

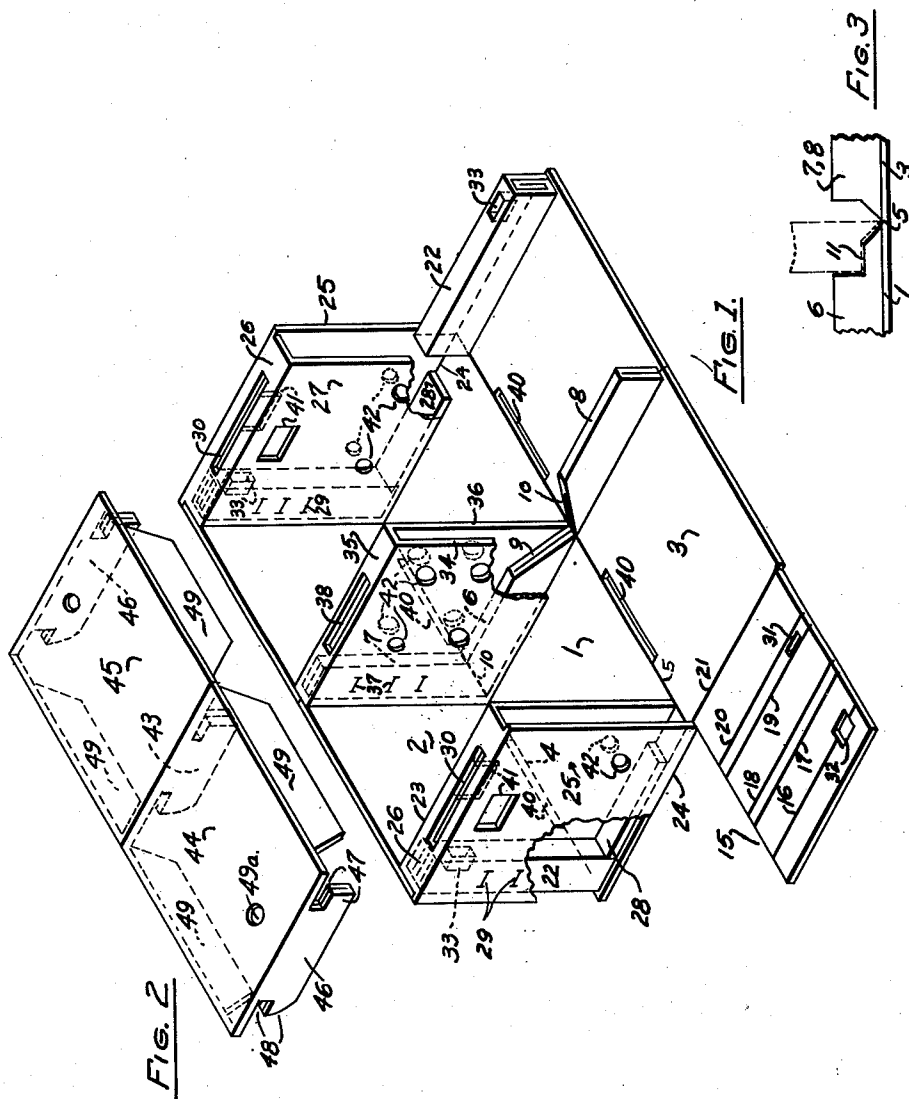
Nov. 6, 1951

J. R. GRANT
SHIPPING CASE

2,573,706

Filed June 21, 1946

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

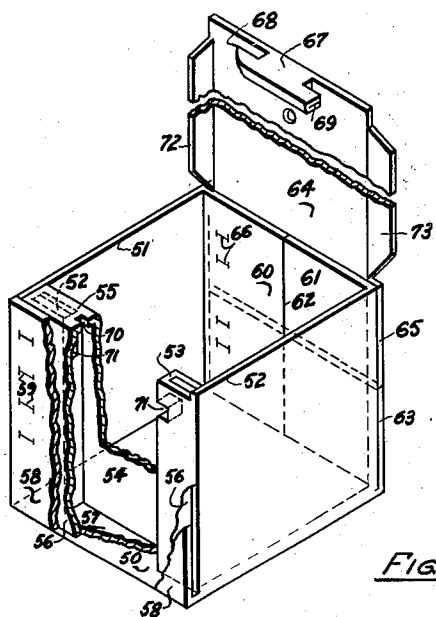


FIG. 4

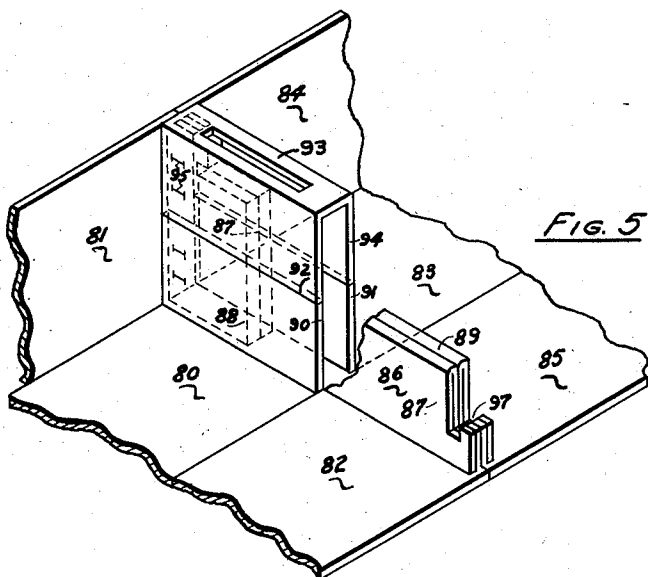


FIG. 5

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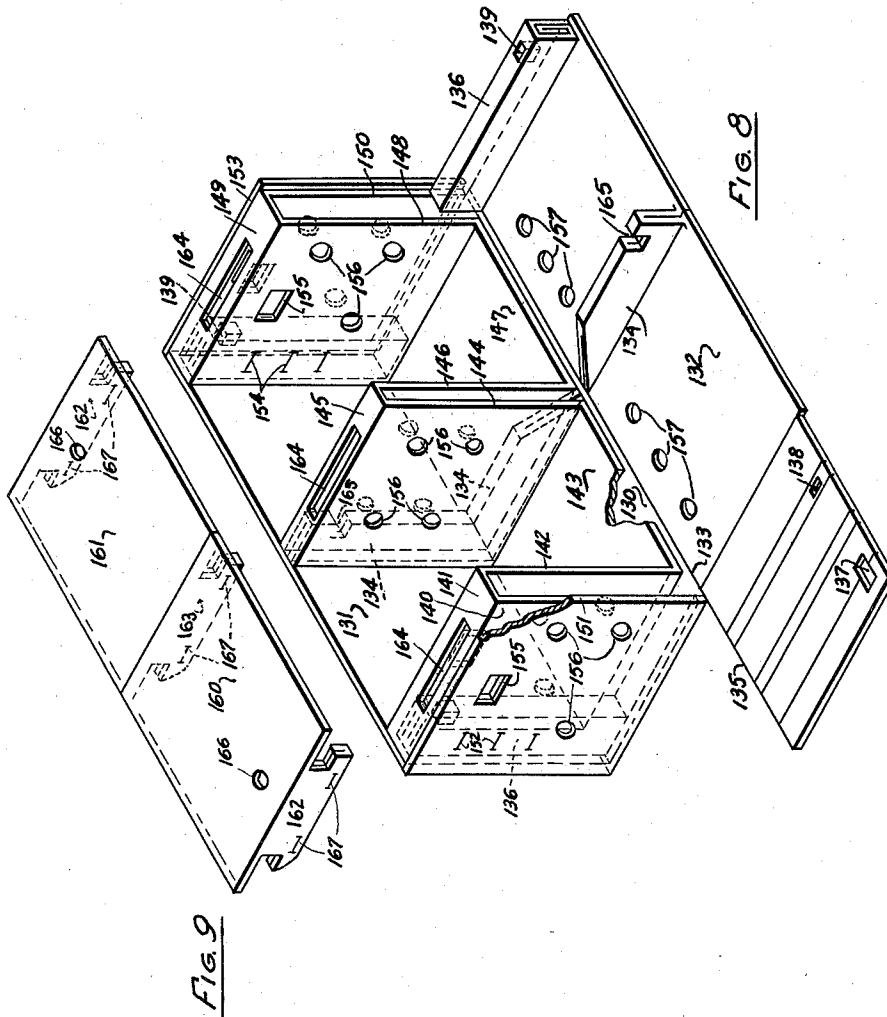
J. R. GRANT

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SHIPPING CASE

Filed June 21, 1946

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,573,706

SHIPPING CASE

Jesse R. Grant, Chicago, Ill.

Application June 21, 1946, Serial No. 678,462

6 Claims: (Cl. 229—23)

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This invention relates to shipping cases for fragile articles such as eggs and for perishable articles such as fruits and has for its principal object the provision of a new and improved case of this kind.

It is a main object of the invention to provide a shipping case composed of fibreboard, either corrugated or plain and having the strength required to protect the contents during shipment and storage.

Another object of the invention is to provide a fibreboard shipping case that is strong enough to permit stacking the cases one upon another without crushing the lowermost cases in the pile.

Still another object of the invention is to provide a shipping case having two compartments, each of which is bounded by smooth planar walls.

Another object of the invention is to provide a shipping case in which the endwalls and partition are each composed of at least two planar members that are spaced apart to add resiliency to the case, to provide for locking the cover on the case and to increase the length of the case to bring it up to standard length.

Still another object of the invention is to provide for a two-compartment shipping case a cover that is locked on to the case at both ends thereof and in the middle.

Still another object of the invention is to provide a shipping case having a single compartment and arranged to be joined to a similar single compartment case to form a standard double compartment case.

Still another object of the invention is to provide a shipping case that can be made of fibreboard at low cost without sacrificing quality.

Further objects of the invention, not specifically mentioned here will be apparent from the detailed description and claims which follow, reference being had to the accompanying drawings in which a preferred embodiment of the invention is shown by way of example and in which—

Figure 1 is a view in isometric projection of a shipping case embodying the invention and in which the parts are cut away to better show the construction of the case;

Figure 2 is a view in isometric projection of the cover for the case;

Figure 3 is a fragmentary elevational view showing a modified form of tongue;

Figure 4 is a view in isometric projection of a half case showing a modified type of endwall

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construction and having parts cut away to better show this construction;

Figure 5 is a fragmentary view in isometric projection showing a modified form of center-wall construction and showing also how two half cases are joined together to form a standard case;

Figure 6 is a view in isometric projection of a modified form of endwall construction for the case;

Figure 7 is a fragmentary elevational view, partly in section, and showing the lock construction used in Figure 6.

Figure 8 is a view in isometric projection of a case particularly adapted to the shipping and storage of fruits; and

Figure 9 is a view in isometric projection of a modified form of cover.

Shipping cases of the kind employed in the shipment of fragile articles such as eggs have long been composed of wood and provided with two compartments. Recently, fibreboard, particularly corrugated fibreboard, has been used in lieu of wood in the manufacture of these cases.

Each material has its own individual advantages and disadvantages and the fibreboard egg cases heretofore used oftentimes have not had sufficient strength to permit stacking the cases in the manner in which wooden cases have been stacked. Because of this fact, fibreboard cases have not stood up in shipment as well as they might and the advantages resulting from the greater resiliency of the fibreboard have largely been lost. The present invention seeks to improve upon these prior art fibreboard cases and to produce a case that possesses sufficient vertical strength to permit stacking as required and at the same time retains the resiliency of the fibreboard case.

In the shipment of fruits and vegetables, particularly fruits, protection approximately equal to that given to eggs is desirable to prevent bruising of the fruit and consequent rapid decay. The present invention may equally well be used to ship such perishable merchandise and when composed of double face moisture proof corrugated board affords even greater protection to the fruit than has been possible in the wooden cases now in common use.

In the construction of the preferred form of double compartment case a single piece of double face corrugated is cut to proper dimensions and scored and then folded along the score lines to provide integral side and bottom members, the stock being folded back upon itself to form a cen-

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ter tongue extending across the bottom and from top to bottom of the side sections. Extension of the side sections are folded back upon themselves one or more times to form in effect a post located at each of the four corners of the case. The endwalls of the case may be formed from extensions of the bottom folded upwardly along the outside faces of the posts and thence across the top of the posts and then downwardly along-side inside faces thereof to form in the endwall two spaced apart planar members. If desired, and in cases where greater puncture strength is required in the endwalls, a separate piece of stock may be folded back upon itself to form a U-shaped member which is laid alongside of both faces and across the top of the posts and an extension on the bottom is folded up and disposed against one side of this U-shaped member on the outside thereof to give added strength in the end-wall.

The center partition by which the case is divided into two compartments is formed by a single piece of stock folded back upon itself in the U-shaped form and disposed against both faces and the top of the tongues. This auxiliary partition member is secured to these tongues on both sides and at the bottom of the case to impart added strength thereto.

In many instances, particularly in connection with egg cases, a half case would be advantageous to send out to the farms for collecting eggs and transporting them to the receiving station. A standard two-compartment egg case is unhandy because of its large capacity—30 dozen usually. Oftentimes several days are required to fill the case, with the results that the eggs are not strictly fresh when received at the receiving station. Furthermore, it is very difficult to transport a standard case in a modern automobile and delivery of eggs from the farm to the receiving station is often further delayed. By providing a half case holding—say 15 dozen eggs—the length of time required for the farmer to fill this case will be cut in half and since the half case can be carried conveniently in an automobile the eggs will be taken to the receiving station more promptly and, consequently, will be fresher when received.

Egg shippers would make a more extensive use of half cases if after such cases have made one round trip to the farm they could be employed in full size cases to ship the eggs to the market. The present invention provides a half case adapted to be put to such a use.

Eggs which are shipped to storage and in storage should be packed in cases which are well ventilated so that the moist air in the refrigerator car and in the cold storage plant may circulate freely around the eggs. Most fibreboard cases in the prior art of which I am aware have not provided for adequate ventilation. All fruits and vegetables must be ventilated to prevent decay. Eggs which are being collected on the farm or being shipped for immediate consumption should be kept away from dry air to lessen the shrinkage of the eggs. The case of the present invention meets both requirements. When a tight case is required to restrict circulation, a flanged cover is used and the ventilating knock-outs are retained in the case to close it tightly. When ventilation is required, the knockouts are removed and an unflanged cover is used to close the case, which cover permits air to circulate around its edges.

Referring, now, to the drawings in more detail

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where, in Figure 1, there is shown a standard two-compartment shipping case for eggs or fruit which comprises a bottom member 1, side members 2 and 3, joined to the member 1 along score lines 4 and 5, respectively.

The side and bottom members are scored along their median line and folded back upon themselves through 180 degrees and thence through two 90 degree folds to form tongues 6, 7 and 8 outstanding from the bottom and side sections, respectively at right angles thereto. Both ends of the tongue 6 in the bottom of the case may be mitered as at 9 and the bottom ends of the tongues 7 and 8 and the sidewall sections likewise mitered as at 10, so that when the sidewall sections are folded along score lines 4 and 5 into position at right angles to the bottom the tongues will fit together. If desired, the bottom tongue 6 may be step-cut as shown at 11 in Figure 3 and the side tongues 7 and 8 step-cut as shown at 12 to register therewith in lieu of the miter shown in Figure 1.

Side sections 2 and 3 are provided with extensions such as 15 which are scored at 16, 17, 18, 19, 20 and 21 to permit the extension to be folded back upon itself to form a post 22 which contains four thicknesses of material and which is disposed at right angles to the face of the sidewall section. Such extensions 15 are located at each end of the sections and when so folded form posts located at the ends of the case.

The bottom section 1 is provided with an extension 23 at each of its ends which extension is scored at 24 to be folded upwardly along the outside face of the posts 22 forming an outer wall member 25—is scored to be folded across the top of these posts to form a top member 26 and again scored to be folded downwardly along the inside face of the posts 22 to form an innerwall member 27 which extends from sidewall to sidewall of the case and from top to bottom. The inner endwall member 27 is scored to form a tongue 28 which is disposed on the upper face of the bottom member 1 and extends between posts 22 and into engagement with the inside face of the outer wall member 25. The endwall thus formed is secured together and to the posts in any preferred manner, such as by staples 29.

The top faces 26 of the endwall sections are perforated as at 30 to provide slots through which the cover locking means will project, as will presently appear. Each of the sidewall extensions 15 is provided with perforations 31 and 32 located so that when the extension is folded back upon itself to form the post 22 the perforations will register to form a socket or mortise 33 in the post, which mortise will be as wide as two thicknesses of the material.

The partition is formed of a single piece of stock extending upwardly along one face of the tongues 6, 7 and 8 to form one partition member 34, thence across the top of the tongues to form a top section 35 and thence downwardly on the other faces of the tongues to form a second partition member 36, which members are secured to the tongues in any preferred manner such as by staples 37. The top section 35 contains a perforation 38 through which a tongue on the cover will project as will presently appear.

The case so formed contains a single thickness bottom and sidewalls and double thickness endwalls with the two sections of the endwalls spaced apart by the width of the posts. The partition contains two members spaced apart by the thickness of the tongues. The case contains six posts,

one at each of its four corners, composed of four thicknesses of stock folded back upon itself; all of these posts being engaged by wall or partition sections secured thereto in any preferred manner, such as by staples. It has been found that corrugated board folded back upon itself, with the several layers in the folds securely fastened together as with staples, makes a post or tongue that has great endwise strength, and is much stronger than an equal number of individual layers of material similarly fastened together. This fact has been utilized in the formation of the tongues at the center of the case and the posts at the corners thereof. As a result of this construction the case is exceedingly strong, both against endwise thrusts, such as are encountered in shipment, and also against vertical strains such as are encountered when the cases are stacked high as in storage.

It will be noted that each of the end walls and the partition of the case contain two planar members which are spaced apart by the tongues or posts and are joined together by top members which are slotted. This construction, which is a feature of the present invention has distinct advantages. First, it adds resiliency to the case, particularly against endwise shocks. When used for eggs the cases will be placed in the car or truck endwise and the greatest shocks imposed on the cases in transit will be endwise. Second, this spacing provides grooves into which the locking tongues on the cover are projected to lock the cover on the case at both ends and in the middle. Third, this spacing permits building the case to standard length with a minimum of stock. Wooden egg cases of the two-compartment type measure 26" outside length and corrugated fibreboard cases of the prior art have usually been short of this figure with the result that the two kinds of cases have not fit together well in cars and trucks.

If it is desired to provide ventilation in the case as will be necessary for eggs shipped in a refrigerated car and eggs stored in a ventilated cold storage plant, and in the case of fruit in shipment, rectangular perforations 40 may be cut in the sidewalls 2 and 3 adjacent the score lines 4 and 5, respectively. To facilitate handling the case, the endwall members are preferably provided with hand-holds 41 which also aid in ventilation. Further ventilation may be achieved by circular or rectangular knockouts or perforations 42 located in the ends of the case adjacent to bottom as shown.

As will be seen in Figure 2, the cover for the case consists of a single piece of fibreboard folded back upon itself through 180 degrees and then through 90 degrees to form a center tongue 43 dividing the cover into two sections 44 and 45, one for each of the two compartments, respectively. Extensions at the ends of the sections 44 and 45 are folded back upon themselves to form tongues 46 which are cut out to form the tongue generally T-shaped, giving, in effect, a tenon 47 at one end of the tongue and a tenon 48 at the other end thereof. The tongue 43 is similarly shaped and tongues 46 and 43 are each composed of two thicknesses of material secured together preferably by staples.

If desired, the sections 44 and 45 may each be provided with flanges 49 projecting from the edges of the sections at right angles thereto. These flanges are adapted to fit inside of the sidewalls 2 and 3 of the case and to abut against the end walls and partition. The flanges stiffen

the cover and aid it in stiffening the case against endwise crushing by impacts such as are encountered in shipping. The use of these flanges 49 is optional. In instances where the cases are to be shipped in refrigerated cars the use of flanges may be objectionable because of the resulting impairment of the circulation of moist air through the case. Flanges should not be used in storage cases for the same reason. In instances where the cases are exposed to dry air the flanges will aid in decreasing the circulation through the case.

In putting the cover on the case, the tongues are fitted in the slots 30 and 38 with the larger tenons 47 going in first and the cover moved to the right Figure 1, until the opposite end of the tongue will slide down into the slots. The cover is then moved vertically into position across the top of the case with the flanges 49 disposed inside of the sidewalls 2 and 3 thereof and then the cover is moved to the left, Figure 1, to register the tenons 48 into the mortises 33 on the one side of the case. The cover is provided with a finger-held 49a at each end to facilitate this manipulation. The cover thus being locked at both ends and in the middle adds materially to the strength of the case, resisting endwise crushing.

It will be noted that each of the compartments in the case shown in Figure 1 is bounded by a smooth planar wall on each of its four sides and that the bottom is likewise perfectly smooth. The only encroachment upon this clear space are the flanges 49 on the cover, when such flanges are used. This encroachment is advantageous in the case of eggs since it wedges the filler flats in the top layer and reduces damage in that layer.

In Figure 4, there is shown a modified form of endwall construction applied to a half case. In this embodiment of invention, the bottom 50, sidewalls 51 and 52, are formed integral as before and extensions of the sidewalls 51 and 52 are scored and folded back upon themselves to form posts 53 which, in this embodiment, are shown to consist of three thicknesses of material. Four or more thicknesses of material in the posts are also contemplated. An auxiliary member consisting of an innerwall 54, a top 55, and an outer wall 56 is disposed with the walls 54 and 56 alongside of the two faces of the posts. Innerwall 54 contains an extension 57 which lays upon the bottom 50 and extends between the posts 53 and abuts against the inside face of the outer member 56.

The bottom 50 contains an extension 58 which is folded up and disposed against the outer face of the member 56, which bottom extension, endwall members, and posts are secured together in any preferred manner, such as by staples 59.

At their opposite ends, sidewalls 51 and 52 contain extensions 60 and 61, respectively, which are folded at right angles to the sidewalls and abut against each other on the median line 62 of the case. The bottom 50 contains an extension 63 which is folded upwardly alongside of the outer face of the extension 60 and 61 and terminates about halfway between the top and bottom of the case.

The cover 64 contains a flap 65 disposed in engagement with the outer faces of extensions 60 and 61 and abuts against the top edge of extension 63, the members 60, 61, 63 and 65 being secured together in any preferred manner, such as by staples 66 to form a double thickness endwall for the case. The cover 64 contains an extension which is folded back upon itself to form a tongue

67 that contains locking tenons 68 and 69. The top wall 55 in the opposite end of the case contains a slot 70 into which the tongue 67 projects. Posts 53 are cut away as shown at 71 to form mortises into which tenons 68 and 69 are projected as before to lock the cover closed on the case. The cover 64 contains flanges 72 and 73 adapted to fit inside of the sidewalls 51 and 52 to close the case.

The half case shown in Figure 4 is intended primarily for use by farmers for the storing of eggs collected for delivery to the receiving station and for shipment to direct consumers. For this reason, no ventilation should be provided since the case will not ordinarily be used under refrigeration but, rather, will be exposed to dry air. As is well understood by those skilled in the art, dry air in contact with eggs causes evaporation of the moisture in the egg and consequent shrinking of it. With the case containing solid walls and closed by the flanged top, circulation is minimized and the egg deterioration is less than has been possible heretofore. Since the case is small and practically a cube, it can be handled into and out of an automobile or truck without hand-holds.

If desired, two cases of the type shown in Figure 4 may be placed end to end with the covers 64 adjacent at the middle of the case and the two sections secured together by suitable means, such as staples. This results in a two-compartment case having a cover fixed thereto at the middle. When the two individual half cases are thus secured together the endwalls of the resulting standard case should be provided with hand-holds such as 41 to facilitate handling the case.

In Figure 5, there is shown a modified form of case consisting of a bottom 80 and sidewall members 81 and 82, and a second bottom 83 and sidewall members 84 and 85. The ends of the case may be formed either in the manner shown and described in connection with Figure 1 or in the manner shown and described in connection with Figure 4. The ends of the side sections 81 and 82 adjacent the middle of the case are provided with extensions 86 folded back upon themselves to form a double thickness tongue 87 which tongue is disposed at right angles to the side wall section and extends to the middle 88 of the bottom 80. Sidewall sections 84 and 85 are provided with extensions folded to form similar tongues 89. The bottom 80 is provided with an extension 90 which is folded up inside of the members 87 and the bottom 83 is provided with an extension 91 folded up inside of the members 89, both of these extensions 90 and 91 terminating approximately halfway between the top and bottom of the case. An auxiliary member is formed in general U-shape and disposed with one edge 92 abutting against the bottom extension 90 and extending upwardly therefrom on the inside of members 87, thence across members 87 and 89 as shown at 93, thence down alongside of members 89 as shown at 94. The various extensions and members are secured together in any preferred manner, such as staples, 95, to form a partition consisting of six thicknesses of material. The top member 93 is slotted as shown at 96 and the side members 87 and 89 are cut away as shown at 97 to form a channel into which the cover tongue such as 45, Figure 2, or 163, Figure 9, may be fitted and locked to lock the cover on the case. If desired, the cover and case can be cut apart by cutting the staples between members 87 and 89 to form two half cases. This

embodiment of the invention produces a standard case of exceptional strength with a minimum of stock.

The shipping cases shown in Figures 1 and 4 are each provided with endwalls which are smooth, both on the inside of the case and on the outside. In certain instances, it may be advantageous to form the case with cleats projecting from it on the outside faces of the endwalls. In Figure 6 there is shown such a case.

In this embodiment of the invention, the bottom 100 and sidewalls 101 and 102 are formed of a single piece of double-faced corrugated board as before and bent along scores 103 to position the sidewalls 101 and 102 at right angles to the bottom. The bottom and both sidewalls are folded back upon themselves to form center tongues 104 as before, which tongues may be mitered as shown in Figure 1 or step-cut as shown in Figure 3 so that they will fit together.

In this embodiment of the invention the endwalls consist of separate pieces 105 and 106, having extensions which are folded back upon themselves to form side flanges 107 extending from top to bottom of the member. These flanges are disposed at right angles to the face of the endwall and contain a plurality of thicknesses of stock, the drawings showing two thicknesses. Upper extensions 108 are likewise folded over upon themselves to form outwardly extending flanges 109, which are disposed between the side flanges 107 and are spaced therefrom.

A projection at the bottom edge of the endwall is folded back upon itself to form a flange 109 disposed at right angles to the endwall and in the example shown containing two thicknesses of material.

Each of the side members 101 and 102 contain extensions which are scored and folded to embrace three sides of the side flanges 107 as shown at 110 and are secured thereto in any suitable manner such as by staples 111. This combination of endwall flange and sidewall extension forms a post in the corner of the case which, in the example shown, contains four thicknesses of material. A stronger post may be made by folding into the post additional thicknesses of material as required.

The bottom 100 contains an end extension which is folded up along the outer edge of the bottom flange 109, thence across the top of that flange, as shown at 112 and thence upwardly along the outer face of the endwall member 105, as shown at 113, being secured to the endwall in any preferred manner, such as by staples 114, which extend through this latter flange and the endwall member.

The partition is the same as shown in Figure 1 and consists of side members 116 and 117 and a top member 118 which embraces the tongues 104 and are secured thereto in any preferred manner such as by staples 119. The top member 118 contains a slot 120 through which the tongue of a cover such as tongue 43, Figure 2, may be projected to lock the cover on the case.

The cover for a case of this type is modified over those of the other embodiments as will be seen best in Figure 7. The main section 121 of the cover contains an end projection which is folded back on itself to form a tongue of double thickness as shown at 122 which tongue is T-shaped and contains laterally projecting lips 123 which engage the lower surfaces of the end flanges 108. Since these two flanges are spaced apart as shown in Figure 6, the center portion of

the tongue fits therebetween and the cover is thereby locked vertically and laterally by the tongue. If desired, endwalls 105 and 106 can be equipped with hand-holds 125 and ventilating openings 126 may be added, if desired. The cover may be equipped with flanges such as 49 in Figure 2, if desired.

The case so constructed is strong against endwise crushing and because of the four posts at the corners of the case and the two posts within the partition, it is particularly strong in a vertical direction and capable of being stacked to required heights without danger of crushing. A minimum of paper is employed in the construction of the case and this paper cut from a generally rectangular blank with a minimum of waste.

In each of the embodiments shown in Figures 1, 4, 5 and 6, the case has a single bottom with integral sidewalls on opposite sides thereof. Such a construction is preferable for the shipment and storage of lighter materials, such as eggs. In the case of heavier materials, such as oranges and lemons, which are usually shipped in a two-compartment case, and apples, pears, and the like, usually shipped in a single compartment case, because of the greater weight of the produce, a stronger case is advisable. A modified form of construction to produce a strong case is shown in Figure 8.

In this figure, the case consists of a bottom member 130, with side members 131 and 132 formed integral therewith and adapted to be folded along scorelines 133 to position the sides at right angles to the bottom. The bottom and side members are each folded back upon themselves to form tongues 134 and the tongues mitered as shown in Figure 2, or step-cut as shown in Figure 3, so as to fit together when the sidewalls are disposed at right angles to the bottom. The sidewalls 131 and 132 contain end extensions 135 which are scored so as to permit them to be folded back upon themselves to form posts 136 which in the embodiment shown contain four thicknesses of material. The extensions are perforated as at 137 and 138 to form mortises 139 as before.

Disposed against the inner and outer faces of the posts and tongues and extending from side to side of the case and from top to bottom is a liner consisting of an outer end portion 140 engaging the outer faces of the posts at one end of the case, a top portion 141 extending across the top of those posts and inner member 142 extending downwardly alongside the inner faces of those posts and bottom member 143 extending across the bottom 130 to the tongues 131, partition members 144, 145 and 146 engaging the two faces and ends of the tongues 134 and second bottom member 147 extending between the partition and the opposite end of the case and a second series of end members 148, 149 and 150 engaging the opposite faces and top of the posts 136 at the opposite end of the case.

Bottom 130 of the case contains an extension 151 which is folded up alongside of the liner member 140 and secured thereto and to the posts and the liner member secured to the posts in any preferred manner such as by staples 152. At the opposite end the bottom 130 contains an extension 153 that is folded up alongside the outer face of the liner member 150 and secured thereto and to the posts in any preferred manner, such as by staples, 154.

This construction results in a case having integral bottom and sidewalls, three thicknesses

of material in the endwalls, the inner two of which are spaced apart by a distance equal to the thickness of the posts, and a bottom liner section integral with the endwall and partition members. The case, therefore, has a double bottom supported by the endwalls and sidewalls and capable of carrying greater weights than would be possible in a single bottom case.

Since fruits are best preserved when contained in ventilated cases, the endwalls are provided with hand-holds 155 and these walls and the partition contain a plurality of ventilating openings 156 to permit circulation of air endwise through the case. Sidewall members 131 and 132 are provided with a plurality of ventilating ports 157 to permit cross ventilation in the case. As shown, the ventilating ports 156 and 157 are circular, but, obviously, any other desired shape may be used.

The case thus formed is closed by a cover shown in Figure 9 which will be seen to be of the same general construction as the cover shown in Figure 2 except that it has no side flanges. The cover has main body portions 160 and 161, end tongues 162 and a center tongue 163, each of which is shaped to form a locking member and consists of two thicknesses of material.

The top members 141, 145 and 149 are each provided with a slot 164 through which the tongues of the cover project to secure the cover on the case. Tongues 162 lock into the mortises 139 in the posts 136 as before.

As will be seen in Figure 8, the tongues 134 are cut away to form a slot 165 which, when the tongue is disposed between the members 144 and 146 of the partition, will form a mortise into which the lock projections on the tongue 163 of the cover are projected to lock the cover to the case at this point. The cover contains finger holds 166 to facilitate manipulations of it. Tongues 162 and 163 are each composed of two thicknesses of material preferably fastened together by staples 167.

If desired, the width of the sections 160 and 161 of the cover may be slightly less than the width of the case so that when the cover is locked on the case there will be an appreciable gap between the case and cover permitting free ventilation through the case in a vertical direction. When composed of so-called "moisture-proof" corrugated board, the case and cover shown in Figures 8 and 9 may be used to transport fruits and vegetables without danger of excessive damage thereto. The cover shown in Figure 9 may be used on the case shown in Figure 1 in lieu of the cover in Figure 2 if desired, to give better ventilation to the case.

From the foregoing, it will be seen that the shipping cases of my invention are possessed of many advantages. When composed of good grade double-faced corrugated paper of approximately $\frac{1}{8}$ " thickness and with proper spacing of the flutes, a case of great strength results. If the stock is so-called "moisture proof stock," the case is capable of withstanding the humidities encountered in cold storage plants without damage. The combination of integral bottom and sides, coupled with the flange cover locked to the case at both ends and in the middle results in a structure which is exceedingly strong against endwise crushing. The spaced apart wall sections in the ends and partition impart a certain resiliency to the case, a resiliency not to be found in wooden cases. The posts formed by folding the stock back upon itself a plurality of times

are exceedingly strong and give the cases great strength against vertical crushing. The cases using a small quantity of paper, can be constructed at low cost without sacrificing quality.

I have chosen to show and describe my invention by illustrating a preferred embodiment of it. I have done so by way of example only as there are many modifications and adaptations which can be made by one skilled in the art within the teachings of the invention.

Having thus complied with the statutes and shown and described a preferred embodiment of my invention, what I consider new and desire to have protected by Letters Patent is pointed out in the appended claims.

What is claimed is:

1. In a shipping case, a partition and two end walls each comprising at least two planar members joined together by a top member, means including said top members for spacing apart said sets of two planar members to add length and resiliency to the case, said top members each containing a slot opening into the space between the sets of planar members, posts projecting into the spaces between said members and engaging the inner faces thereof and the under face of the top member said posts each containing a mortise opening into said space, a cover for said case, tongues on said cover adapted to project through said slots into said spacers, and tenons on said tongues projected into said mortises to lock the cover on the case.

2. A two-compartment shipping case comprising a first compartment composed of bottom and side sections formed from a single piece of fibre-board, an end wall in one end of said compartment comprising inner and outer sections that are spaced apart, an end wall in the other end of said compartment comprising extensions of said side sections folded back upon themselves and abutted together on the median line of the case, an extension of said bottom section extending alongside the inner faces of said side section extensions and upwardly to the approximate middle of the compartment, a second and similar compartment disposed with its other end section abutting against said other end section of said first compartment, a U-shaped member extending from the top edge of the bottom extension in one compartment, upwardly alongside the inner face of the side section extensions of that compartment, across the top of the side section extensions of both compartments and downwardly alongside the side section extensions of the other compartment into abutment with the bottom extension of the other compartment, means securing together said extensions and U-member to fasten together said compartments and to form a partition therebetween, said side section extensions and said U-member being cut away to form a locking groove in said partition, the end wall members of said compartments also containing locking grooves opening into their upper edges, a cover, lock projections on said cover adapted to fit in the grooves in said end wall and said partition to lock the cover on the case, and flanges on the edges of said cover adapted to extend into said compartments alongside said sidewall sections to close the compartments.

3. In a shipping case, bottom and side sections formed from a single piece of fibre board; integral multi-layer flanges extended inwardly from said side and upwardly from said bottom section, at right angles thereto to form vertical reinforcing posts at the center of the side sec-

tions and a horizontal reinforcing tongue across the center of the bottom section; an integral multi-layer reinforcing post extending across each end of each side section and projecting inwardly therefrom at right angles thereto; end walls composed of fibre board and having planar inner and outer faces engaging opposite faces of said end posts; means securing said end walls to said end posts; a partition member composed of fibre board and having planar walls engaging opposite faces of said tongue and center posts; and means securing said partition member to said posts and tongue.

4. In a shipping case for fragile articles, integral bottom and side wall members composed of corrugated fibre board; vertical reinforcements for said side wall members comprising posts composed of a plurality of layers of said board each integral with the side wall member and extended from the top to the bottom edge thereof, one post at each end of each side wall member and one post in the middle of each side wall member, there being mortises formed in each post near the top thereof; a horizontal reinforcement for said bottom comprising a flange composed of a plurality of layers of said board each integral with said bottom, located at the middle thereof, extended upwardly therefrom at right angles thereto from side wall post to side wall post; end wall members composed of said board, of generally U-section, engaged with and secured to said end side wall posts extended from side wall to side wall, from the bottoms to the tops of said posts and across the tops of the posts, there being slots in the portions of the end wall members extended across the posts; a partition member, composed of said board, of generally U-section, engaged with and secured to said middle side wall posts, extended from side wall to side wall, from the bottoms to the tops of said posts and across the tops of the posts, there being slots in the portion of said partition extended across the tops of said posts; a cover for said case, integral flanges on said cover located at each end and at the middle thereof and composed each of a plurality of layers of said board, said flanges being adapted to project through said slots in the end walls and partition respectively; and tenons on each flange extended laterally therefrom and projected into the mortises on said posts to lock the cover onto the posts and case.

5. In a shipping case for fragile articles, integral bottom and side wall members composed of corrugated fibre board; vertical reinforcements for said side wall members comprising posts integral with the side wall members composed of a plurality of layers of material and extended inwardly therefrom at right angles thereto and located one at each end of and one in the middle of each side wall member; a horizontal reinforcement for said bottom member comprising an integral flange composed of a plurality of thicknesses of material located at the middle of the case and extended upwardly from the bottom at right angles thereto from side wall post to side wall post; end wall members composed of said board, of generally U-section, engaged with and secured to the opposite faces of said side wall posts and extended across the tops of said posts; and a partition member composed of said board, engaged with and secured to the opposite faces of said middle posts and said flange, abutted against said bottom and side wall members and extended across the tops of said middle posts.

6. In a shipping case, integral bottom and side

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wall members; extensions on each end of said side wall members forming posts that contain four thicknesses of material in face to face relation, are disposed at right angles to the side wall members, and extend from top to bottom thereof to reinforce the case vertically; extensions on each end of said bottom member extending upwardly alongside the outer faces of the posts and therebetween, across the tops of the posts and downwardly alongside the inner faces thereof to the bottom member to form a hollow end wall at each end of the case; and means securing said end walls to said posts thereby to secure the case together.

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