Oct. 14, 1941. F. G. KRUEGER ET AL 2,258,707

BOTTLE CRATE

Filed Aug. 17, 1937

Fig. 1.

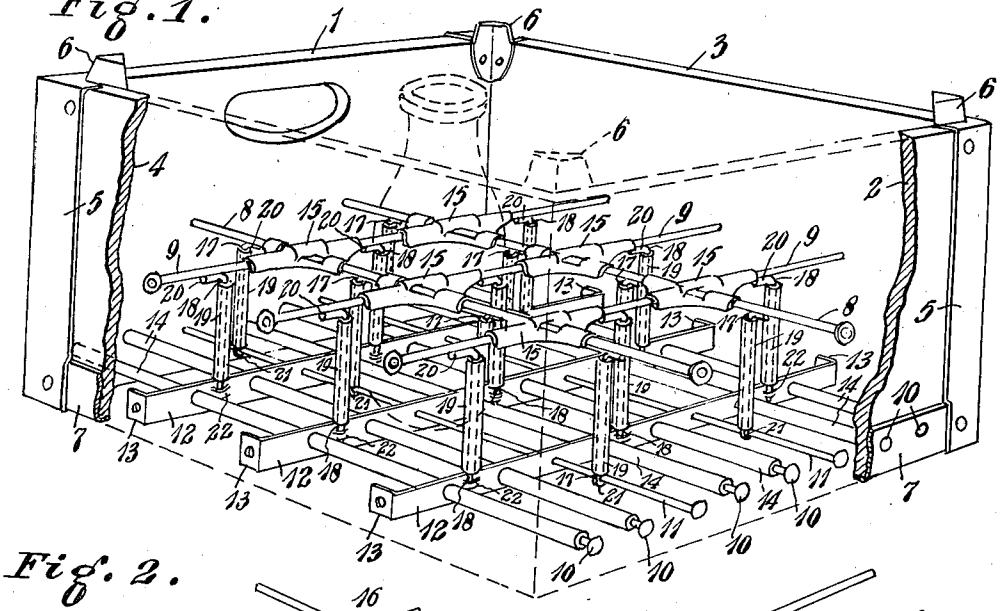


Fig. 2.

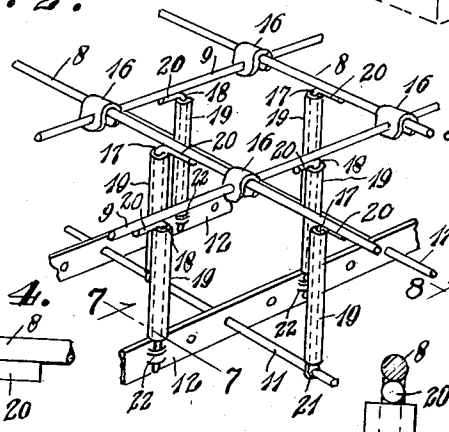


Fig. 3.

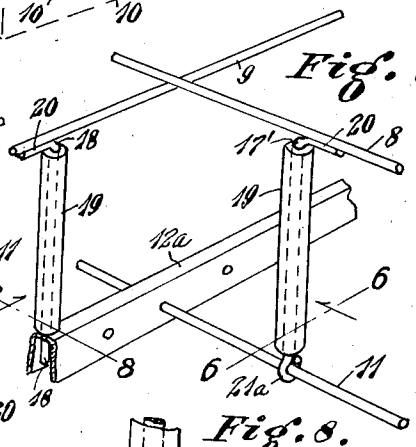


Fig. 4.

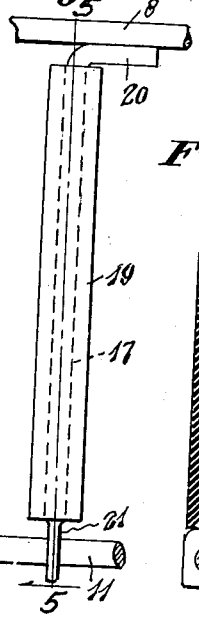


Fig. 5.

Fig. 6.

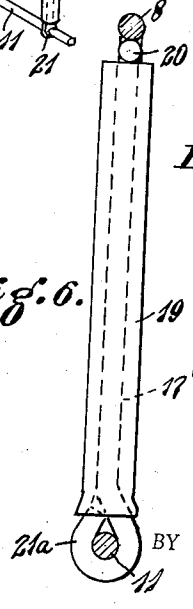


Fig. 7.

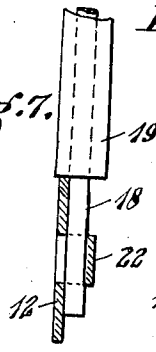
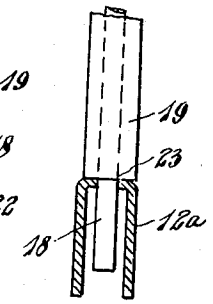


Fig. 8.



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BOTTLE CRATE

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Application August 17, 1937, Serial No. 159,549

2 Claims. (Cl. 217—19)

Our invention relates to crates, and more especially to crates used for containing milk bottles in the dairy business.

A recent development in this business has been the provision on the milk bottles of lettering or other display matter which may be marred or worn off by too violent contact of the sides of the bottles bearing this matter with the partition structure of the crate. Also, there is a demand for less noise in the handling of the bottles into and out of the crates during delivery of the milk at early morning hours in apartment buildings and residence districts. Both of these developments have called for cushioning of the crate structure at those areas where the bottles make contact during insertion and removal. It is to this cushioning that our present invention is directed, with the especial object of effectively preventing the abrasion and noise and lessening the liability of breakage of the bottles, by a simple, readily assembled construction involving a minimum of material yet affording ample strength as is required in such crates. Other and minor objects will appear in the course of the following description, illustrated by the accompanying drawing, in which—

Figure 1 is a perspective view of a bottle crate embodying our invention, nearer wall portions being broken away and omitted and indicated only by dotted lines, thereby fully revealing the interior structure of the crate, in which interior structure our invention is involved;

Fig. 2 is a partial perspective view corresponding to the view of interior structure in Fig. 1, showing a modification of the connecting means for the crossing wires or rods;

Fig. 3 is a similar view showing modified supporting beams in conjunction with our invention, and modified connections;

Fig. 4 is an enlarged detail side elevation showing the connection of details of our invention to longitudinal supporting wires or rods at the bottom of the crate, as well as illustrating more fully the preferred connection of the cushion bearing vertical rods to the upper partition wires or rods;

Fig. 5 is a partial vertical section on the line 5—5 of Fig. 4, further illustrating the connection to the lower longitudinal wire or rod;

Fig. 6 is an elevation corresponding to the section 5—5, showing more fully the modification of the lower connection shown in Fig. 3, on the line 6—6 of that figure;

Fig. 7 is a partial vertical section on the line 7—7 of Fig. 2, showing the connection of the cushion-bearing rod to the beam in the example of Figs. 1 and 2; and

Fig. 8 is a vertical cross sectional elevation, the section being that on the line 8—8 of Fig. 3, more clearly showing the modified connection of the cushion bearing rod with the channel beam as shown in Fig. 3.

In Fig. 1 a crate of conventional design is shown, it being understood that we are not limited to details of the wall structure, or the corner, edge or stacking guide construction, nor fully to the interior details shown therein. It is sufficient for purposes of illustrating our invention to explain that the crate has two end walls 1 and 2 and two side walls 3 and 4, which are shown solid for simplicity of illustration, but which, as will be understood in the art, are usually made up of a number of slats longitudinally of the walls. The walls are connected at the corners by suitable angle irons 5 which vary in design in various crates, and have suitable stacking guides 6 at the upper corners and suitable edge reinforcements or coverings, as the elements 7, which guides and coverings also may vary in different crates. Our invention is not particularly concerned with these details.

Also old in the art are certain details of the interior supporting and partition structure of the crate, such as the longitudinal partition rods 8 and the cross partition rods 9, having their ends suitably secured in the end and side walls 1 and 2 and 3 and 4, respectively, and the lower bottle support rods 10, in pairs, one pair for each row of bottles longitudinally of the crate, and parallel support rods 11, the rods 10 and 11 being suitably secured in the end walls 1 and 2. Also well known in the art are cross beams 12, shown in Figs. 1 and 2 as strips of sheet metal with their widths vertical and bent to have end ears 13 riveted to the crate side walls 3 and 4, and having the rods 10 and 11 passing through them; thus forming a firm support which receives the bottoms of the bottles, one of each of which is inserted down into a compartment formed by the crossing partition rods 8 and 9, or by a rod 8 and a rod 9 and adjacent corner portions of the crate walls 1 and 3, 2 and 3, 2 and 4 or 1 and 4, as the case may be. The bottle support rods 10 also are provided with cushioning coverings receiving the bottoms of the bottles, indicated in Fig. 1 as rubber tubes 14 slipped onto the rods 10 previous to assembling the interior structure. Also, the crossing partition rods 8 and 9 have plates 15 with portions embracing the rods and serving to retain ice for cooling the bottles of milk, as is

known in the art; and in Fig. 2, clips 16 embrace the crossing rods 8 and 9, reinforcing the rods as do the ice retaining plates of Fig. 1, but not having the ice retaining capacity of said plates, these also not being particularly concerned in our invention.

Any of the above described details may vary, as they do in various crates known in the art.

Our invention is concerned with cushioning the bottles at their sides to prevent scraping and noise making impact with the partition rods 8 and 9, and, when the ice retaining plates 15 are used, with these plates.

As we prefer to provide for this cushioning, we include in the interior structure of the crate a series of vertical wires or rods 17 and 18 as shown in Figs. 1 and 2, which, respectively, connect the longitudinal rods 8 to the lower support rods 11, and the cross partition rods 9 to the lower beams 12. These vertical rods or wires 17 and 18 thus serve to tie the upper and lower elements together intermediate of the places of crossing of the rods 8 and 9, making a stronger interior structure to the crate; and they serve to support a minimum of cushioning material for action in a very effective manner.

As herein shown, and as is preferred, the cushioning means consists of tubes 19 of suitable cushioning material, preferably rubber, placed around the rods or wires 17 and 18 prior to assembly of the elements, and extending from the upper ends of these rods or wires 17 and 18, adjacent to the upper partition rods or wires 8 and 9, down to the connection of the vertical rods or wires 17 and 18 to the lower rods 11 and the cross beams 12, so as to be held against substantial up and down movement on the rods or wires 17 and 18.

Thus positioned, these vertical cushions 19 afford continuous guides for the bottle being inserted, and engage the sides of the bottle, after it is inserted in a compartment, sufficiently near the bottom and near the top of the body of the bottle to prevent material wiggling of the bottle in the compartment, so that the bottle does not, either while being inserted or afterward, make contact with the partition wires or rods 8 and 9, nor with the plates 15, although these plates have arcuate portions 15a which give to those compartments away from the crate walls a substantially circular inlet space, and to those next the crate walls more or less completely circular inlet spaces.

It will be seen also that, although we have not shown partition elements at levels higher or lower than that of the rods 8 and 9, if such were provided, these vertical cushioning elements would prevent contact with such partition elements. This effective cushioning is due to the vertical extent of the cushioning means 19 relative to the height of the bottle bodies; being a major portion of said height.

This is an improvement as to durability of the crate as compared with cushion means extending only partly down from the upper to the lower interior structure; and also, due to the complete extension, or extension amounting to a major portion of the height of the body of the bottle, the prevention of impact of the bottle against partition or plate elements is insured, whereas cushion means having substantially less up and down extension allows impact, especially if the plates 15 or their equivalents are used.

The built-up construction of our device also is an advantage over a construction involving integral formations between which the cushion material must be assembled, and other constructions in which the cushion material is dependent for support upon integral parts which may break off. Each one of our cushion bearing rods or wires 17 or 18 has the cushion material readily applied to it in assembly, and is readily replaceable, and if of such nature that its breakage from the rest of the structure is not liable to occur, owing not only to firm attachment, but to slight flexibility of the parts, all of which, though firm enough to serve their purposes, are thin and flexible enough to yield to the extent which will avoid their breakage.

In all of the examples shown, although we are not limited to such connection, the vertical cushion bearing wires or rods 17 and 18 are connected to the rods 8 and 9, respectively, by welding. Each wire or rod 17 or 18 has its upper end part 20 bent at right angles to its main vertical portion, and this end part 20 lies along under the rod 8 or 9 and is welded thereto throughout its length, preferably by arc welding. This makes these vertical rods practically integral with the horizontal rods. This welding of course is done after the horizontal rods 8 and 9 have been passed through their connecting plates 15 or their connecting clips 16. Prior to connecting these vertical rods 17 and 18 to the lower elements, the cushion tubes 19 are slipped onto them.

As shown in Figs. 1 and 2, the vertical rods 17 have their lower end parts 21 flattened, with apertures through which the lower support rods 11 are passed. Instead of this, the lower end parts of these rods, as the rods 17' of Fig. 3, may be formed into eyes 21a through which the lower support rods 11 are passed, as best seen in Fig. 6. As shown in Figs. 1 and 2, the other vertical rods 18 have merely straight lower ends to slip into sockets 22 made by slitting the cross beams 12 and pressing out small strip portions; the rods preferably fitting rather tightly in these sockets 22. Where channel beams 12a are used in place of the strip beams 12, as in Figs. 3 and 8, the straight lower end parts of the rods 18 merely slip down into openings 23 in the top webs of the beams; being understood preferably to fit rather tightly in the openings 23.

In either case of lower securing of the vertical cushion bearing rods 17 and 18, or 17' and 18, the support rods 11 being embraced by the lower end parts of the rods 17 or 17' and the latter being firmly attached to the upper partition rods 8, the tieing of the upper and lower structures together is effective without provision for attaching the other vertical rods 18 to the cross beams 12 or 12a against relative up and down movement. However, we are not to be understood as being limited to absence of such attachment as the latter one referred to.

Modifications other than those instanced herein may occur, and we are not to be understood as being limited to the examples herein disclosed, but what we claim as new and desire to secure by Letters Patent is:

1. A bottle-crate comprising a lower bottle-supporting structure made up of beams and rods extending through the beams, and comprising an upper compartment-forming structure made up of crossing elements, upright members connected to said crossing elements, each of lateral extent closely restricted to a vertical line substantially midway between places of crossing of said elements, each of certain ones of said upright mem-

bers having a lower part embracing a portion of one of said rods, and said beams having portions each embracing a lower part of each of certain other ones of said upright members, and elastic tubular cushion elements, each surrounding and extending up and down along a respective upright member between the upper and lower structures, adapted to be readily placed on or removed from the upright member when the member is disconnected from a rod or beam, as the case may be.

2. A bottle-crate as set forth in claim 1, in which the upright members are so connected to the therein mentioned crossing elements as to be permanently unitary therewith.

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