated from each other and each of the units 30 may then be separated longitudinally into two smaller units by bending the box at the middle in such direction as to snap the outer side wall board 55 along the score line 56 between the center heads 31.

A convenient method of constructing each of the units 30 is disclosed in Figs. 13, 14 and 15. The initial step is to produce in the conventional manner, in a conventional nailing machine, a box as shown in Fig. 13, having end heads 50 and 31 of relatively heavy material, to which side boards 52 and bottom boards 53 are nailed, each of the heads 50 and 31 being of double the width of the ends of the finished unit 30 shown in Figs. 11 and 12. One of the heads 50 may be of standard thickness and the other head 31 may be of less thickness, approximately one-half of the standard thickness. It will be observed that two bottom boards 53 are employed. These bottom boards 53 and the side boards 52 may be of very thin veneer material, not more than one twelfth inch thick, the bottom and side boards being nailed to the heads with very small nails. The unit in Fig. 13, after being nailed, is cut in two by sawing the heads 50 and 31 along the dotted line 54 between the bottom boards 53, thereby forming two boxes having only one side wall, as shown in Fig. 14. These two units are then placed end to end with their thin ends 31 together and the two boxes completed and also secured together by nailing onto the open sides of the two boxes a single side board 55 which is secured by nails both to the outer end heads 50 of both units and also independently nailed to the two thin heads 31, which thereafter constitute the two center heads of each unit 30. The side wall 55 is preferably of substantially heavier material than the thin veneer side walls 52 and may be scored along a line 56 between the heads 31 either before or after it is secured in place.

Each of the units 30, after being completed as shown in Fig. 15, is independently packed and lidded and thereafter four of the packed and lidded units assembled together with one of the shear members 34 and strapped with the end straps 32, after which they are ready for shipment. The center straps 33 holding the center portion of the lid in place are attached at the time the individual units 30 are lidded.

In the box construction described with reference to Figs. 11 and 12 of the drawings, each of the elongated 2-compartment units 30 is provided with a single lid extending from one end to the other, nailed to the end heads 50, and secured over the center heads 31 by straps 33. In the modified construction shown in Fig. 17, each half of each unit 30 is provided with an individual lid 40 nailed at one end to one of the end

heads 50 and nailed at the other end to one of the center heads 31.

A modified construction is shown in Figs. 18 to 21, in which the two upper units 30 are closed with a single lid 60 so constructed as to aid in holding two upper units 30 together during shipment while being readily separated into four separate sections so that the package can be broken up into individually lidded boxes. Thus, as shown in Fig. 18, the lid may comprise four longitudinal slats 61 interconnected at the ends by cleats 62 and at the midportion by a center cleat 63. The end cleats 62 are partially severed as indicated at 64 in Fig. 20 to facilitate breaking (when it is desired to separate the two upper units 30). The center cleat 63 is likewise partially severed in any desired way at the center point 65 and in addition has a longitudinal saw cut 66 extending nearly from one end to the other; this saw cut also extending through the slats 61 so that the lid may be easily broken across the middle to permit breaking of the units 30 into two separate boxes.

When employing a single lid, as shown in Fig. 18, for lidding two of the units 30, the two units are first preferably attached to each other as by a staple 67 (Fig. 24), placed in a lidding machine and the lid 60 attached to both units in a single nailing operation, the end cleats 62 being nailed to the end heads 50 of both units, and the center cleat 63 being nailed to both center heads 31 by driving nails through the cleats 63 on opposite sides of the center slot 66.

After each pair of units 30 has been lidded as described, it may be joined to another pair of units as described in connection with Fig. 11 by means of straps 32 encircling the ends of the complete package. However, an alternative method of securing the upper and lower pairs of units 30 together, which is preferable in some instances at least, is illustrated in Figs. 21 to 26, in which a clasp 68 is employed at each end of the unit to connect the units together with sufficient strength for shipment.

Referring, first, to Figs. 25 and 26, each clasp 68 comprises a flat leaf 69 of elongated oblong shape having teeth 70 formed on one long edge and bent at right angles to the leaf 69, as clearly shown in Fig. 26, alternate teeth or points 70 extending in opposite directions from the leaf. At its other long edge the leaf 69 merges into a plurality of integral wings 71, successive ones of which extend from the leaf 69 in opposite directions at an oblique angle thereto. At its outer edge, each of the wings 71 has teeth or points 72 bent at right angles thereto.

The manner in which the clasps 68 are employed is clearly shown in Figs. 21, 22 and 23. Thus the first step in attaching the clasps is to place the leaf 69 between the upper and lower units 30, as shown in Fig. 21, with the points 70 spaced inwardly from the ends of the units. The units are then pressed together, as shown in Fig. 22, forcing the points 70 into the juxtaposed walls of the boxes, thereby firmly anchoring each clasp against shearing movement with respect to the juxtaposed surfaces of the boxes and thereby preventing shearing motion between the boxes.

The last step in the process is to drive the wings 71 flat against the ends of the boxes, thereby causing the points 72 to penetrate the end heads and lock them against separating movement.

It is found that by means of the clasps 68, as described, and staples 67 between each upper and lower pair of units 30, as shown in Fig. 24, the four units 30 may be held together with sufficient strength to prevent their separation during shipment. However, when the destination is reached the unit can be readily broken up by prying the wings 71 of clasp 68 away from the end heads, whereupon the upper pair of units 30 may be lifted away from the lower pair. The two units of each pair may be separated by knocking out the staple 67 and swinging one unit with respect to the other to break the lid along the weakened points 64 and 65. If it is then desired to further separate each unit 30 into two complete units, this can be readily done by bending each unit laterally to sever the side board along the score line 56 and simultaneously break the lid at the end of the slot 66 therein.

Although the invention has been explained by describing in detail, with reference to the drawings, two specific embodiments thereof, it is understood that various other changes may be made in the construction without departing from the invention, which is to be limited only to the extent set forth in the appended claims.

I claim:

1. A shipping box comprising a plurality of similar individual box units positioned alongside each other with the bottom and one side of each unit lying against other units, and means securing said units together, in which each individual box unit has a double center partition composed of two distinct heads and in which the bottom and said mentioned one side wall of each unit are discontinuous between the center heads, and the remaining side wall is continuous across said center heads, said last mentioned side wall of each unit forming an exterior wall of the complete shipping box.

2. A shipping container comprising a plurality of open top boxes positioned side by side, each having two end heads, in combination with a single lid adapted to cover all said boxes, said lid comprising slats, each of which extends longitudinally over one box only, said slats being interconnected by cleats extending above said end heads and secured thereto, each cleat being weakened between adjacent boxes to facilitate severing the cleat at such point.

3. A shipping container as described in claim 2, in which each of said boxes is provided with a pair of closely adjacent center heads and said lid includes a center cleat extending above and secured to both center heads of each box, said center cleat and said slats being partially severed between said center heads to facilitate breaking said lid into two lids between said adjacent center heads.

4. A shipping box comprising four box units arranged in pairs with the two units of each pair positioned side by side and the units of opposite pairs positioned bottom to bottom, one pair of units being inverted with respect to the other, and clasp means securing said units together at one end of said shipping box comprising a flat leaf interposed between the juxtaposed bottom walls of said pairs of units and having penetrating elements extending into said bottom walls, said flat leaf bridging the two units of each of said pairs, adjacent the end thereof, said clasp means having wing elements extending from one edge of said leaf on opposite sides thereof and lying flat against and some at least of said wing elements being secured to the end walls of said units for preventing separating movement be-

tween the units of opposite pairs, that portion of said leaf bridging the two units of said pairs preventing vertical shearing motion between the units of each pair.

5. The combination as described in claim 4, in which one of said wing elements bridges the two units of one of said pairs and forms with the adjacent portion of said leaf a shear-resisting structural member of L section.

6. A shipping package comprising four container units, these units being placed side by side in pairs, the units of each pair having a common lid, said lid being weakened in the plane of meeting of the units of said pair to permit said lid to be separated in said plane by rocking the units of said pair relative to each other about the weakened portions of said lid; and means temporarily tying said pairs of units together back-to-back so that said lids face in opposite directions, the tying of said units together preventing the said rocking of said units of said respective pairs relative to each other.

HALE PAXTON.