W. H. KLOCKE.

BOTTLE CRATE.

APPLICATION FILED JULY 15, 1910.

1,010,269. **Patented Nov. 28, 1911.**

2 SHEETS—SHEET 1.

Fig. 1.

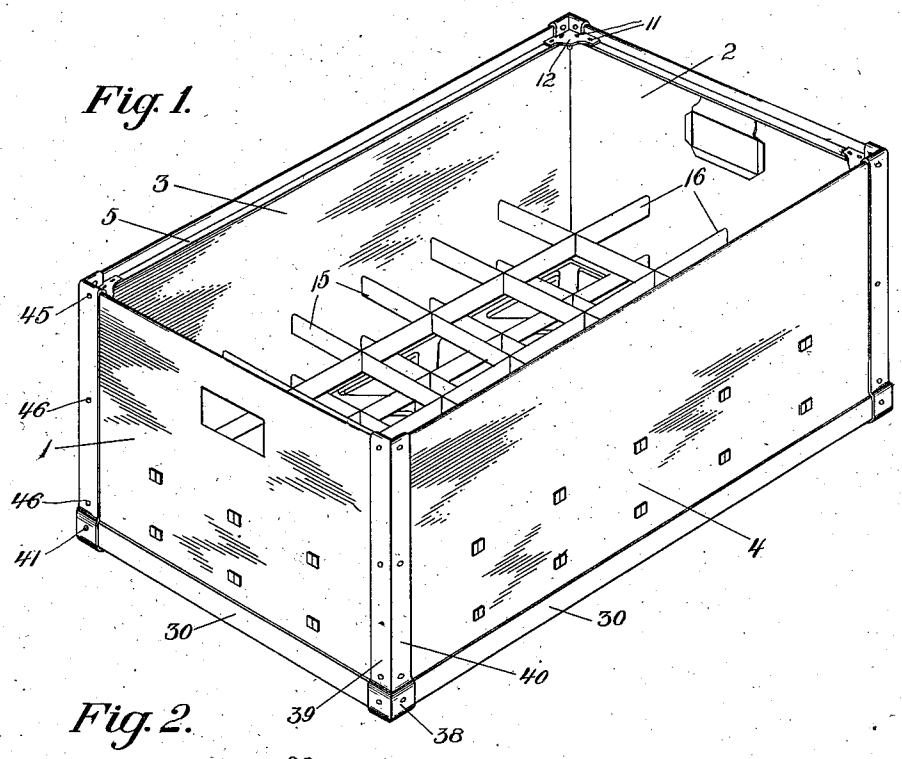
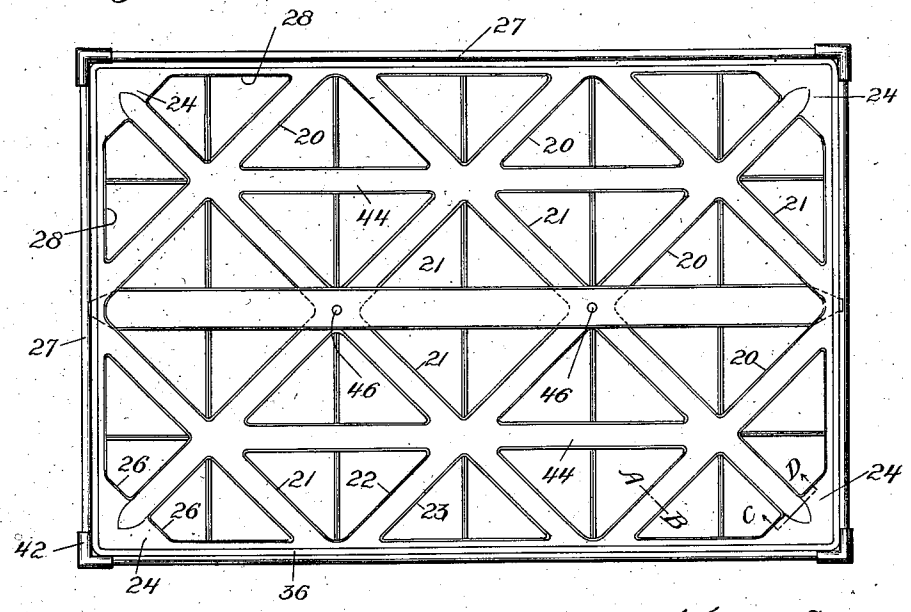


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

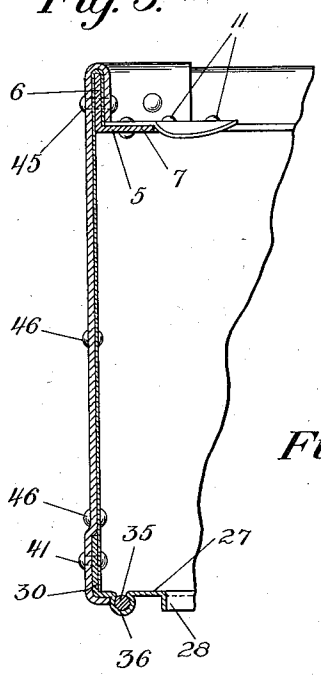


Fig. 4.

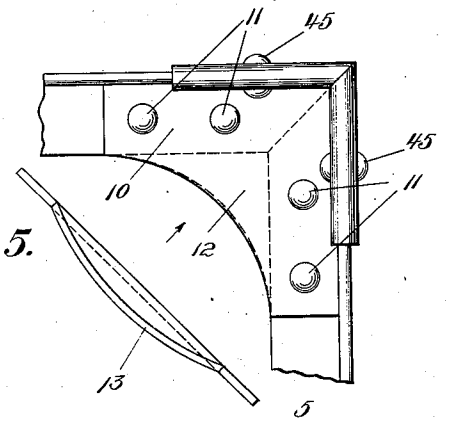


Fig. 5.

Fig. 6.

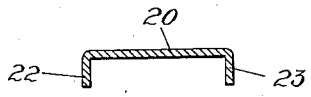
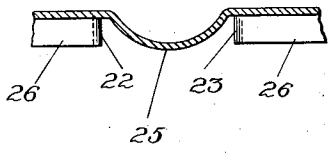


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM H. KLOCKE, OF BROOKLYN, NEW YORK, ASSIGNOR TO KAUFFMAN KASE KOMPANY, A CORPORATION OF NEW YORK.

BOTTLE-CRATE.

1,010,269. Specification of Letters Patent. Patented Nov. 28, 1911.

Application filed July 15, 1910. Serial No. 572,145.

To all whom it may concern:

Be it known that I, WILLIAM H. KLOCKE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Bottle-Crates, of which the following is a specification.

The invention relates especially to metallic crates for holding bottles, although in certain of its aspects the invention may be applied to other kinds of crates.

Objects of the invention are to provide a novel crate which is of great strength and rigidity and at the same time of simple and light construction; to provide a novel crate which is especially constructed to resist deformation when subjected to strains, especially when the crate is loaded with bottles, and especially such sudden strains as occur when the crates are dropped or thrown, or violently moved as frequently occurs in handling; to provide a novel construction and arrangement of parts, and more particularly to provide a novel construction of the crate bottom and corners, to prevent deformation of the crate; more particularly also to provide novel constructions of the top reinforcing frame and corners and box edges to keep the box rigid and avoid deformation. These and other objects of invention will in part be obvious and will in part more fully appear hereinafter.

The invention consists in the novel parts, articles, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and forming a part hereof, illustrate one embodiment of the invention, the same serving in connection with the description herein to explain the principles of the invention.

Of the drawings:—Figure 1 is a perspective view of a crate constructed in accordance with the principles of the invention; Fig. 2 is a bottom plan view of such a crate on a somewhat enlarged scale; Fig. 3 is a sectional elevation of a corner of the box, on an enlarged scale, showing the corner reinforcement of the top reinforcing frame, the reinforcement for the side edges of the crate, the joining of the bottom to the side walls and also the edge reinforcement; Fig. 4 is a fragmentary plan of the corner reinforcement of the top frame; Fig. 5 is a fragmentary view looking at Fig. 4 in the direction of the arrow; Fig. 6 is a section on the line A—B of Fig. 2; and Fig. 7 is a section on the line C—D of Fig. 2.

Referring to the accompanying drawings, illustrating by way of example an embodiment of the invention, a crate is shown having end walls 1 and 2 and side walls 3 and 4. A reinforcing member is provided at or adjacent to the top edges of said side and end walls. The embodied form of such reinforcing member consists of a flat strip 5 bent substantially at right angles longitudinally of itself, throughout its length, as shown in Fig. 3. One of said angled portions of this reinforcing member 5, indicated by reference numeral 6 is set flat against the side and end walls of the crate and fastened thereto in some suitable manner, as for instance by riveting. The other angled portion of the reinforcing member 5, which portion is designated by reference numeral 7, projects from the side and end walls into the crate. Said reinforcing member also serves to support another crate which may be stacked thereon, the bottom of the uppermost tray nesting within the top of the lowermost and resting upon the inwardly extending portion 7 of the reinforcing frame. The top of side and end walls of the crate may be folded over the portion 6 of the reinforcing member 5, as shown in Figs. 1 and 3 of the drawings, thus giving a finished appearance and also a stronger construction to the top edge of the box.

Reinforcing corner pieces are provided for the frame 5, at each corner thereof, to prevent movement thereof when sudden strains, especially diagonal strains, are put upon the box, as for instance when the box strikes on a corner or edge, especially when it has its load of bottles, which has a tendency to move the corner inwardly and to buckle or flex the adjacent reaches of the frame. This corner piece serves to hold these adjacent reaches of the frame from such movement. The embodied form of corner piece comprises a flat piece 10, lying on top of the horizontal portion 7 (see Figs. 1, 3 and 4) and attached thereto by suitable means, such as rivets 11. The corner pieces or gussets 10 also preferably extend across

the corner from one reach to another in the form of a web, as shown at 12 in Fig. 4. They are further preferably provided with a turned over, reinforcing lip 13 extending downwardly from the web 12.

A suitable bottle rack will be provided when the case is designed for holding bottles, and such a rack is shown in Figs. 1 and 2. This rack may consist of metal strips 15 and 16, preferably folded over on themselves, and arranged transversely of each other to form the nests for the individual bottles. The ends of these strips may be fastened by being clenched into the side walls of the crate, if desired.

The bottom of the crate, in accordance with certain aspects of the invention, is also especially designed to resist diagonal strains. The crate bottom is cut out of a solid sheet and consists of a plurality of strips 20 running across from the bottom of one crate wall to another, diagonally of said walls, and a plurality of interlocking strips 21 arranged at right angles to and also fastened thereto. The ends of said strips are fastened to the bottom edges of the crate. Should a strain come on either edge or corner, the strips extending in the direction of the strain will take up the thrust, while a tension will be put upon the transverse strips which will prevent deformation or relative movement of the adjacent reaches of the frame or walls and which will also prevent buckling of the other strips under the thrust placed upon them. It will be found that with such a construction the crate will be sufficiently rigid to stand the strains incident to actual use in handling bottles or otherwise. The strips 20 and 21 are also disposed, so that one comes under each bottle nest or compartment, so that the bottom of the bottle may rest thereon.

In accordance with one feature of the invention the bottom frame is integral and is stamped out of a single sheet of metal and it is so formed in the present embodiment. The strips 20 and 21 may have their edges turned or flanged, as shown at 22 and 23, in Figs. 2 and 6, which gives them additional strength against any strains which would tend to flex or buckle them. The sheet from which the bottom is formed is shown also with corner webs 24, into each of which one of the strips 20 or 21 runs. These webs may be provided also with a ribbed portion 25 and the outer edge of said web may be flanged as shown at 26 in order to strengthen the web. This bottom plate is shown also with a flat portion 27 extending around the edges of the crate bottom and having its edges also flanged as shown at 28. The outside edges of said bottom plate are also turned up to form a reinforcing strip 30 about the bottom edges of the side and end walls of the crate, said turned up portions being united at their corner edges in some suitable manner, as by brazing, or welding, or otherwise. The crate walls and said turned up portion will also be suitably united as by riveting or otherwise. A further bottom reinforcing and stiffening frame is provided in accordance with one feature of the invention, and the embodied form thereof consists of a bar or rod 35, formed into a continuous rectangular frame, and suitably attached to the bottom plate 27. For this purpose the plate 27 is shown grooved at 36 (see Figs. 2 and 3) to permit the frame 35 to rest therein and said plate 27 is formed or clenched around the rod, to hold it in position, as shown in Fig. 3.

Reinforcements for the upright edges of the side walls are provided, which also are utilized to join together the top and bottom frames, to further strengthen them to resist flexure or deformation. Said reinforcements consist of strips 38 bent at right angles longitudinally into two parts 39 and 40, one part lying upon the side wall and the other part on the end wall (see Fig. 1). Said strips are also bent over the top edges of the top corner of the side and end walls at their junction (see Figs. 1 and 4). At their bottom edges the strips 38 are bent or angled inwardly beneath the corners of the flat plates 27 as shown at 42 in Figs. 2 and 3, and these strips may be offset to pass about or outside the strips. The strips 38, the strip 30 and the adjacent wall may be fastened together in a suitable manner, as by rivets, and a rivet 45 serves to fasten the strips 38 to the top reinforcing frame 5. Rivets 46 are shown fastening strip 38 to the upright walls of the crate. They thus serve not only to give a finish to the box and to strengthen the upright edges, but also to tie together the top and bottom reinforcements and to strengthen the entire box structure. Additional strips 44 running parallel to the side walls are shown in the bottom, which also have their edges flanged.

It will be understood that the invention is not limited to the exact forms shown and described, but that variations may be made therefrom within the scope of the accompanying claims.

What I do claim as my invention and desire to secure by Letters Patent, is:

1. A metallic crate including in combination side and end walls, a reinforcing frame extending around and fixed to the bottom edges of said side and end walls, and a bottom comprising reinforcing strips connected to said reinforcing frame and extending diagonally from one reach of said frame to the next adjacent reach thereof.

2. A metallic crate including in combination, side and end walls, a reinforcing frame extending around and fixed to the bottom edges of said side and end walls, and a bot-

tom comprising a plurality of reinforcing strips connected to said reinforcing frame and extending diagonally from one reach of said frame to the next adjacent reach thereof, and a plurality of reinforcing strips also connected to said reinforcing frame and extending diagonally from one reach of said frame to the next adjacent reach thereof, said last mentioned reinforcing strips running transversely to said first mentioned reinforcing strips.

3. A metallic crate including in combination side and end walls, a reinforcing frame extending around and fixed to the bottom edges of said side and end walls, and a bottom comprising reinforcing strips connected to said reinforcing frame and extending diagonally from one reach of said frame to the next adjacent reach thereof, and reinforcing strips also connected to said reinforcing frame and extending diagonally from one reach of said frame to the next adjacent reach thereof, said last mentioned reinforcing strips running transversely to said first-mentioned reinforcing strips and being connected thereto at their intersections.

4. A metallic crate including in combination the side and end walls, a reinforcing frame extending around and fixed to the bottom edges of said side and end walls, reinforcing strips extending diagonally from one reach of said reinforcing frame to the next adjacent reach thereof, said reinforcing frame and reinforcing strips being formed from one integral sheet of metal.

5. A metallic crate including in combination the side and end walls, a reinforcing frame extending around and fixed to the bottom edges of said side and end walls, reinforcing strips extending diagonally from one reach of said reinforcing frame to the next adjacent reach thereof, other reinforcing strips extending diagonally from one reach of said reinforcing frame to the next adjacent reach thereof and in a direction transversely to the first named reinforcing strip, said reinforcing frame and all said reinforcing strips being formed from one integral sheet of metal.

6. A metallic crate including in combination side and end walls, a reinforcing frame extending around and fixed to the bottom edges of said side and end walls, reinforcing strips connected to said reinforcing frame and extending diagonally from one reach of said frame to the next adjacent reach thereof, and reinforcing means arranged longitudinally of said reinforcing strips to prevent buckling thereof under longitudinal strains.

7. A metallic crate including in combination the side and end walls, a reinforcing frame extending around and fixed to the bottom edges of said side and end walls, reinforcing strips extending diagonally from one reach of said reinforcing frame to the next adjacent reach thereof, said reinforcing frame and reinforcing strips being formed from one integral sheet of metal, and a portion of said reinforcing strips being bent longitudinally to form a reinforcement against buckling under a longitudinal strain.

8. A metallic crate including in combination the side and end walls, a reinforcing frame extending around and fixed to the bottom edges of said side and end walls, reinforcing strips extending diagonally from one reach of said reinforcing frame to the next adjacent reach thereof, other reinforcing strips extending diagonally from one reach of said reinforcing frame to the next adjacent reach thereof and in a direction transversely to the first named reinforcing strip, said reinforcing frame and all said reinforcing strips being formed from one integral sheet of metal, the edges of said strips being bent at substantially a right angle to the plane thereof to form a continuous reinforcing element from said frame about the edges of said strips to the frame again.

9. A metallic crate including in combination side and end walls, an integral sheet metal reinforcing frame having a vertical portion, extending about and fixed to the bottom edges of said side and end walls, said reinforcing frame having also a horizontal portion extending inwardly from said bottom edges of said side and end walls, a further reinforcing and stiffening frame formed from a metal rod and extending about contiguous to the bottom edges of said side and end walls, said frame being carried in a groove formed in said reinforcing frame.

10. A metallic crate including in combination side and end walls, an integral sheet metal reinforcing frame having a vertical portion extending about and fixed to the bottom edges of said side and end walls, said reinforcing frame having also a horizontal portion extending inwardly from said bottom edges of said side and end walls, reinforcing strips connected to said reinforcing frame and extending diagonally from one reach of said frame to the next adjacent reach thereof.

11. A metallic crate including in combination side and end walls, an integral sheet metal reinforcing frame having a vertical portion extending about and fixed to the bottom edges of said side and end walls, said reinforcing frame having also a horizontal portion extending inwardly from said bottom edges of said side and end walls, reinforcing strips extending diagonally from one reach of said reinforcing frame to the next adjacent reach thereof, other reinforcing strips extending diagonally from one reach of said reinforcing frame to the next adjacent reach thereof, said reinforc-

ing frame and all said reinforcing strips being formed from one integral sheet of metal.

12. A metallic crate including in combination side and end walls, an integral sheet metal reinforcing frame having a vertical portion extending about and fixed to the bottom edges of said side and end walls, said reinforcing frame having also a horizontal portion extending inwardly from said bottom edges of said side and end walls, reinforcing members extending across from one reach of said reinforcing frame to another reach thereof, a further reinforcing and stiffening frame formed from a metal rod and extending about contiguous to the bottom edges of said side and end walls, said frame being carried in a groove formed in said reinforcing frame.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM H. KLOCKE.

Witnesses:

JOHN D. MORGAN,

ROSE MENK.