

May 21, 1929.

H. B. WALTER

1,713,682

FIBER BOARD SHIPPING CASE

Filed Aug. 1, 1927

2 Sheets-Sheet 1

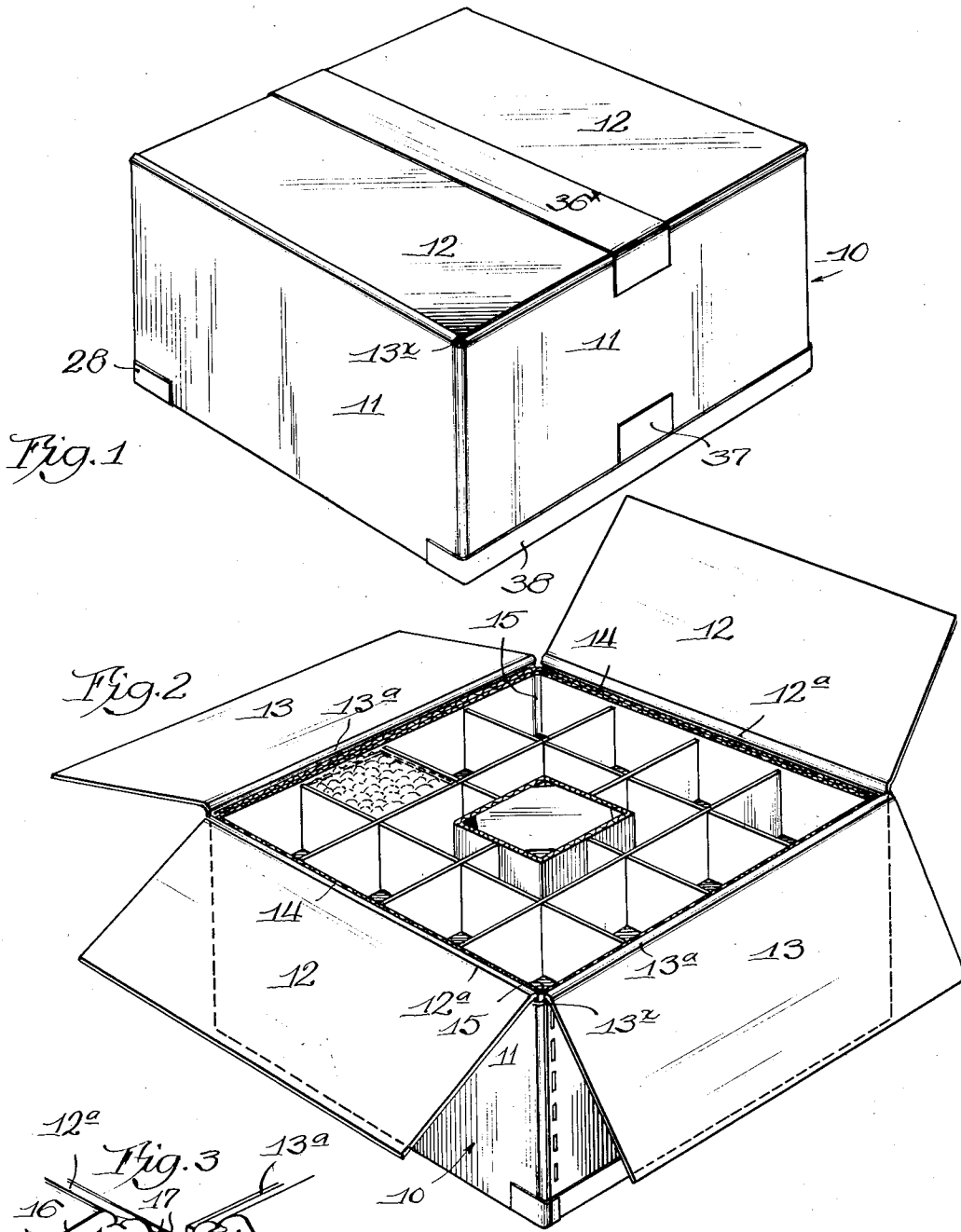


Fig. 1

Fig. 2

Fig. 3

Witness:
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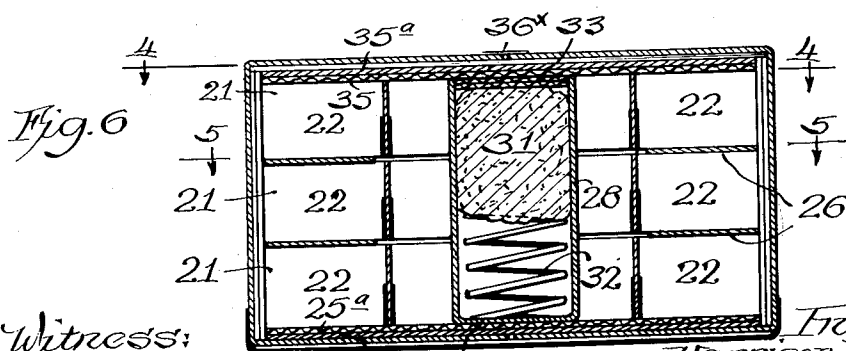
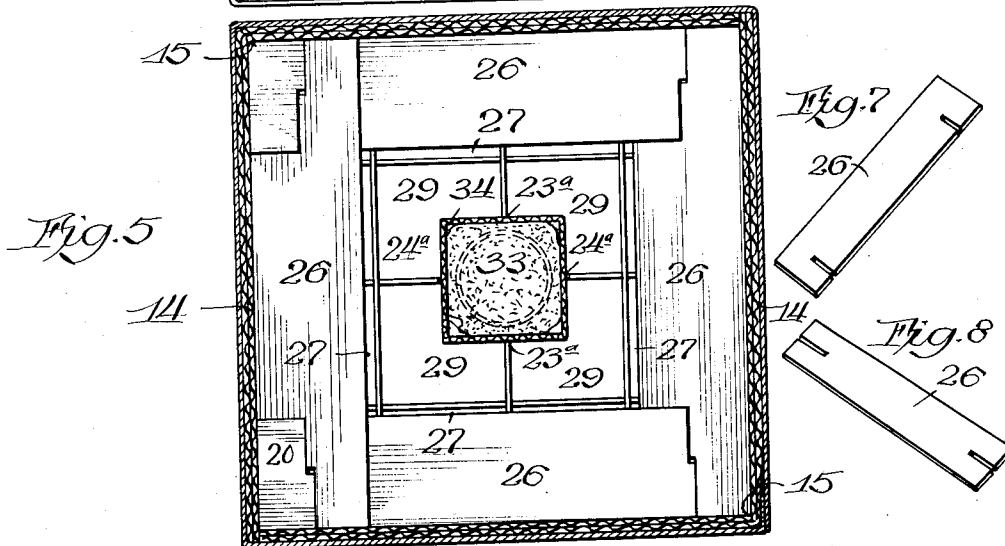
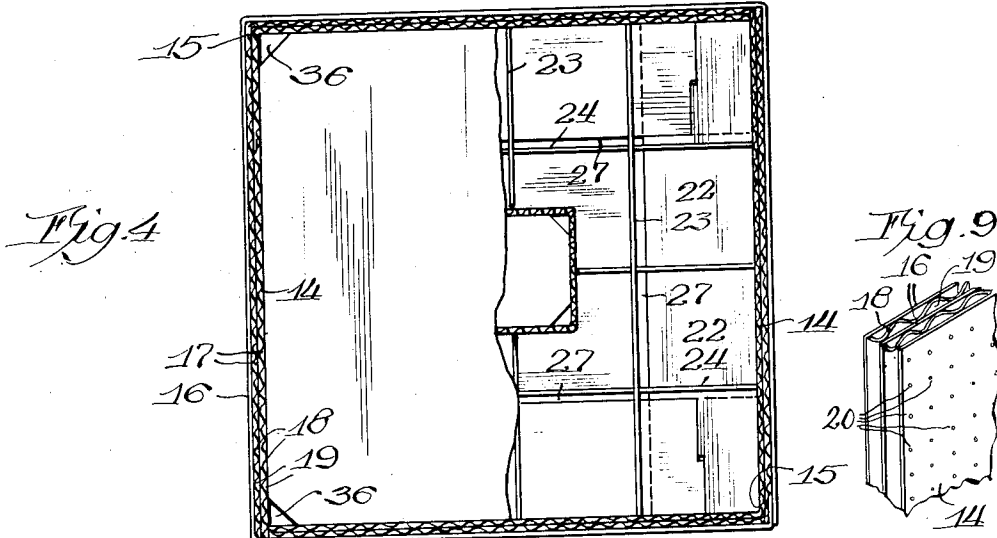
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2 Sheets-Sheet 2



Witness:
 Chas. F. Korsch.

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UNITED STATES PATENT OFFICE.

HARRISON B. WALTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO CONTAINER CORPORATION OF AMERICA, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

FIBER-BOARD SHIPPING CASE.

Application filed August 1, 1927. Serial No. 209,668.

This invention relates to a novel and improved shipping case made of fiber or paper board and consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The object of the invention is to produce a strong and durable shipping case of the kind, collapsible for shipment, but readily set up, and adapted primarily for the safe carrying of small fruit, as berries of all kinds, but equally for use with other fruits and vegetables, and providing space to contain and efficiently take care of a chemical refrigerant such, for example, as the so-called "dry ice." A further object of the invention is to produce a cheap and economical shipping case in which the walls thereof are so constructed and arranged that the gases given off by the chemical refrigerant, which are several times heavier than air, may enter into and circulate through said walls so as to constitute an efficient insulation jacket about the contents to prevent the temperature of the air surrounding the shipping case from materially affecting the temperature of said contents.

These and other advantages of the invention will appear more fully as I proceed with my specification.

In the drawings:—

Figure 1 is a perspective view of the improved shipping case as it appears when closed and sealed ready for shipment.

Figure 2 is a perspective view of the case shown set up and partially packed with the cover wings or lid sections laid back to disclose the interior of the case.

Figure 3 is a detail perspective view on an enlarged scale showing one top corner of the box with the cover wings laid back.

Figure 4 is a top plan view of the case with the cover wings removed.

Figure 5 is a transverse section through the case in a plane indicated by the line 5, 5 of Figure 6.

Figure 6 is a vertical section through the case in a plane midway between and parallel to opposite sides of the case.

Figures 7 and 8 are perspective views on a smaller scale of certain strips included in the case and described more particularly later.

Figure 9 is a detailed view to be referred to later.

Referring now to that embodiment of my invention illustrated in the drawings:—10 indicates the outer shell of the shipping case. This is made of heavy fiberboard and is preferably of the familiar slotted container type of box consisting of a rectangular tubular body 11 and of cover wings or lid sections 12, 12—13, 13 which are adapted to be folded down in pairs to close, respectively, the top and bottom of the body, as shown in Figure 1. The pairs of said cover wings meet along a transverse median line at the top (or bottom) of the box. The cover wings are identical at the top and bottom of the box with the exception that the slots made in cutting the blank to form the top cover wings are preferably carried somewhat below the crease lines 12^a, 13^a upon which said cover wings fold to leave ventilation openings 13^x at the four top corners of the box when said top cover wings are in closed relation. (See Figure 3.)

14, 14 indicate liner parts for the walls of the tubular body 11 of the box. Said parts are made of corrugated board, duplex as shown, and by preference are formed from two continuous strips of a width equal to the vertical height of the tubular body 11 and of a length sufficient so that each provides two sections defined by creases 15, each section constituting a liner for a wall of the tubular body. Said corrugated board, as is well known, is of the familiar sort comprising spaced sheets 16 and 17 with corrugated sheets 18 between. The corrugated sheets provide parallel open channels 19 extending in one direction across the corrugated board. The corrugated board forming the liner walls 14 is arranged with the corrugations 18 and channels 19 running vertically and the inner sheet 17 is provided with a plurality of small perforations 20 to permit the flow of gas or air from the interior of the box into the said channels 19.

Within the box is placed a cellular structure comprising a plurality of vertically disposed tiers of cells 21, each tier including a plurality of horizontally disposed cells 22. Each tier of cells is produced in a well

known manner by means of parallel spaced fiber board strips 23, 23 and the like strips 24, 24, which are cut at intervals of their length to permit them to be assembled in
 5 crossed relation as shown in Figure 2, and thereby provide when set in the box (in this case, sixteen) cells 22. The size of the cells will depend upon the vegetable or fruit to be shipped and will preferably be such as
 10 to contain a marketable unit in the familiar open top veneer box or basket in which such articles are generally offered to the public; as for example, in the present instance, the cells are each of a size to receive a quart
 15 veneer box or basket of strawberries, as shown in one of the cells in Figure 2.

The bottom tier of cells 21 rests on the bottom of the box 10, there being preferably interposed one or two (as shown two) boards
 20 25, 25^a equal in area to the cross sectional area of the box. The bottom board 25 as shown is a solid fiber board while the board 25^a on which the bottom tier of cells directly rests is a corrugated board. Between the
 25 tiers of cells are interposed four strips 26 (see Figures 5, 7 and 8) which are notched near their ends and interengaged to provide an open-square board, the outer dimensions of which are such as to permit it to fit easily
 30 within the liner parts 14, 14. The said strips are narrower than the cells so that narrow openings 27 are left to expose the outer four rows of cells at their inner margins. As
 35 will appear these four rows next the walls of the box body, are the only cells designed to receive the fruit. Said strips provide at once a cover for the cells of the tier below it and a bottom support for the tier
 40 above it. Such sheets are preferably coated or lined with heavy paraffin to prevent the juice of the fruit or vegetable from entering the fiber-board and softening or weakening it.

The middle strips 23 and 24 forming the
 45 tiers of cells are cut near the center of the box to leave space between their proximate ends for a vertically elongated fiber board box or container 28, for the chemical refrigerant or dry ice. The ends 23^a, 24^a of
 50 the said strips of the several tiers of cells engage the container 28 and hold it in spaced relation within the quadrangle occupied by the outer rows of cells 22 with ample space
 55 of said refrigerant with the fruit and to provide for circulation.

The container 28 is an ordinary tubular box made of corrugated board with a bottom wall 30 and open at the top. 31 indicates a block of the refrigerant and 32, a
 60 coiled spring interposed between the said bottom wall 30 of the box and the bottom of said block. Said spring acts as a follower to maintain the block of refrigerant, as it dissipates, at the top of its container. 33 indi-

cates a closure for the top of the container. This is a corrugated board engaging snugly within said box, with its corners cut away as indicated at 34 to provide for ventilation and escape of the vapor or gas given off by
 70 the refrigerant or dry ice.

On the top tier of cells is placed a corrugated board 35 and a solid fiber board 35^a similar to those on the bottom of the box. But in this case said boards 35 and 35^a are
 75 cut away at the corners as indicated at 36 (see Figure 4) in order to leave ventilation openings. Said boards rest upon the board 33 covering the top of the refrigerant container and hold it in place against the action
 80 of the follower spring 32.

The top closure wings are folded down on top of the fiber board 35^a and are sealed by a strip 36^x in a familiar manner.

The manner of packing the shipping case
 85 will be manifest. The cover flaps for the bottom of the box 10 are folded into place and closed by sealing tape 37, as shown in Figure 1, with additional strips of tape 38 applied at the open edges as illustrated. 90
 The boards 25, 25^a are then laid in the bottom of the box and a set of strips 23, 24 forming a tier of cells is placed in the bottom of the box. The cells 22 of the tier are
 95 then filled with baskets of berries or other article. An open square of board provided by a set of strips 26 is then placed on top of and in covering relation to the bottom tier
 100 21 of the cells 22. The next tier of cells is similarly introduced and packed and so on until the shipping case is filled to the top. The dry ice container 28 is then inserted into the space defined by the ends 23^a, 24^a of the
 105 middle strips 23, 24 of all the tiers of cells and the boards 35 and 35^a are placed on the top tier of cells. The top cover flaps 12 and 13 are then folded in place and sealed by the tape 36^x. The box is then ready for shipping.

It will be manifest that when the shipping
 110 case is closed and sealed each basket of the perishable article to be shipped is closely contained in its own cell and its contents are confined therein by one of the strips 26
 115 or by the board 35. As a result the fruit, vegetable or other article shipped arrives at its destination in an efficiently refrigerated condition and without any bruising or jars due to independent movement within the
 120 shipping case.

I claim as my invention:

1. A shipping case comprising an outer fiber board tubular body with means to close the top and bottom thereof, a plurality of vertically disposed separable tiers of cells
 125 extending from the bottom to the top of said body, each tier of cells being provided by cross strips of board, certain strips being cut away to leave a vertically extending space common to all of said tiers spaced
 130

horizontally on all sides from the remaining cells, and strips providing horizontal, open-square partition walls between said tiers of cells.

5 2. A shipping case comprising an outer fiber board tubular body having cover wings adapted to be folded into interlapped relation to close the top and bottom thereof, a plurality of vertically disposed separable
10 tiers of cells extending from the bottom to the top of said body, each tier of cells being provided by cross strips of board, certain strips being cut away to leave a vertically
15 extending space common to all of said tiers spaced horizontally on all sides from the remaining cells, and strips providing horizontal, open-square partition walls between
20 said tiers of cells, each of said strips being narrower than the row of cells which it covers.

3. A shipping case comprising an outer fiber board tubular body having cover wings adapted to be folded into interlapped relation to close the top and bottom thereof, a
25 plurality of vertically disposed separable tiers of cells extending from the bottom to the top of said body, each tier of cells being provided by cross strips of board, certain strips being cut away to leave a vertically
30 extending central space common to all of said tiers spaced horizontally on all sides from the remaining cells, strips providing horizontal, open-square partition walls between said tiers of cells, a hollow tubular
35 container closed at the bottom disposed in said central space, an elastic expanding cushion resting on the bottom of said container, and a closure snugly fitting within the top of said container, said closure being
40 cut away at or near the corners to provide ventilation for said container.

4. A shipping case comprising an outer fiber board tubular body having cover wings adapted to be folded into interlapped relation to close the top and bottom thereof, said
45 body being notched at the corners at the top to provide ventilation openings when the top cover wings are in closed position, a plurality of vertically disposed separable tiers
50 of cells extending from the bottom to the top of said body, each tier of cells being provided by cross strips of board, certain strips being cut away to leave a vertically extending central space common to all of said
55 tiers spaced horizontally on all sides from the remaining cells, and strips providing horizontal, open-square partition walls between said tiers of cells.

5. A shipping case comprising an outer fiber board tubular body having cover wings adapted to be folded into interlapped relation to close the top and bottom thereof, said body being notched at the corners at
60 the top to provide ventilation openings when the top cover wings are in closed position,

a plurality of vertically disposed separable tiers of cells extending from the bottom to the top of said body, each tier of cells being provided by cross strips of board, certain strips being cut away to leave a vertically
70 extending space common to all of said tiers spaced horizontally on all sides from the remaining cells, strips providing horizontal, open-square partition walls between said tiers of cells, and one or more boards at the
75 top and bottom of said tiers of cells, the board or boards at the top being cut away at the corners to provide ventilation openings.

6. A shipping case comprising an outer fiber board tubular body having cover wings adapted to be folded into interlapped relation to close the top and bottom thereof, said body being notched at the corners at
80 the top to provide ventilation openings when the top cover wings are in closed position, a plurality of vertically disposed separable tiers of cells extending from the bottom to the top of said body, each tier of cells being provided by cross strips of board, certain
85 strips being cut away to leave a vertically extending space common to all of said tiers spaced horizontally on all sides from the remaining cells, strips providing horizontal, open-square partition walls between said
90 tiers of cells, and a corrugated board and a fiber board arranged in pairs at the top and bottom, respectively, of said tiers of cells, said boards at the top being cut away at the corners to provide ventilation openings.
100

7. A shipping case comprising an outer fiber board tubular body with means to close the top and bottom thereof, corrugated liner sheets located within the vertical walls of
105 said tubular body a plurality of vertically disposed separable tiers of cells extending from the bottom to the top of said body, each tier of cells being provided by cross strips of board, certain strips being cut away to leave a vertically extending space common
110 to all of said tiers spaced horizontally on all sides from the remaining cells, and strips providing horizontal, open-square partition walls between said tiers of cells.

8. A shipping case comprising an outer fiber board tubular body in the form of a slotted container having top and bottom cover wings, the body of said container being notched at the corners at the top to provide ventilation openings, means providing
115 corrugated liner sheets for the body of said container, a plurality of vertically disposed, separable tiers of cells within said container, each tier being formed of cross strips of fiber board, certain strips being
120 cut away to leave a vertically extending central space common to all of said tiers spaced horizontally on all sides from the remaining cells, strips providing horizontal, open-square partition walls between said
125 tiers of cells.

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tiers of cells, each of said second named strips being narrower than the row of cells which it covers, a corrugated board and a fiber board at the top and bottom of said
5 container, said boards at the top being cut away at the corners to provide ventilation openings, a hollow, tubular, smaller container closed at the bottom disposed in said central space, a pad cut away at the corners engaged within the top of said smaller con- 10 tainer, and an elastic coiled spring in the bottom thereof.

In testimony that I claim the foregoing as my invention, I affix my signature this 15th day of July, A. D. 1927.

HARRISON B. WALTER.