July 8, 1930. H. WILDBERG 1,770,331

BOTTLE CRATE

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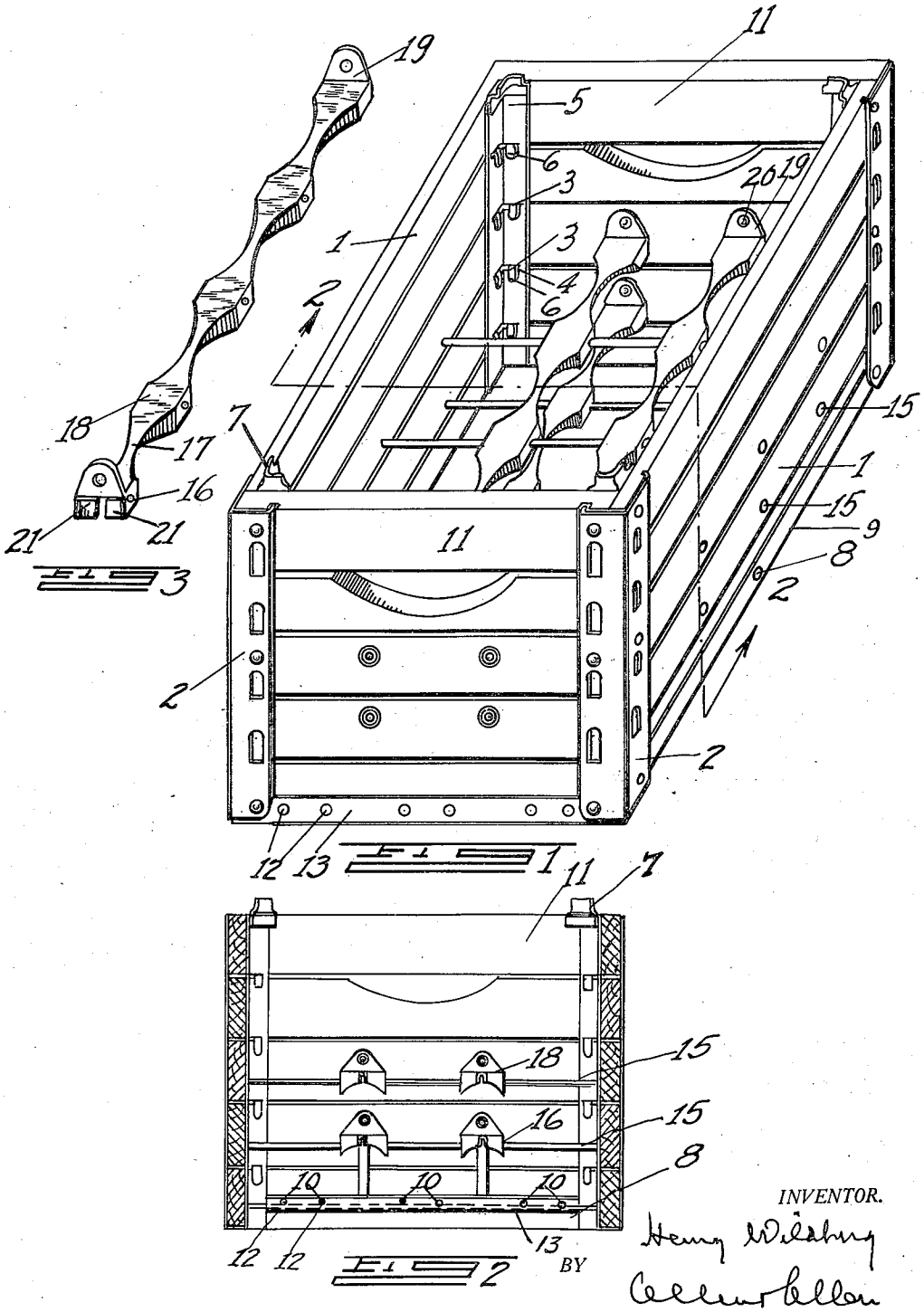


FIG 3

FIG 1

FIG 2

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UNITED STATES PATENT OFFICE

HENRY WILDBERG, OF CINCINNATI, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNITED MILK CRATE CORPORATION, OF CINCINNATI, OHIO, A CORPORATION OF OHIO

BOTTLE CRATE

Application filed February 11, 1928. Serial No. 253,712.

My invention relates to bottle crates of the open top type, and has particular reference to a novel type of crate having reinforcing members secured within the crate to increase the ruggedness and serviceability of the crate, and to provide additional protection for bottles retained therein.

In my co-pending application, Serial No. 245,302, I have disclosed a crate having tie rods forming bottle compartments, and I have shown one set of reinforcing bars extending across the crate in alignment with one set of tie rods, the reinforcing bars being spaced vertically from another set of tie rods. The particular object of the invention shown in this co-pending case is to prevent distortion of the tie rods.

It is the object of my invention as herein disclosed to provide a crate of surprising ruggedness, which, although it has tie rods extending in one direction across the crate, is provided with a double row of reinforcing members extending in parallel alignment and in spaced position across the crate in the other direction. It is further my object to insert the tie rods which extend in one direction through each of both webs turned down at the edges of the reinforcing members, thereby providing a bracing which is, within the limits, of the strength of the walls of the crate practically impregnable both for the crate and for bottles retained therein. The reinforcing members will also preferably be so shaped and secured to the walls of the box that they will prevent collapsing strain on the crate both in a horizontal and vertical direction. It is also my object to provide reinforcing members for the crate which will provide a considerable area of clamping contact for bottles in a vertical plane, thereby preventing bouncing of the bottles. The reinforcing members, being securely riveted to the walls of the crate, and having inwardly flanged tongues, will further act as rigid supports for tie rods foming the bottle support at the bottom of the box.

Heretofore it has been thought that some flexibility was needed to protect the bottles in a bottle crate, but it is my object to make, within reasonable limits of expense, a structure as rigid as stiff reinforcing members will make it, for as long as the bottles are retained out of contact, the more rigid the crate the better they seem to withstand shocks. Reinforcing members are provided to brace the walls in one direction, and these members hold the bottles tightly in the other direction, so that the reinforcing members support the crate in one direction and the bottles held firmly in the reinforcing members support it in the other. A still further object is the provision of reinforcing members havng enlarged portions at the corners of the compartments which will prevent cracked ice from falling through the crate.

The above and other objects to which reference will be made during the ensuing disclosure I accomplish by that certain combination and arrangement of parts of which I have shown a preferred modification.

Referring to the drawings:—

Figure 1 is a perspective view of a crate constructed in accordance with my invention.

Figure 2 is a lateral sectional view taken along the lines 2—2 in Figure 1.

Figure 3 is a perspective view of one of my novel reinforcing members.

Generally indicated at 1 I have shown the side walls of the crate which, as indicated, are composed of a series of slats held together by outer corner irons 2 having tongues 3 which project between the slats and are extended through slots 4 in the inner corner irons 5. The ends 6 of the tongues are then bent over against the irons 5. The four inner corner irons have projections 7 which form seats for crates of similar structure which may be stacked one on another.

The bottom wall of the crate on which the bottles rest is formed by tie rods, such as the one indicated at 8, which pass through a U-shaped reinforcing piece 9. A plurality of tie rods 10 are then extended across between the end walls 11 of the crate, passing through holes 12 in the webs of the U-shaped reinforcing piece. The bottom edges of the side and end walls of the crate are further reinforced by channel irons 13 through which the ends of the tie rods pass prior to the expansion of the heads of the tie rods. Thus

the channel irons reinforce the attachment of the tie rods and the tie rods firmly hold the channel irons in place.

I have shown two sets of tie rods 14 and 15 respectively extending across from side to side in the crate. The tie rods pass through holes in spaced webs 16 turned down at each of the edges of the reinforcing members which form the main subject matter of my invention. The reinforcing members have narrowed portions 17 shaped to fit snugly the contour of the bottles, and it will further be noted that the flattened surfaces 18 which occur at the corners of the bottle compartments will prevent ice from falling through the crate. The reinforcing members are spaced from the bottom formed by the tie rods, the lower reinforcing member several inches from the bottom formed by tie rods, and the upper reinforcing member several inches above the lower. The ends of the reinforcing rods are flanged upwardly as indicated at 19 to provide firm seats for the rivets 20 or bolts with which the reinforcing members are secured to the end walls. Further wings 21 which are extensions of the webs 16 are flanged inwardly to provide additional bearing surface so that under a severe jolt the reinforcing members will not gouge into the walls of the crate.

In tests with my new crate the strength against collapsing strain and the protection to the bottles against breaking has shown itself to be most remarkable. A standard test for crate strength is to place a crate filled with twelve milk bottles filled with water and capped on a car equipped with roller bearing wheels, and to slide the car down a twelve foot track disposed at an angle of 35° and allow the crate to bump into a solid brick wall. In this test, my crate withstood forty one repetitions of the test in both endwise and widthwise position. Inasmuch as it is almost unknown for a crate to withstand one of these blows without having a bottle broken, the surprising ruggedness of my new crate can be well appreciated.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In combination in a bottle crate having side and end members, tie rods extending longitudinally to form a support for the bottoms of bottles, a plurality of vertically inter-spaced longitudinal reinforcing members, each comprising a piece of metal with turned-down flanges thereon, said metal presenting a solid upper surface varying in width to form narrow portions to contact adjacent bottles, and wide portions alternating therewith to fill substantially the inter-space within groups of four bottles so as to prevent the slipping of ice down therebetween, said reinforcing members being substantially rigid longitudinally and attached at their ends to the end members of said crate, and a plurality of vertically interspaced lateral tie rods, said rods passing through holes in the flanges of said wide portions of said reinforcing members, said assembly forming metallic sockets for bottles.

2. In combination in a bottle crate having side and end members, tie rods extending longitudinally to form a support for the bottoms of bottles, a plurality of vertically inter-spaced longitudinal reinforcing members, each comprising a piece of metal with turned-down flanges thereon, said metal presenting a solid upper surface varying in width to form narrow portions to contact adjacent bottles, and wide portions alternating therewith to fill substantially the inter-space within groups of four bottles so as to prevent the slipping of ice down therebetween, said reinforcing members being substantially rigid longitudinally and attached at their ends to the end members of said crate, and a plurality of vertically interspaced lateral tie rods, said rods passing through holes in the flanges of said wide portions of said reinforcing members, said assembly forming metallic sockets for bottles, the uppermost tie rods and reinforcing members, being located in the lower half of said crate.

HENRY WILDBERG.