Feb. 26, 1935. A. W. BRUCE 1,992,411

BOTTLE CRATE

Filed Aug. 8, 1932

Fig. 1.

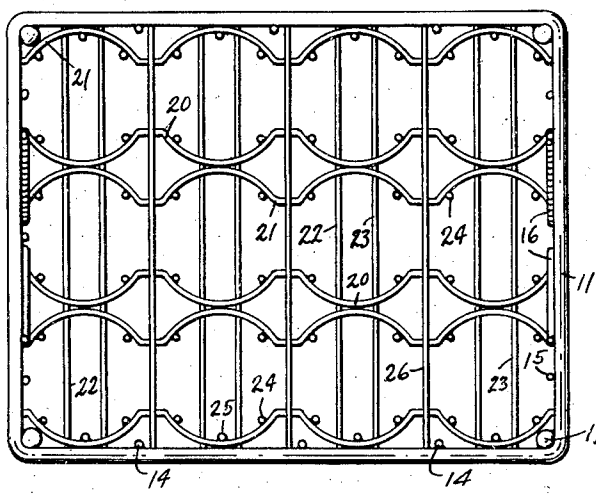


Fig. 4.

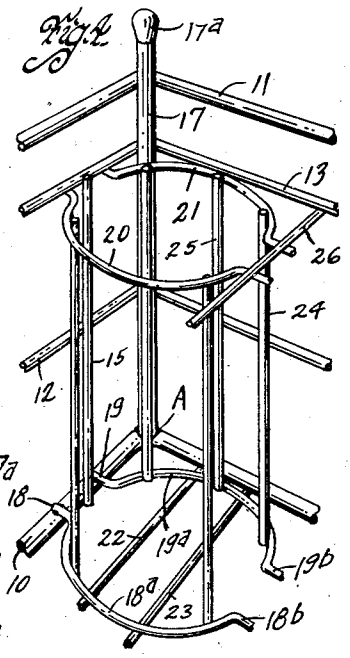


Fig. 2.

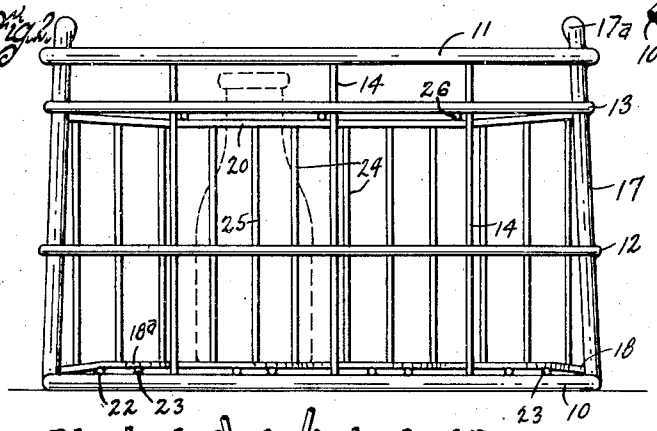


Fig. 5.

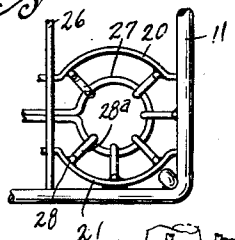


Fig. 3.

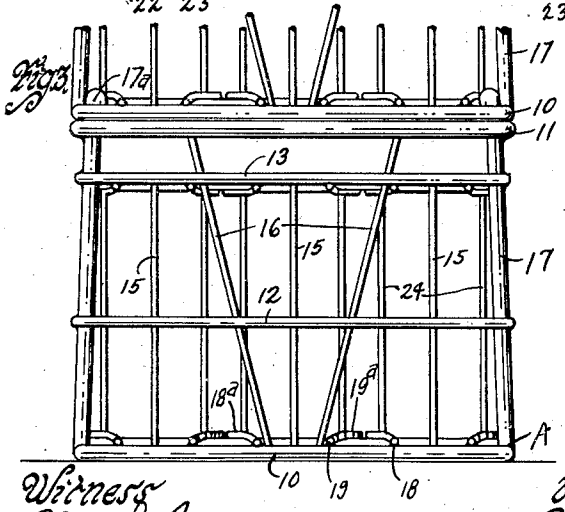
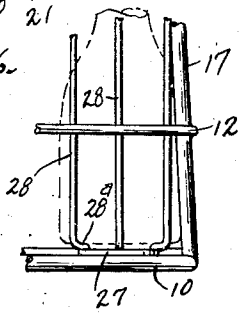


Fig. 6.



Witness
Edw. Seeley

Inventor
Albert W. Bruce
By Bair, Freeman & Sinclair
Attorneys

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BOTTLE CRATE

Albert W. Bruce, Ottumwa, Iowa

Application August 8, 1932, Serial No. 627,919

4 Claims. (Cl. 220—19)

My invention relates to bottle crates particularly of the type made of wire. It is my object in the present invention to provide a crate in which bottles may be held separate from each other by means of wires which are arranged in upright position so that bottles will readily slide to position in their respective compartments without catching.

Another object is to provide such a crate which will hold the bottles so that they will not shake or rattle in their compartments.

Still a further object is to provide a crate having parts so constructed and arranged that it facilitates stacking.

With these and other objects in view my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:—

Figure 1 is a plan view of my improved bottle crate.

Figure 2 is a side elevation of the same.

Figure 3 is an end view illustrating the stacking of the crates.

Figure 4 is a perspective view of one of the corners, parts being broken away.

Figure 5 is a top view of a modified form of my crate, parts being broken away; and

Figure 6 is a side elevation of the modified form of my device, parts being broken away.

Heretofore in the manufacture of wire bottle crates it has been the practice to form the compartments for the separate bottles by providing horizontal cross wires arranged at different heights. This has resulted in considerable objection to these crates.

In inserting the bottles into the compartments it frequently occurs that when they are not dropped straight downwardly they catch on the cross wires and it is necessary to move them to get them dropped into place. In taking pop bottles from a capping machine and putting them into a crate this has caused considerable difficulty. The bottles come from the capping machine at a certain rate and if there is any delay in getting them into the crate the workman is likely to be unable to handle the bottles as fast as they are delivered to him.

It is a frequent practice to turn the bottles upside down in the crates for washing them. With the type of wire crate heretofore used bottles would frequently be slightly inclined so that the necks would catch on the cross wires and a bottle resting on the cross wire in this way would not be washed.

I have provided a simple and efficient structure which can be manufactured at a modest cost and which will eliminate these difficulties and in addition will hold the bottles snugly enough so that they will not rattle.

Where the cross wires are used the intermediate ones cannot be placed close enough to make them fit snugly to the bottles. This is true because if the cross wires are so placed the operation of putting the bottles into the crate must be so accurate that it is greatly slowed down.

My entire crate is preferably made of wires secured together in any suitable way, preferably welding. The crate comprises a substantially rectangular bottom frame member 10, a similar top frame member 11 and may have one or more intermediate rectangular frame members indicated at 12 and 13.

At the sides are upright frame members 14 extending from the bottom frame member 10, upwardly to the top frame member 11 and welded to the inner faces of the members 10, 12, 13 and 11.

At the ends are upright frame members 15 welded to the inner-faces of the frame members 10, 12 and 13, preferably terminating at the frame 13. At the ends are also the upright frame members 16 welded to the inner faces of the frames 10, 12, 13 and 11 and diverging from the lower to the upper ends as illustrated in Figure 3 to allow ample room at the top for the user to grasp the end of the frame member 11 between the members 16.

At each corner is a corner member 17 preferably of heavier wire. The lower end of each corner member 17 rests on the frame 10 as illustrated for instance in Figures 3 and 4 at A and welded thereto.

The corner members 17 are welded to the inner faces of the frame members 12, 13 and 11 at the corner of the crate and are provided with downturned ends 18 at the upper ends. The members 17 are inclined inwardly, diagonally of the crate in each instance so that the crate is somewhat smaller at the top than at the bottom in order to permit one crate to be stacked on another in such manner that the upwardly projecting ends of the corners 17 of each lower crate will project upwardly just inside the corners of the frame member 10 of each upper crate. (See Figure 3.)

By abutting the corner members 17 against the top surface of the frame members 10, then in-

clining the corners 17 inwardly, the desired result can be readily attained.

Instead of forming the compartments for the separate bottles by using only cross bars arranged at right angles to each other, I arrange wires in a manner now to be described.

For each row of compartments lengthwise of the crate I provide a pair of curved wires at the bottom of the crate and a pair of curved wires near the top of the crate. The lower curved wires are indicated at 18 and 19. These are welded to the upper surface of the frame 10 at the ends thereof as illustrated best in Figure 4 and are then curved as shown in Figure 4 to form oppositely spaced facing concaved sections 18*a* and 19*a*. They are then arranged in short parallel portions 18*b* and 19*b* followed by additional curved sections and so on to the other end of the crate.

The upper curved wires are indicated at 20 and 21 and are preferably arranged parallel with the wires 18 and 19.

Pairs of cross wires 22 and 23 are arranged crosswise of the crate at the bottom of each compartment and welded preferably to the upper sides of the bottom frame 10 and to the undersides of the wires 18 and 19. These pairs of wires 22 and 23 are close enough to prevent the passage of the necks of the bottles.

The upper wires 20 and 21 are arranged at such height that part of the necks of the bottles project upwardly above them when the bottles are in place in the compartments.

To guide the bottles as they are slid into place and to hold them against rattling, I provide for each compartment a series of upright wires 24 welded to the wires 18, 19, 20 and 21.

I preferably employ for all of the compartments four of these upright wires 24 spaced equi-distantly around the compartment. Each compartment at the ends and sides of the crate has an additional upright wire 25 which is made necessary by the fact that without it the bottle might catch on the frame members in being dropped into place.

The wires 15 already mentioned serve this function also as well as serving to brace the frame members.

Cross wires 26 are laid on top of the wires 20 and 21, welded thereto between the successive compartments from end to end of the crate, and are welded to the underside of the frame 13.

In Figures 5 and 6 I have shown a slightly modified form of my invention. It is sometimes desirable to eliminate the wires 22 and 23 in order that a crate may be used in cooperation with certain kinds of bottle washing machines.

In order to support the bottles in inverted position when the wires 22—23 are omitted, I arrange the sections 18*a* and 19*a* closer together, such sections being indicated at 27 in Figures 5 and 6, and instead of the wires 24 I use similar wires 28 with their lower ends in-curved as at 28*a* and welded to the sections 27.

The section 28 and the in-curved ends 28*a* are so arranged that the neck of the bottle will rest on the portions 28*a* but will allow free access to the mouth of the bottle.

I have found that there are many advantages in the use of a crate of the kind herein described.

It is much more convenient for putting the bottles into the compartments whether right side up or upside down, because the upright wires serve as smooth guides for their entire length and they are the only members touched by the bottles during the insertion thereof.

It effects a substantial saving in time because the bottles never catch but drop to the bottom of the compartments after they are started into the upper ends thereof.

Furthermore, the upright wires are so spaced that they engage the bottles somewhat snugly and thus prevent rattling.

It will be noted that in my preferred form of structure the bottle compartments formed by the groups of upright wires are entirely separated so that one bottle can never strike another while in the crate, and this helps to avoid rattling and also prevents breakage.

It is to be understood that some changes may be made in the details of construction and arrangement of parts of my improved crate, and that it is my intention to cover by my claims any modifications of structure or use of mechanical equivalents which may be readily included within the scope and invention of my claims.

I claim as my invention:

1. In a bottle crate, comprising top and bottom and intermediate frame members, uprights connecting the frame members, bottom bottle supporting wires, upright wires spaced in groups for forming bottle compartments, horizontal wires connected with the upright wires of the compartments shaped to conform with parts of the compartments, and horizontal cross wires connecting said first horizontal wires at the upper parts of the compartments.

2. In a wire bottle crate, frame members, bottom bottle supporting wires, upright wires spaced in groups for forming bottle compartments, horizontal wires each connected with upright wires of the compartments and shaped to conform to parts of the compartments, and cross wires at the upper parts of the compartments connected to the last described wires.

3. In a wire bottle crate, top and bottom and intermediate frame members, uprights connecting the frame members, bottom wires arranged to form bottle supporting means, upright wires spaced to form bottle receiving compartments, horizontal wires connecting with the upright wires of the compartments and shaped to conform to parts of the compartments, and cross wires at the upper parts of the compartments connecting to the last described wires and to frame members.

4. In a bottle crate, side and end frame members, means for forming wire bottle compartments in rows, comprising an upper and a lower series of horizontal, spaced wires fixed at their ends arranged below the top of the frame, an upper and a lower series of horizontal spaced wires, the first series of upper wires being above the first lower series, the wires of the two upper series being arranged respectively at right angles to each other, and the wires of the two lower series being at right angles to each other, and upright wires, fixed at their lower ends, and fixed at their upper ends to horizontal wires, and arranged in compartment forming groups, in which the upright wires only will engage the bottles, the members of each group being arranged inwardly of the horizontal wires with which they are connected, and staggered with relation to the axes of the rows.

ALBERT W. BRUCE.