May 17, 1932. C. A. WOOLSEY ET AL 1,858,846

CRATE

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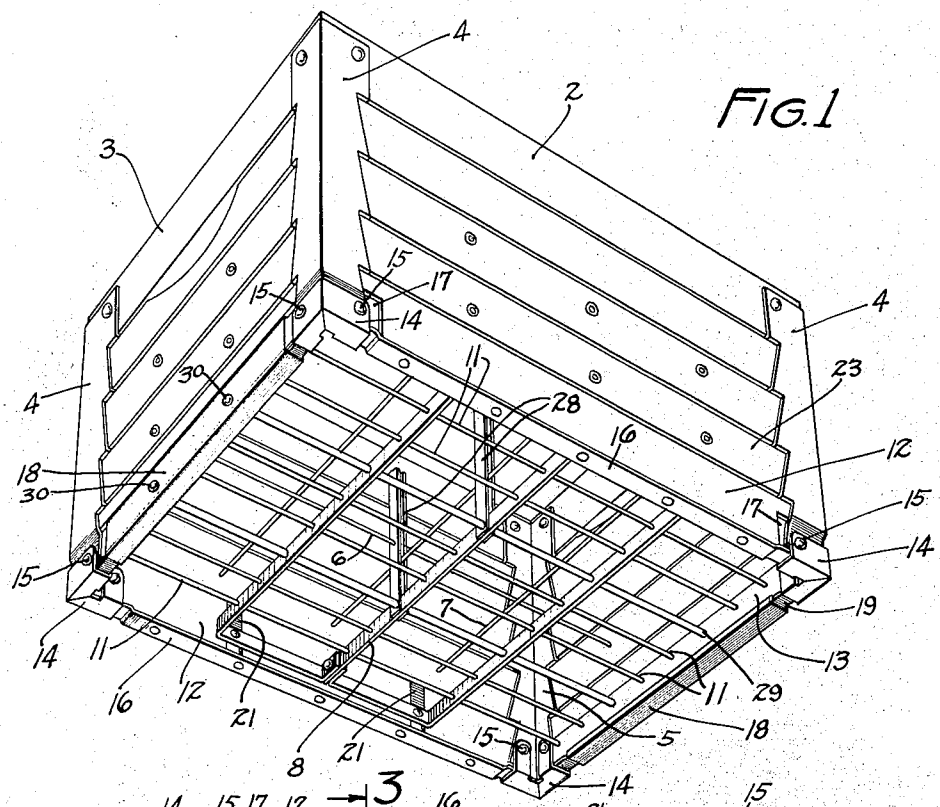


FIG. 1

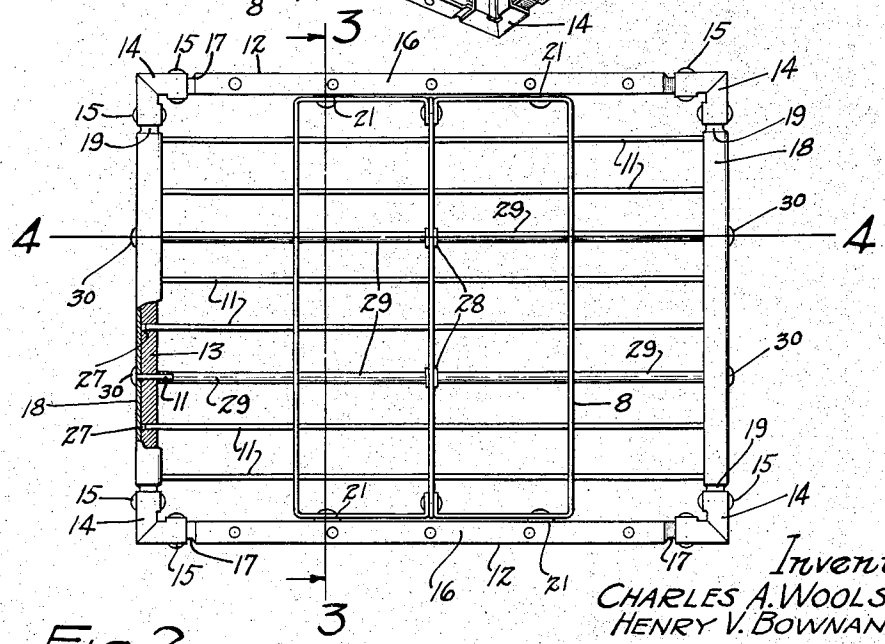


FIG. 2

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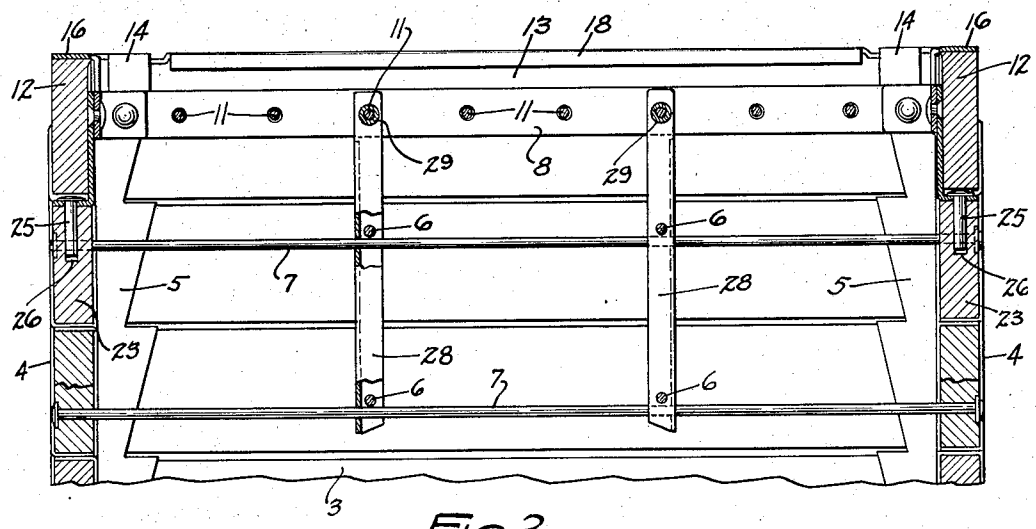


FIG. 3

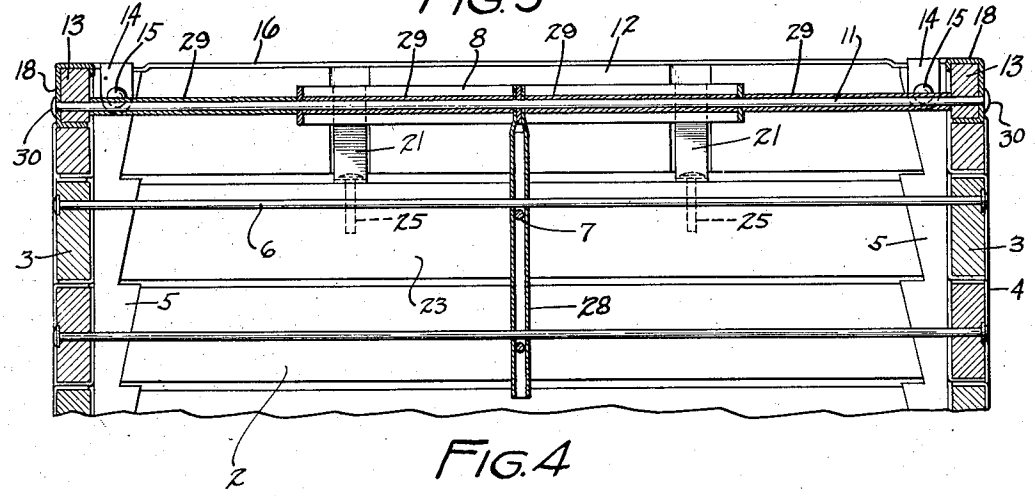


FIG. 4

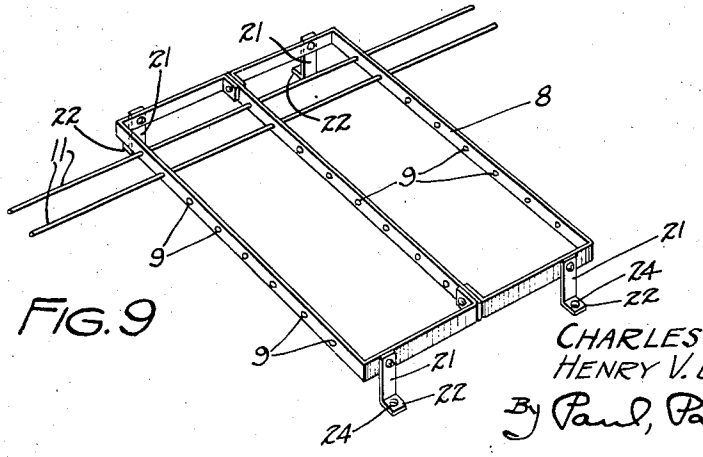


FIG. 9

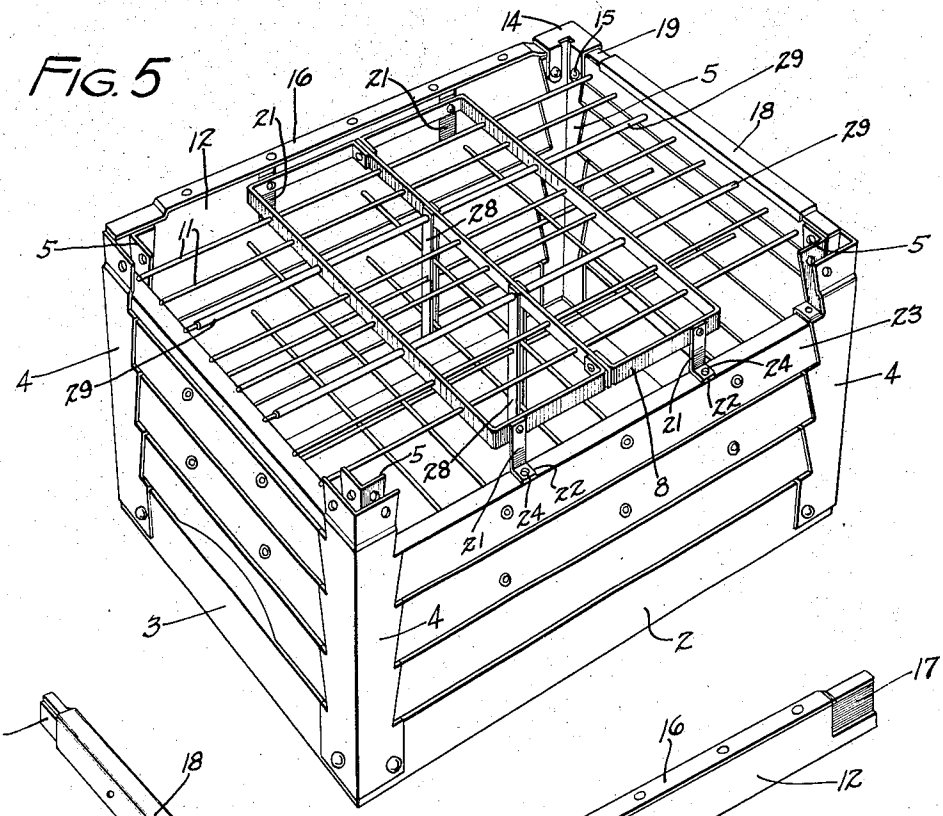
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FIG. 5



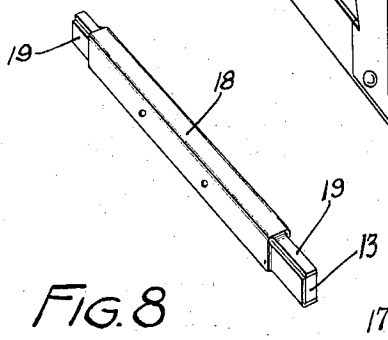


FIG. 8

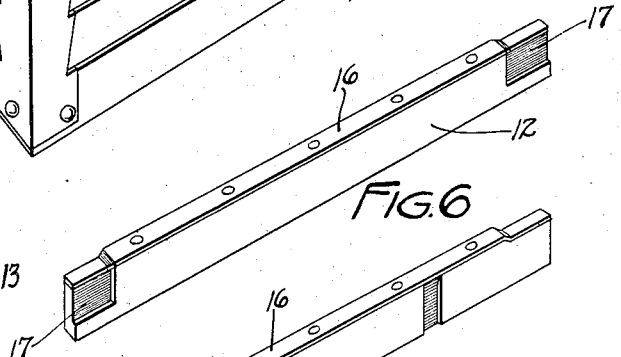


FIG. 6

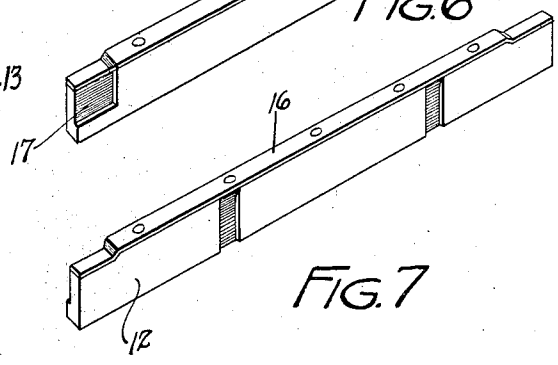


FIG. 7

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UNITED STATES PATENT OFFICE

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CRATE

Application filed July 25, 1928. Serial No. 295,168.

This invention relates to new and useful improvements in crates designed for transporting such articles for example as milk bottles, and an object of the invention is to provide such a crate having a detachable bottom grid which may readily be detached from the crate for repairs when necessary.

A further object of the invention is to provide a crate comprising side and end walls each having a detachable lower rail, and a bottom grid fitting between and within said bottom rails, said grid including a frame having a plurality of rods mounted therein, and the rails being detachably secured to the box walls whereby the end rails and bottom grid may readily be detached from the crate.

A further object is to provide a crate having side and end walls each having a detachable lower rail, and a bottom grid including a metallic frame fitted between and within said bottom rails and having means at the ends thereof adapted for engagement with the side walls and rails of the crate for supporting it, and a plurality of spaced rods mounted in said metallic frame and having their terminals received in sockets provided in the end rails of the crate, said side and end rails being detachably secured to the walls of the crate, whereby the rails and grid may readily be detached from the crate.

A further object is to provide a crate having detachable bottom rails and means for preventing spreading and collapsing of said rails.

The particular object of the invention therefore is to provide a crate of the class described, having an improved bottom grid provided with means for detachably securing it to the walls of the crate.

Other objects of the invention will appear from the following description and accompanying drawings and will be pointed out in the annexed claims.

In the accompanying drawings, there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown as various changes may be made within the scope of the claims which follow.

In the accompanying drawings forming part of this specification:

Figure 1 is a perspective view of a crate embodying the invention;

Figure 2 is a bottom view of Figure 1;

Figure 3 is an enlarged detail sectional view on the line 3—3 of Figure 2;

Figure 4 is a detail sectional view on the line 4—4 of Figure 2;

Figure 5 is a perspective view of the crate in an inverted position, showing two of the bottom rails detached therefrom;

Figure 6 is a perspective view showing the outside of one of the side rails;

Figure 7 is a similar view showing the inside of one of the side rails;

Figure 8 is a perspective view showing one of the end rails removed from the crate; and

Figure 9 is a perspective view showing the metallic frame of the grid bottom with some of the rods removed therefrom.

In the selective embodiment of the invention here shown there is illustrated, for purposes of disclosure, a crate having side and end walls 2 and 3, respectively, each comprising a plurality of slats connected together at their ends by suitable angle irons 4 and 5. Rods 6 and 7 have their ends mounted in the end and side walls 3 and 2, respectively, as shown in Figures 3 and 4. These rods separate the interior of the crate into sections each adapted to receive a milk bottle or similar article.

The bottom of the crate comprises a grid including a metallic frame 8 formed of strap iron as shown in Figure 9. A plurality of apertures 9 are provided in the frame 8 adapted to receive rods 11 which cooperate with the frame 8 to provide a bottom for the crate.

A feature of the invention resides in the means provided for detachably securing the bottom grid to the side and end walls of the crate, whereby the grid may be removed therefrom for repairs when necessary. To thus detachably support the grid in the crate, the side and end walls are provided with detachable bottom rails 12 and 13, respectively, which are detachably secured to the walls of the crate by suitable corner irons 14, fitting

over the lower ends of the angle irons 4 and 5 and secured thereto by suitable rivets or bolts 15. Each side rail 12 preferably has an iron strap 16 secured to the lower edge thereof to take up wear, and has its ends recessed as indicated at 17, which recessed portions are adapted to be inserted into the corner irons 14, as shown in Figure 1.

Each end rail 13 is encased in a channel-like member 18 shown in Figures 4 and 8, and further has reduced end portions 19, adapted to be received in the corner irons 14 in a manner similar to the side rails 12. The end rails 13 are positioned in the crate as shown in Figures 1 and 4, so that the lower exposed corners thereof are encased in the metal members 18, thereby protecting the rails against wear and damage.

The grid bottom, including the frame 8 and rods 11, is supported in the crate, as shown in Figures 3, 4 and 5. Hangers 21 are provided at each end of the frame 8, and each has an offset portion 22 adapted to be inserted between the upper edges of the rails 12 and the lower slats 23 of the side walls 2, as particularly shown in Figure 5. Each offset portion 22 has an aperture 24 adapted to receive a rivet or pin 25 received in sockets 26 preferably provided in the lower slats 23 as shown in Figure 3. When the box is assembled, these hangers support the frame 8 upon the side rails 12, as will readily be seen by reference to Figure 3.

Each end rail 13 has a plurality of spaced apertures 27 adapted to receive the terminals of the rods 11, as best shown at the left hand side of Figure 2. The apertures 27 are preferably drilled through the slats 13 as shown, and the channel members 18 provide closures for the outer ends of the apertures to prevent longitudinal movement of the rods, when assembled in the crate. Thus it will be seen that when the grid is positioned in the crate, as shown in Figure 5, and the side and end rails 12 and 13 are inserted in the angle irons 4 and 5, and the corner irons 14 engaged therewith and secured by the rivets 15, the grid will be secured to the bottom rails of the crate, as shown in Figure 1.

To further support the frame 8 of the grid bottom, supporting members 28 are engaged with the rods 6 and 7, and have their lower ends engaged with two of the rods 11 of the grid bottom, as shown particularly in Figures 3 and 4. These supporting members therefore cooperate with the hangers 21 and rods 11 to support the grid bottom upon the walls of the crate.

To remove the grid bottom from the crate, the corner irons 14 are first removed from the angle irons 4 by removal of the rivets or bolts 15, after which the four bottom rails and the grid may be disengaged from the walls of the crate for repairs or other purposes. If only one of the side rails has been damaged, the latter may be removed from the crate by simply removing the two corner irons engaged therewith. Likewise, if one of the end rails has been damaged, it may similarly be removed from the crate by removing the two corner irons engaged therewith. It will therefore be seen that the bottom rails 12 and 13 and the grid bottom are all detachably secured to the crate walls in such a manner that any one of the bottom rails may be detached from the crate and, if desired, the entire grid bottom may be removed by removal of the four corner irons as above stated.

Spacing sleeves 29 are preferably mounted upon the two rods 11 engaged with the hangers 28, and function to retain the strap-like cross members of the frame 8 in proper position with respect to one another, and the end rails of the box. These sleeves also prevent the end rails from collapsing. To prevent spreading of the end rails, two or more of the rods 11 are made longer than the other and have their terminals passing through apertures in the channel members 18 and headed over as indicated at 30 in Figures 1, 2 and 4. By thus constructing the grid bottom and securing it to the walls of the crate, it will readily be seen that the lower portion of the crate, including the grid and the bottom rails may readily be removed for repairs or other purposes, in a comparatively short length of time, thereby providing such a crate well adapted for use to transport from place to place, such articles as, for example, milk bottles, dairy products, and other merchandise, which subjects the crates to rough usage and, with ordinary crates, necessitates frequent repairs.

We claim as our invention:

1. A crate comprising side and end walls, each having a detachable lower rail, a grid forming the bottom of the crate and comprising a metallic frame adapted to be fitted between the bottom rails of said side walls, hangers secured to said frame and having offset portions seated between the upper edges of said bottom side wall rails and their respective side walls, pins engaged with said offset portions and the lower edges of said side walls, a plurality of spaced rods mounted in said frame and having their terminals received in sockets provided in the end rails of the crate, and corner irons for detachably securing said rails to said walls, whereby the rails and grid may be detached from the crate.

2. A crate comprising side and end walls, each having a bottom rail, a grid forming the bottom of the crate and comprising a frame adapted to be fitted between the bottom rails of said side walls, hangers on the frame having off-set portions adapted to engage the upper edges of said bottom side wall rails, a plurality of rods mounted in said

frame in spaced relation and engaged with the bottom end wall rails, spacing members partially encasing certain of said rods, and corner irons for detachably securing said bottom end wall rails to their respective end walls.

3. A crate comprising side and end walls, each having a detachable lower rail, a grid forming the bottom of the crate and comprising a metallic frame adapted to be fitted between the bottom rails of said side walls, hangers secured to the ends of the frame and having off-set end portions adapted to be fitted between the upper edges of said bottom side wall rails and their respective side walls, means on each offset hanger portion adapted to be received in sockets provided in said side walls to prevent relative movement of said offset hanger portions, a plurality of spaced rods mounted in said frame and having their terminals received in sockets provided in the bottom rails of said end walls, and suitable corner irons for detachably securing said rails to their respective walls whereby the rails and grid may be removed from the crate.

4. A crate comprising side and end walls, each having a bottom rail, a grid forming the bottom of the crate and comprising a frame adapted to be fitted between the bottom rails of said side walls, a plurality of rods mounted in said frame in spaced relation and having their terminals supported in the bottom rails of said end walls, and means on said frame extending outwardly between said bottom side wall rails and their respective side walls for supporting said frame.

5. A crate comprising pairs of oppositely arranged walls and each wall having a detachable bottom rail, a grid forming the bottom of the crate and comprising a metallic frame adapted to be fitted between the bottom rails of a pair of said walls, hangers on the frame having offset end portions adapted to engage the upper edges of the bottom rails between which said frame is fitted, and a plurality of rods supported in said frame and having their terminals supported in the bottom rails of the other pair of said walls.

6. A crate comprising pairs of oppositely arranged walls and each wall having a bottom rail, a grid forming the bottom of the crate and comprising a frame adapted to be fitted between the bottom rails of a pair of said walls, hangers on said frame having offset portions fitting between the upper edges of the bottom rails between which said frame is fitted and the lower edges of their respective walls, a plurality of rods mounted in said frame and having their terminals received in sockets provided in the bottom rails of the other pair of said walls, and channel members concealing the outer surfaces of the bottom rails with which said rod terminals are engaged and providing abutments for certain of said rods.

7. A crate comprising side and end walls each provided with a bottom rail, a grid forming the bottom of the crate and comprising a frame adapted to be fitted between the bottom rails of said side walls and substantially engaged therewith, hangers secured to the frame and having portions adapted to be fitted between the upper edges of said bottom side wall rails and their respective side walls, a plurality of rods mounted in said frame and arranged in spaced relation and having their terminals received in sockets provided in the bottom rails of the end walls, channel members fitting over and concealing the outer faces of the bottom rails of said end walls, certain of said rods being received in apertures provided in said channels, and said channels forming abutments for others of said rods, and means for detachably securing said bottom rails to the walls of the crate.

In witness whereof, we have hereunto set our hands this 21st day of July, 1928.

CHARLES A. WOOLSEY.
HENRY V. BOWMAN.