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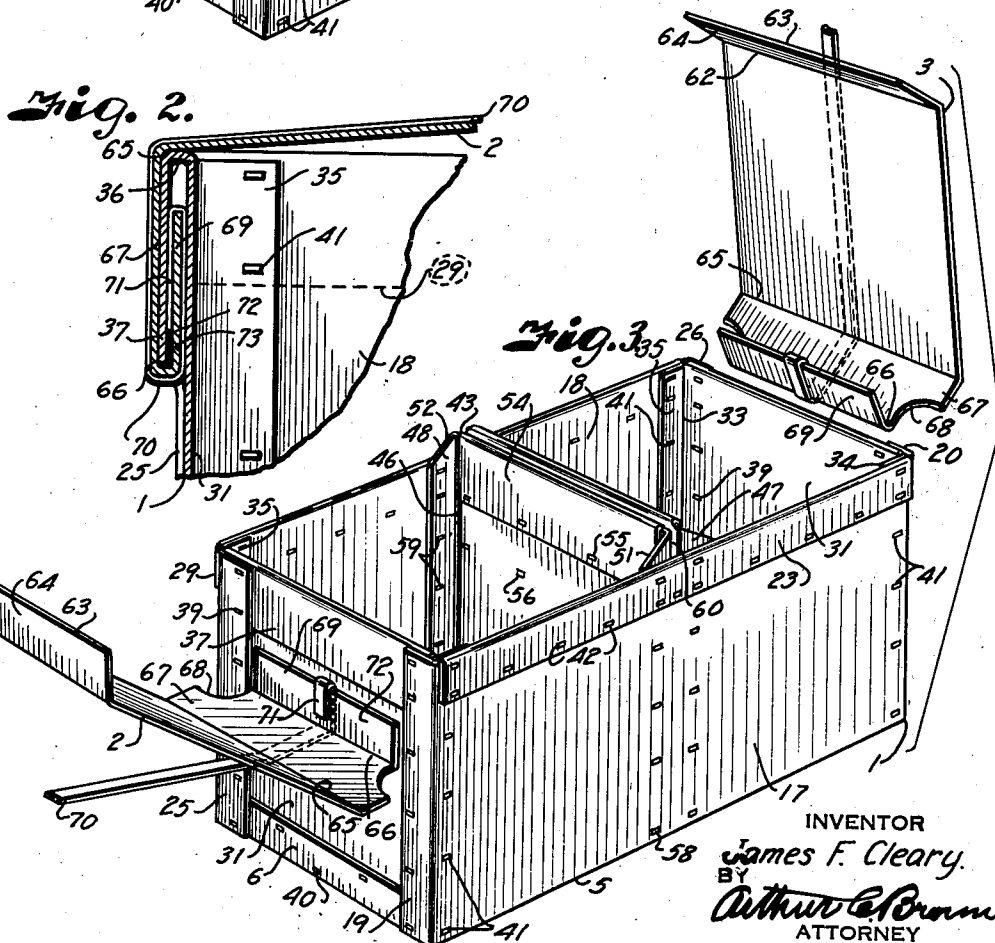
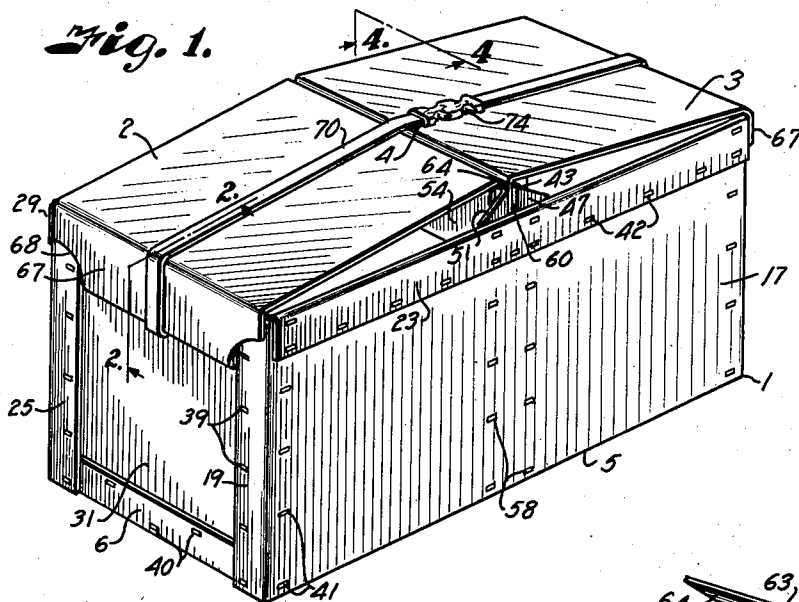
J. F. CLEARY

2,297,941

BOX

Filed Feb. 17, 1939

4 Sheets-Sheet 1



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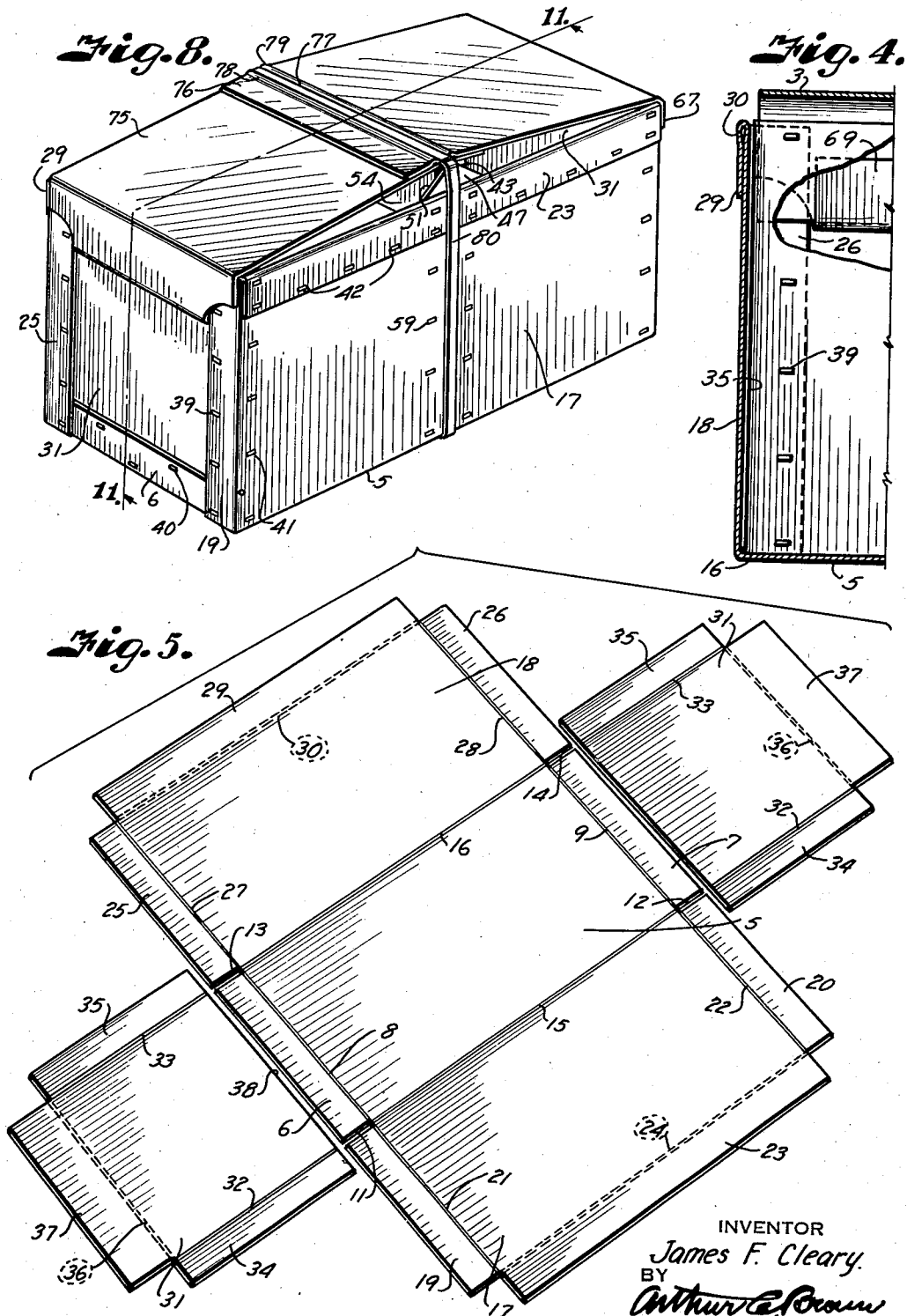
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4 Sheets-Sheet 2



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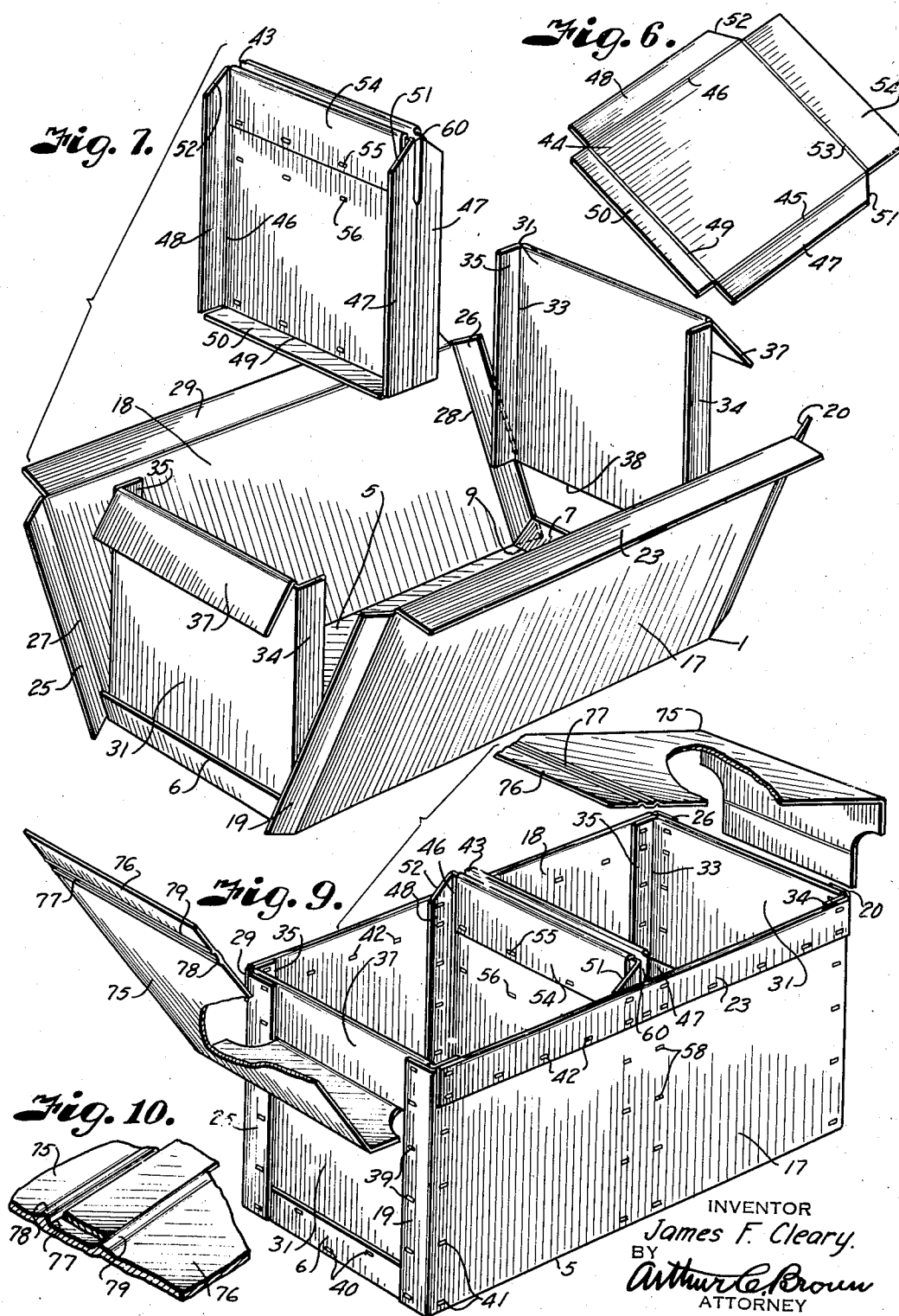
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BOX

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4 Sheets-Sheet 3



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2,297,941

BOX

James F. Cleary, Kansas City, Kans.

Application February 17, 1939, Serial No. 256,897

12 Claims. (Cl. 229—23)

This invention relates to boxes and more particularly to shipping boxes for fruit, eggs and similar commodities, the principal object of the invention being to provide strong boxes for this purpose arranged to be formed of corrugated, or solid fibre, or other composite board.

Other objects of the invention are to provide improved closures for shipping boxes together with improved arrangements for securing the closures for the boxes thereto; to provide for cutting the finished boxes into separate units without disturbing the contents thereof; to provide a bottom for the box which is free of projecting edges interiorly thereof; to provide a box construction which facilitates handling the boxes while being packed or in transit; to provide a box construction which provides close packing of commodities without damaging thereof; to provide packing boxes with removable covers that are readily applied and securely retained in position; to provide improved reinforcements for the portions of the boxes normally receiving the greatest strain and to reduce to a minimum unsupported areas; and to provide boxes of relatively light weight which are economical and efficient for their intended purpose.

In accomplishing these and other objects of the present invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a box constructed in accordance with my preferred form of invention.

Fig. 2 is a detail vertical cross-section through an upper portion of the end of the box illustrated in Fig. 1, substantially on the line 2—2, Fig. 1, particularly illustrating the arrangement for securing a closure to the box.

Fig. 3 is a detail perspective view of my preferred form of box, closure and securing arrangement, the closures being shown in spaced relation to the box preparatory to assembling the box and securing the same in closed condition.

Fig. 4 is a fragmentary vertical cross-section through the box substantially on the line 4—4, Fig. 1, a part of an end wall of the box being broken away to illustrate the relation of a closure member thereto.

Fig. 5 is a detail perspective view of a blank from which the body of the box is constructed in accordance with the present invention.

Fig. 6 is a detail perspective view of a blank

from which a center partition for the box is constructed.

Fig. 7 is a detail perspective view of the box embodying features of the present invention, the various elements thereof being shown in partially assembled relation.

Fig. 8 is a perspective view of a box constructed in accordance with my preferred form of invention, the closures and closure securing element therefor constituting a modified form of the present invention.

Fig. 9 is a perspective view of the box illustrated in Fig. 8, the closures therefor being shown in partially disassembled relation to the box with portions of the closures broken away to better illustrate the arrangement.

Fig. 10 is a fragmentary perspective view of a closure for the box, particularly illustrating the relation of the securing element to the closure.

Fig. 11 is a detail vertical cross-section through the box illustrated in Fig. 8 substantially on the line 11—11 thereof.

Fig. 12 is a perspective view of a box provided with closures of the character illustrated in Figs. 1 to 5 and illustrating a modified arrangement for securing closures of the box in closed position.

Fig. 13 is a fragmentary perspective view of a box similar to that shown in Fig. 12, one of the closures being removed, the other closure being shown attached to the box and in condition providing access to the box.

Fig. 14 is a broken vertical cross-section through the box illustrated in Figs. 1 and 9, particularly illustrating the relation of the ends of the closures to the box when the box is in closed condition.

Referring more in detail to the drawings:

1, Fig. 1, designates a shipping box for commodities such, for example, as citrus or like fruits, eggs and the like, the box preferably being formed of paper, fibre or like board and being provided with closures 2 and 3, Fig. 1, preferably of a material similar to the box and held in closing relation to the box by a securing element 4.

The blank from which the box 1 is preferably constructed is illustrated in Fig. 5 and includes a bottom member 5 having end flaps 6 and 7 defined by score lines 8 and 9 and slots 11, 12, 13 and 14, the slots 11—12 and 13—14 being at opposite ends of score lines 15 and 16 respectively which define the side edges of the bottom member 5 and the bottom edges of the side members 17 and 18 which project laterally of the bottom member. The side member 17 is provided with

end flaps or flanges 19 and 20 defined by score lines 21 and 22 and with a side flap or flange 23 defined by the score line 24; the side member 18 being similarly provided with end flaps or flanges 25 and 26 defined by score lines 27 and 28 and a side flap 29 defined by the score line 30.

The ends of the box preferably consist of duplicate blanks 31 having longitudinal score lines 32 and 33 defining side flaps 34 and 35 and a transverse score line 36 defining a top flap 37.

With the construction thus far described, the box 1 is assembled by folding the side members 17 and 18 and the bottom member end flaps 6 and 7 upwardly on the score lines 15, 16, 9 and 8, whereupon the bottom edges 38 of the end members 31 may be placed on the bottom member 5, the side flaps 34 and 35 of the end members being folded inwardly as shown in Fig. 7. The top flaps 37 of the end members 31 being folded outwardly and downwardly, the end flaps or flanges 19-20 and 25-26 of the side members 17 and 18 may be lapped over the end members 31 as well as the downwardly turned flaps 27 and the upwardly turned bottom member end flaps, whereupon the respective members and flaps may be secured together by stitching or stapling 39, 40 and 41. The ends of the top flaps 37 are thus anchored with the intermediate portions thereof loose to provide downwardly opening pockets for a purpose later described. The side flaps 23 and 29 of the side members 17 and 18 are preferably turned outwardly and downwardly where they are secured by stapling 42, for example, to the side members to aid in bracing the sides of the box longitudinally thereof.

In order to interiorly brace the box and to form a plurality of individual compartments or units in a single box, a partition member 43, Fig. 7, is provided. The partition member 43 preferably consists of a pair of blanks one of which is illustrated in Fig. 6 and designated 44. The blank 44 conforms to the cross-section of the box and has score lines 45 and 46 defining the inner edges of side flaps 47 and 48. The bottom edges of the side flaps are in the plane of a score line 49 defining the inner edge of a bottom flap 50 for the blank 44 while the upper edges 51 and 52 thereof are preferably tapered outwardly and downwardly relative to a score line 53 defining the inner edge of a top flap 54 for the blank 44.

In assembling the partition within the box, a pair of duplicate blanks may be employed with the bottom flaps 50 arranged laterally of the blanks in oppositely disposed relation to seat on the bottom member 5 of the box 1. The side flaps 47 and 48 are similarly arranged in relation to the blank and engage the side walls of the box 1. The top flaps 54 of the blanks 44 are folded outwardly and downwardly on opposite sides of their respective blank body members and are then preferably stitched or stapled to the blanks of which they form a part as shown at 55. The blanks are themselves secured together, if desired, by stitching or stapling 56, while the side flaps of the partition blanks are stitched or stapled to the side members of the box as shown at 58 and 59.

With the construction described, it is apparent that the upper ends of a joined pair of partition members may be separated to form a groove or seat 60, above the stitching 56, to provide a space for seating portions of closures later described, and that the partition preferably extends upwardly above the sides of the box in the na-

ture of center and side posts for bracing the center box structure.

It is also apparent that the box may be cut between the partition sections to form individual units, the stitching 56 being readily separable, so that half a crate or box of commodities may be sold, shipped, or otherwise suitably disposed of without disturbing the other half or unit of the box.

In Figs. 1 to 3 and 12 to 14, my preferred form of closures 2 and 3 is illustrated. The closures each preferably consist of a blank having a score line 62 spaced from one edge 63 thereof to define an inner end flap 64 engageable within the seat 60. The score line 65 cooperates with the score line 66 to define an intermediate section or flange 67 engageable over a portion of the ends of the box. The section 66 is preferably notched as at 68 on both sides of the blank, the notches being carried out to the end of the blank to form a hook-like flap or tongue portion 69 of reduced width relative to the blank proper arranged to engage in the pocket formed by the flap 37, for example, on the end member 31 of the box 1, as shown in Fig. 2.

While there is substantial friction available to hold the closures in closing condition relative to the box, it is preferred to provide the securing element 4, Fig. 1, to positively carry out this function and to this end a bendable, preferably flat metallic member 70 is employed. As shown in Fig. 2, one end 71 of the member 70 is placed on the face 72 of the flap 69 and bent over the opposite face 73 thereof. The member 70 is then again bent at the score line 66 of the blank 4 and engages over the outer face of the blank, the member extending longitudinally of the blank 61. By so placing the member 70 and then fitting the flap 69 between the end member of the box and its downwardly extending flap, it has been found practically impossible to remove the securing member 70. A securing member 70 may be and preferably is provided for each closure, the ends of the member being joined and sealed in a conventional manner, as by the clip 74, after the box is packed.

It is apparent that the securing member 70 when so arranged does not protrude from the box nor does it form an object which might catch an obstruction to hinder handling of the box. It is customary to cut the securing member and thus break the seal when the box is to be unpacked.

It is further apparent that even though substantial pressures are placed on the closures in sealing the box, the closures cannot bruise or otherwise damage the commodities in the box because of the closures being held above the sides of the box by the center partition. This latter feature also works to ventilate the box.

In Figs. 8, 9 and 11 a modified form of closure 75 is illustrated wherein the general structure is the same as in the preferred form of closure except for the inner ends 76 thereof. In this instance the said inner ends are each provided with a transverse groove 77, Fig. 10, arranged between a pair of ribs 78 and 79. The ends of the closures are adapted to be overlapped as clearly shown in Figs. 8 and 11 and a band 80, preferably of strap metal, may then be placed around the box in such a manner as to seat in the groove to hold the inner ends of the closures in overlapped relation and the box in closed and sealed condition.

Another suitable arrangement for sealing the

box is illustrated in Fig. 12 wherein a band or like securing element 81 is applied around the box and in the direction of the longer dimension. Either type of closure may be used in this instance, the box being efficiently closed by the arrangement disclosed.

It is apparent, therefore, that I have provided a box which is strong and well adapted to carry various commodities, which may be efficiently sealed and shipped without damage to the commodities contained therein, which is economical in construction and shipping weight because of its adaptability for formation from paper, solid or corrugated fibre or like board, and which is adequately reinforced by the strip members or flaps about edge boundaries of the box.

What I claim and desire to secure by Letters Patent is:

1. A box including an open top body having oppositely arranged walls provided with downwardly opening pockets, closure members having hook-like flanges engageable in said pockets, fastening straps having ends extending over the hook-like flanges and engageable in said pockets and having their opposite ends extending over said closure members, and means connecting said fastening straps.

2. A box including an open top body having a wall provided with a downwardly opening pocket, a closure member having a hook-like flange engageable in said pocket and extending over the open top of the box, and a fastening strap having one end extending over the hook-like flange and engaged in said pocket and having its other end extending over said closure member.

3. A box including an open top body having a wall thereof provided with a downwardly opening pocket, a closure member having a hook-like flange engageable in said pocket and having a flap on its opposite edge engageable with an opposite wall of the box, a strap having one end extending over the hook-like flange and engageable in said pocket and having an opposite end extending over said closure member to retain the flap in engagement with said opposite wall.

4. A box of the character described including bottom and side members, end members having flaps, the flaps on the end members being folded into engagement with the end members for bracing the same, a partition dividing the box into individual compartments, said partition having a seat at its upper end, a closure for the box having a flap engageable between one of the end members and the flap thereon to secure the closure in position relative to the box, said closure having a flap opposite said first-named closure flap engageable in the seat in said partition, and a securing element for said closure having one end thereof looped about the first-named flap of said closure, the other end of said securing element being secured to a corresponding end of a duplicate securing element engaged with the box at the opposite end thereof.

5. A box for citrus fruits and the like including, side, end, and bottom members, flanges co-extensive with the upper edges of the side and end members and bent retractively to lie against the outer faces of said members, flanges on the ends of the side members overlying the outer marginal portions of the end members and lapping said retractively bent flanges of the end members, means securing said flanges to the portions of said members contacted thereby including the lapping ends of said flanges whereby

said flanges form a reinforcing frame along the upper and marginal side edges of each of said members, said portion of the retractively bent flanges on the end members being free and unattached between the end flanges of the side members to form pockets closed at the ends, cover means having flanges engaging over the retractively bent flanges of the end members and having tongue portions extending upwardly into said pockets, and a fastening strap extending across the cover means to cooperate with the tongue portions in retaining the cover means.

6. A box for citrus fruits and the like including, side, end, and bottom members, flanges co-extensive with the upper edges of the side and end members and bent retractively to lie against the outer faces of said members, flanges on the ends of the side members overlying the outer marginal portions of the end members and lapping said retractively bent flanges of the end members, flanges on said marginal portions of the end members engaging the inner faces of the side members in lapping relation with the retractively bent flanges of the side members, means securing said flanges to the portions of said members contacted thereby including the lapping ends of said flanges whereby said flanges form a reinforcing frame along the upper and marginal side edges of each of said members, said portion of the retractively bent flanges on the end members being free and unattached between the end flanges of the side members to form pockets closed at the ends, cover means having flanges engaging over the retractively bent flanges of the end members and having tongue portions extending upwardly into said pockets, and a fastening strap extending across the cover means to cooperate with the tongue portions in retaining the cover means.

7. A box for citrus fruits and the like including, side, end, and bottom members, flanges co-extensive with the upper edges of the side and end members and bent retractively to lie against the outer faces of said members, flanges on the ends of the side members overlying the outer marginal portions of the end members and extending over said retractively bent flanges of the end members, flanges on said marginal portions of the end members engaging the inner faces of the side members in lapping relation with the retractively bent flanges of the side members, means securing said flanges to the portions of said members contacted thereby including the lapping ends of said flanges whereby said flanges form a reinforcing frame along the upper and marginal side edges of each of said members, said portion of the retractively bent flanges on the end members being free and unattached between the end flanges of the side members to form pockets closed at the ends, cover means having flanges engaging over the retractively bent flanges of the end members and having tongue portions extending upwardly into said pockets, and a fastening strap extending across the cover means to cooperate with the tongue portions in retaining the cover means.

8. A box for citrus fruits and the like including, side, end, and bottom members, flanges co-extensive with the upper edges of the side and end members and bent retractively to lie against the outer faces of said members, flanges on the ends of the side members overlying the outer marginal portions of the end members and extending over said retractively bent flanges of the end members, flanges on said marginal portions of the end members engaging the inner faces of

the side members in lapping relation with the re-
tractively bent flanges of the side members, fas-
tening devices securing said flanges to the por-
tions of said members contacted thereby, selected
fastening devices extending through the lapping
ends of said flanges whereby said flanges form a
reinforcing frame along the upper and marginal
side edges of each of said members, said portion
of the retractor bent flanges on the end mem-
bers being free and unattached between the end
flanges of the side members to form pockets
closed at the ends, a transverse partition in said
box extending above the retractor bent
flanges of the side members, closure means for said
box extending over said projecting portion of the
partition and having downturned flanges extend-
ing over the retractor bent flanges of the end
members and having tongue portions engaged in
said pockets, and a strap extending across said
closure means to cooperate with the tongue por-
tions in retaining the closure means.

9. A box for citrus fruits and the like includ-
ing, side, end, and bottom members, flanges co-
extensive with the upper edges of the side and
end members and bent retractor to lie against
the outer faces of said members, flanges on the
ends of the side members overlying the outer
marginal portions of the end members and ex-
tending over said retractor bent flanges of
the end members, flanges on said marginal por-
tions of the end members engaging the inner
faces of the side members in lapping relation with
the retractor bent flanges of the side mem-
bers, fastening devices securing said flanges to
the portions of said members contacted thereby,
selected fastening devices extending through the
lapping ends of said flanges whereby said flanges
form a reinforcing frame along the upper and
marginal side edges of each of said members, said
portion of the retractor bent flanges on the
end members being free and unattached between
the end flanges of the side members to form
pockets closed at the ends, a transverse parti-
tion in said box extending above the retractor
turned flanges of the side members, closure means
for said box extending over said projecting por-
tion of the partition and having downturned
flanges extending over the retractor bent
flanges of the end members and having tongue
portions engaged in said pockets, and a fastening
strap extending over said closure means and hav-
ing ends extending over said tongue portions.

10. A box for citrus fruits and the like includ-
ing, side, end, and bottom members, flanges co-
extensive with the upper edges of the side and
end members and bent retractor to lie against
the outer faces of said members, flanges on the
ends of the side members overlying the outer
marginal portions of the end members and ex-
tending over said retractor bent flanges of the
end members, flanges on said marginal portions
of the end members engaging the inner face of
the side members in overlying relation with the
retractor bent flanges of the side members,
fastening devices securing said flanges to the
portions of said members contacted thereby, se-
lected fastening devices extending through the
lapping ends of said flanges whereby said flanges
form a reinforcing frame along the upper and
marginal side edges of each of said members, 70

said portion of the retractor bent flanges on
the end members being free and unattached be-
tween the end flanges of the side members to
form pockets closed at the ends, a transverse par-
tion in said box extending above the retractor
bent flanges of the side members having a pocket-
like groove extending parallel with the end mem-
bers, and closure members for said box having
end flanges overlying the retractor bent
flanges on the end members and having tongue
portions engaged in said pockets and having flaps
projectable in said pocket-like groove of the
partition.

11. A box for citrus fruits and the like includ-
ing, side, end, and bottom members, flanges
coextensive with the upper edges of the side and
end members and bent retractor to lie against
the outer faces of said members, flanges on the
ends of the side members overlying the outer
marginal portions of the end members and ex-
tending over said retractor bent flanges of the
end members, flanges on said marginal portions
of the end members engaging the inner face of
the side members in overlapping relation with the
retractor bent flanges of the side members,
fastening devices securing said flanges to the por-
tions of said members contacted thereby, selected
fastening devices extending through the lapping
ends of said flanges whereby said flanges form
a reinforcing frame along the upper and mar-
ginal side edges of each of said members, said
portion of the retractor bent flanges on the
end members being free and unattached to form
pockets closed at the ends, a transverse parti-
tion in said box extending above the retractor
turned flanges of the side members having a
pocket-like groove extending parallel with the
end members, closure members for said box hav-
ing end flanges overlying the retractor bent
flanges on the end members and having tongue
portions engaged in said pockets and having flaps
projectable in said pocket-like groove of the par-
tion, straps having ends engaging the tongue
portions in said pockets and extending over the
closure members, and means securing the ends of
the straps extending over the closure members.

12. A box for citrus fruits and the like in-
cluding, side, end, and bottom members, flanges
on the upper edges of the side and end mem-
bers and bent retractor to lie against the outer
faces of said members, flanges on the ends of the
side members overlying the outer marginal por-
tions of the end members and extending over the
retractor bent flanges of the end members,
fastening means securing the flanges to the por-
tions of the members contacted thereby, said
portions of the retractor bent end flanges be-
tween said flanges on the end members being
unattached to form downwardly opening pockets,
a partition in the box having a portion extending
above the upper edges of the side members and
having a pocket-like groove parallel with the
end members, cover members having depending
flanges extending over the retractor bent end
flanges and provided with tongue portions engag-
ing in said pockets, and flaps on opposite ends
of said cover members engaged in said pocket-
like groove.

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