Feb. 9, 1937. H. C. ATKINS 2,069,747

VENTILATED BERRY CRATE

Filed April 17, 1935 2 Sheets-Sheet 1

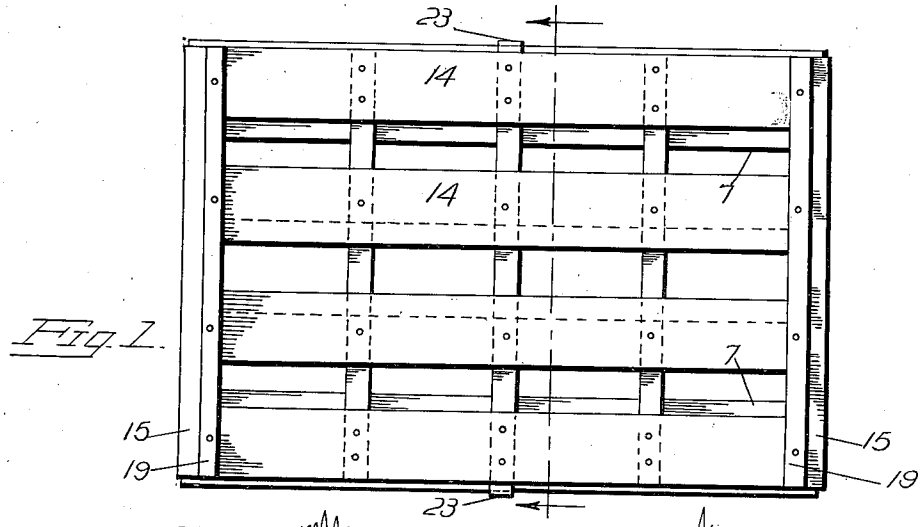


Fig. 1.

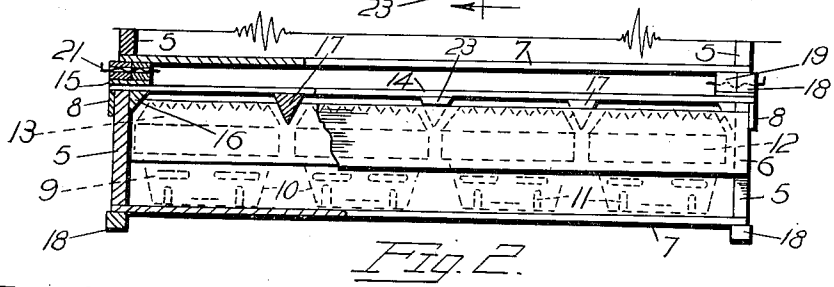
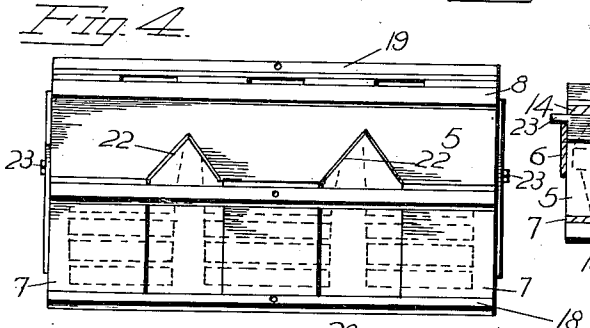


Fig. 2.

Fig. 4.



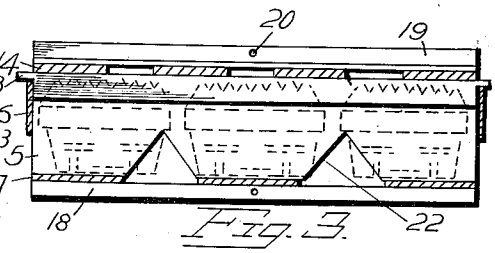


Fig. 3.

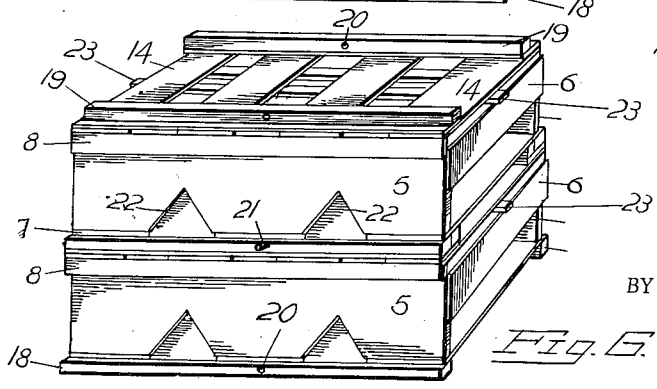


Fig. 6.

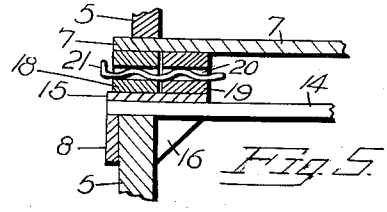


Fig. 5.

INVENTOR.
HARRY C. ATKINS

BY G. J. Rollendet

ATTORNEY.

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VENTILATED BERRY CRATE

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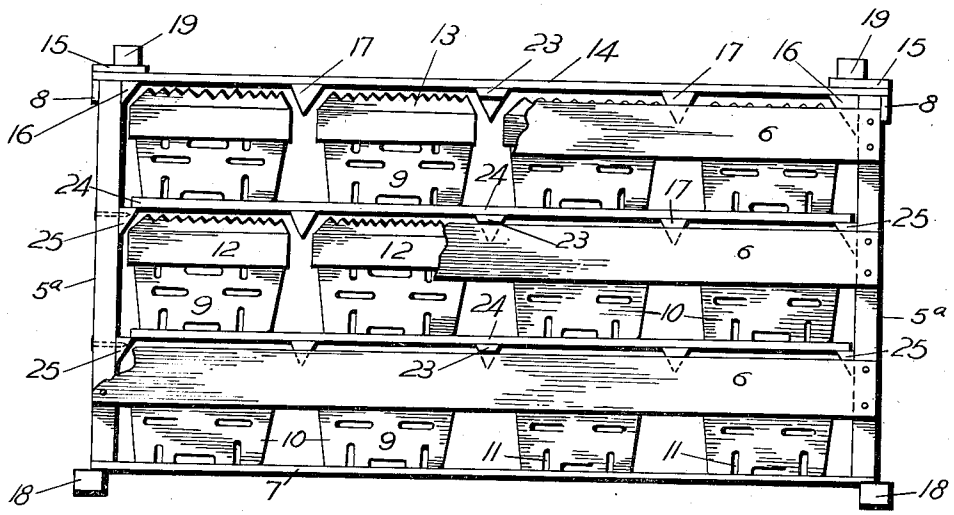

Fig. 7.

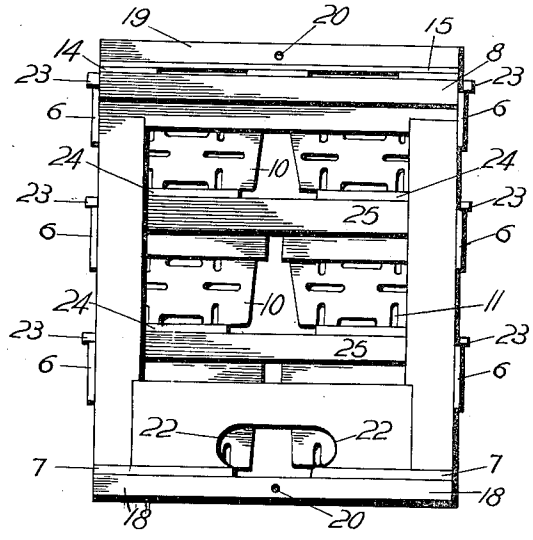

Fig. 8.

INVENTOR.
HARRY C. ATKINS

BY

ATTORNEY.

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VENTILATED BERRY CRATE

Harry C. Atkins, Denver, Colo.

Application April 17, 1935, Serial No. 16,791

10 Claims. (Cl. 217—40)

This invention relates to improvements in crates for shipping, storing and displaying fruits, such as berries, and for analogous purposes.

It is the object of this invention to produce a package comprising a crate, a cover and a plurality of ventilated and covered berry boxes of such construction that the berries, or other fruit, will always be properly ventilated.

Another object of this invention is to produce a crate that shall have means for cooperating with the boxes located therein to hold the same properly positioned at all times so as to prevent the contents of the boxes from being crushed or injured due to shifting of the boxes during handling.

A still further object of this invention is to produce a crate having a removable cover provided on its under surface with transverse positioning cleats that cooperate with the ends of the crate and with divider cleats so positioned that they project down into the space between adjacent boxes and prevent them from shifting and crushing each other and also holds them from movement toward the cover.

Another object of this invention is to produce a crate of such construction that two or more of them can be assembled in superposed relation without interfering with the proper ventilation of the contents.

A further object of the invention is to produce a crate of such construction that two or more crates can be superposed and readily interconnected so that they may be handled as a unit.

The above and other objects that may become apparent as this description proceeds are attained by means of a construction and arrangement of parts that will now be described in detail and for this purpose reference will be had to the accompanying drawings in which the invention has been illustrated and in which—

Figure 1 is a top plan view showing an empty crate with the cover in place thereon;

Figure 2 is a view partly in elevation and partly a section taken on line 2—2, Figure 1, and shows how two superposed crates are interconnected, the top crate being broken away;

Figure 3 is a section taken on line 3—3, Figure 1;

Figure 4 is a view looking upwardly toward the bottom of a crate at an angle;

Figure 5 is a fragmentary section, similar to that shown in Figure 2 and shows how the crates are interconnected;

Figure 6 is a perspective view of two interconnected crates;

Figure 7 is a side elevation of a crate of slightly modified construction; and

Figure 8 is an end view of the crate shown in Figure 7.

In the drawings, and referring more particularly to Figures 1 to 6, reference numeral 5 designates the ends of the crate and numeral 6 designates the sides thereof. The bottom is formed by a number of spaced longitudinally extending strips 7. A strengthening strip 8 extends along the outside of each end 5, near the upper edge of the latter.

It will be seen that the width of the sides 6 is less than the width of the ends 5, so that a considerable space is left between the side and the bottom strip on each side. The width of the crate is usually such that it will accommodate three rows of boxes 9 like those shown in Figure 3. The boxes are provided with upwardly and outwardly inclined side walls, as indicated by reference numeral 10. The sides of the boxes are perforated and provided with ventilating openings 11 and each box has a removable collar 12 that holds a transparent and moistureproof cover in place. The collars have upwardly and inwardly inclined flanges 13.

The cover of the crate consists of several longitudinally extending spaced strips 14 whose lengths are equal to the total length of the crate including the thickness of the two strips 8. Secured to the top of strips 14 near each end is a transverse strip 15. On the under side of the cover two triangular cleats 16 are located. These cleats have a cross section that is a right-angled triangle. Cleats 16 are so positioned that the hypothenuse side of each is on the inside and one of the other sides is on the outside and serves to engage the inside of the adjacent end to form a stop. The apexes of these cleats project downwardly between the ends and the end box of each row. The cover is also provided with a plurality of transverse positioning cleats 17 whose cross sections are preferably isosceles triangles and are secured with their bases against the under side of the cover.

Cleats 17 are spaced a distance equal to the width of the boxes and project into the spaces between the flanges 13. Cleats 16 serve to position the cover with respect to the crate and cleats 17 serve to position the boxes and to hold them from sliding when the loaded crate is being handled and assure that no crushing force will be applied to the boxes.

From Figure 3, it will be seen that each row of boxes is supported on a single bottom strip 7

and that the space between adjacent strips is in line with the corresponding triangular openings between the rows of boxes and therefore air has as free access to the sides of the boxes as if the boxes were not in a crate and hence the contents of the boxes keep fresh.

Each crate is preferably of such size that it will hold three rows of boxes, each row having four boxes, and there will therefore be twelve boxes in each crate.

For convenience in handling and shipping it is customary to connect two crates, one above the other, in the manner shown in Figure 5. In order to properly space the bottom of the crate from a flat surface on which it is standing and from the top of the lower crate when two are assembled as shown in Figure 5, the crate is provided at each end of its bottom with transverse strips 18 that serve as spacers.

The covers are provided with transverse strips 19 of the same size as strips 18 and so spaced that the distance between their far sides is the same as the distance between the near sides of strips 18 which permits these strips to be located side by side as shown most clearly in Figure 5.

Registering holes 20 are provided in the strips, for the reception of pins 21 which serve to hold the two crates assembled. The pins are bent as shown in Figure 5 to produce friction which prevents accidental withdrawal and have their ends curved as shown.

In order to assure as free circulation of air as possible, the ends are provided with notches 22 that are in line with the spaces between the rows of boxes and there are therefore unobstructed air passages extending entirely through the crates.

Attention is called to the fact that the ends of one of the positioning cleats project beyond the sides 6 as indicated by reference numeral 23 and these ends prevent the cover from bending sufficiently to apply a crushing force to the berries.

The crate shown in Figures 7 and 8 differs from the other in this, that its width is sufficient to accommodate two rows of boxes, and its length is sufficient to accommodate four boxes, while the height is such that three boxes can be placed one above the other. Each layer of boxes is separated from the one above by means of separators 24 whose ends rest on the triangular cleats 25 that are secured to the ends of the box. Since the separators rest on the cleats 25 and have one transverse cleat provided with projections 23 that rest on the upper edge of the side strips 6, there will be no weight supported by the berry boxes or the berries, and the boxes can therefore be heaped without danger of crushing any of the berries. The cover employed with the crate shown in Figures 7 and 8 is made just the same as that shown in the other views with this exception, that it has three longitudinal strips 14 instead of four.

Attention is now directed to Figure 2 from which it will be seen that the cleats 18 project beyond the outer surfaces of the ends 5 and 6, a distance equal to the thickness of strips 8. It will be apparent that when two crates are placed end to end, as in loading a car, the cleats 18 on one will engage cleats 18 on the other, and that the strips 8 on one will engage strips 8 on the other, and the adjacent ends will therefore be separated a distance equal to two thicknesses of strips 8. By spacing the ends of the boxes when the crates are loaded in cars or on trucks, air can circulate between the adjacent end surfaces and enter the notches 22, thereby facilitating circulation. It will also be observed that in the absence of the notches 22, the spacing of the ends would make no appreciable difference, and that the spacing means 8 and 18 cooperate with the ventilating notches 22 to produce the desired air circulation.

The end 5*a* of the crate illustrated in Figures 7 and 8, due to the greater depth of the crate, are not made solid as in the other embodiment but is preferably a rectangular frame like that shown in Figure 8.

The cleats 18 and 19 serve to interconnect two crates in the manner above explained and shown in Figure 5.

It will be apparent that the crate illustrated in Figures 7 and 8 will hold twice as many berry boxes as the one shown in Figures 1 to 6, and is sometimes preferred by the producers.

Having described the invention what is claimed as new is:

1. A shipping and storage package for berries and the like, comprising in combination, a crate adapted to hold a plurality of rows of berry boxes, and a cover provided on its under surface with a plurality of transversely extending triangular cleats so spaced and of such thickness that the apexes of the cleats project into the spaces between adjacent boxes in each row and serve to position the boxes and hold them against movement relative to the crate.

2. A shipping and storage package for berries and the like, comprising in combination, a crate adapted to hold a plurality of rows of berry boxes, and a cover provided on its under surface with a plurality of transversely extending triangular cleats so spaced and of such thickness that the apexes of the cleats project into the spaces between adjacent boxes in each row and serve to position the boxes and hold them against movement relative to the crate, the cover being also provided with transverse cleats so positioned that they engage the inside surfaces of the ends of the crate to position the cover with respect to the crate and to hold it against movement relative to the crate.

3. A shipping and storage package for berries and the like comprising in combination, a crate adapted to hold a plurality of rows of berry boxes, provided about their upper edges with upwardly and inwardly inclined flanges, and a cover provided on its under surface with triangular transverse cleats so positioned that their apexes project into the spaces between the adjacent flanges and provide positioning means for the boxes.

4. A shipping and storage packing for berries and the like, comprising in combination, a crate adapted to hold a plurality of rows of berry boxes provided about their upper edges with upwardly and inwardly inclined flanges, the crate having end walls, and a cover provided on its under surface with two transversely extending positioning cleats of a right angle triangle cross section and positioned with their inclined sides facing inwardly, these cleats being so positioned that they engage the inside of the ends of the crate when the cover is in position and which project downwardly beyond the tops of the boxes the cover being also provided on its under surface with a plurality of transversely extending triangular cleats whose apexes are so positioned that they project into the spaces between the inclined flanges of the collars

and serve to hold the boxes in a predetermined position.

5. A crate for use with ventilated berry boxes comprising in combination, two parallel ends of a width somewhat greater than the depth of the berry boxes, the ends being connected by side strips that are narrower than the ends and located with their upper edges below the tops of the ends, the lower edges of the ends being connected by means of narrow spaced apart bottom strips and a removable cover for the crate, said cover comprising a plurality of spaced longitudinal strips, transverse end strips connecting the ends of the longitudinal strips, and a plurality of triangular cleats extending across the under surface of the cover strips and of sufficient thickness to project below the tops of any berry boxes located in the crate, the cleats located nearest the ends of the cover serving as stops to limit endwise movement of the cover on the crate.

6. A shipping crate for berries and the like comprising a box portion having end walls, sides, a bottom and a removable cover, means for interconnecting superposed crates comprising a pair of transverse cleats secured to the under surface of the bottoms, one cleat near each end and a pair of similar cleats secured to the top of the cover, one cleat near each end, the distance between the near sides of one pair being the same as the distance between the far sides of the other pair, whereby when two crates of the same size are superposed the cleats attached to the bottom of the upper crate will be positioned adjacent the corresponding cleats attached to the cover of the lower crate, the cleats having openings for the reception of pins.

7. A shipping crate for berries and the like comprising a box portion having end walls, sides, a bottom and a removable cover, the lower surface of the cover having means for positioning it relative to the box portion, said means comprising two transversely extending cleats, one near each end, the distance between the far sides of the cleats being substantially equal to the distance between the near sides of the ends whereby the cover will be longitudinally positioned, the length of the cleats being substantially the same as the distance between the sides whereby the cover will be positioned transversely, and means for interconnecting superposed crates, comprising a pair of transverse cleats secured to the bottom and a pair of transverse cleats secured to the cover, the distance between the near sides of one pair being the same as the distance between the far sides of the other pair whereby when two crates of the same size are superposed the cleats attached to the bottom of the upper crate will be positioned adjacent the corresponding cleats attached to the cover of the lower crate, the cleats having openings for the reception of pins.

8. A shipping and storage package for berries and the like comprising, a crate having ends and sides and adapted to hold a plurality of rows of berry boxes, supported on the bottom of the crate and adapted to hold a plurality of layers of berry boxes, located one layer over the other, separators between adjacent layers of boxes, and means comprising cleats attached to the inside surfaces of the ends of the crate for supporting the separators, and a cover supported on the top of the crate, the under sides of the separators and the cover having transversely extending cleats that project into the spaces between adjacent boxes in each row to hold them against longitudinal movement.

9. A shipping and storage package for berries and the like comprising a crate having ends and sides and adapted to hold a plurality of rows of berry boxes, supported on the bottom of the crate, and a plurality of layers of boxes located one layer over the other, ends of the separators between adjacent layers of boxes, and means comprising cleats attached to the inside surfaces of the ends for supporting the ends of the separators, and transverse cleats secured to the centers of the separators, of greater length than the width of the crates, for supporting the separators from the sides of the crates.

10. A shipping and storage package for berries and the like comprising in combination, a crate adapted to hold a plurality of rows of berry boxes, and a cover provided on its under surface with triangular transverse cleats so positioned that their apexes project into the spaces between the adjacent boxes and provide positioning means for the boxes.

HARRY C. ATKINS.