

July 4, 1950

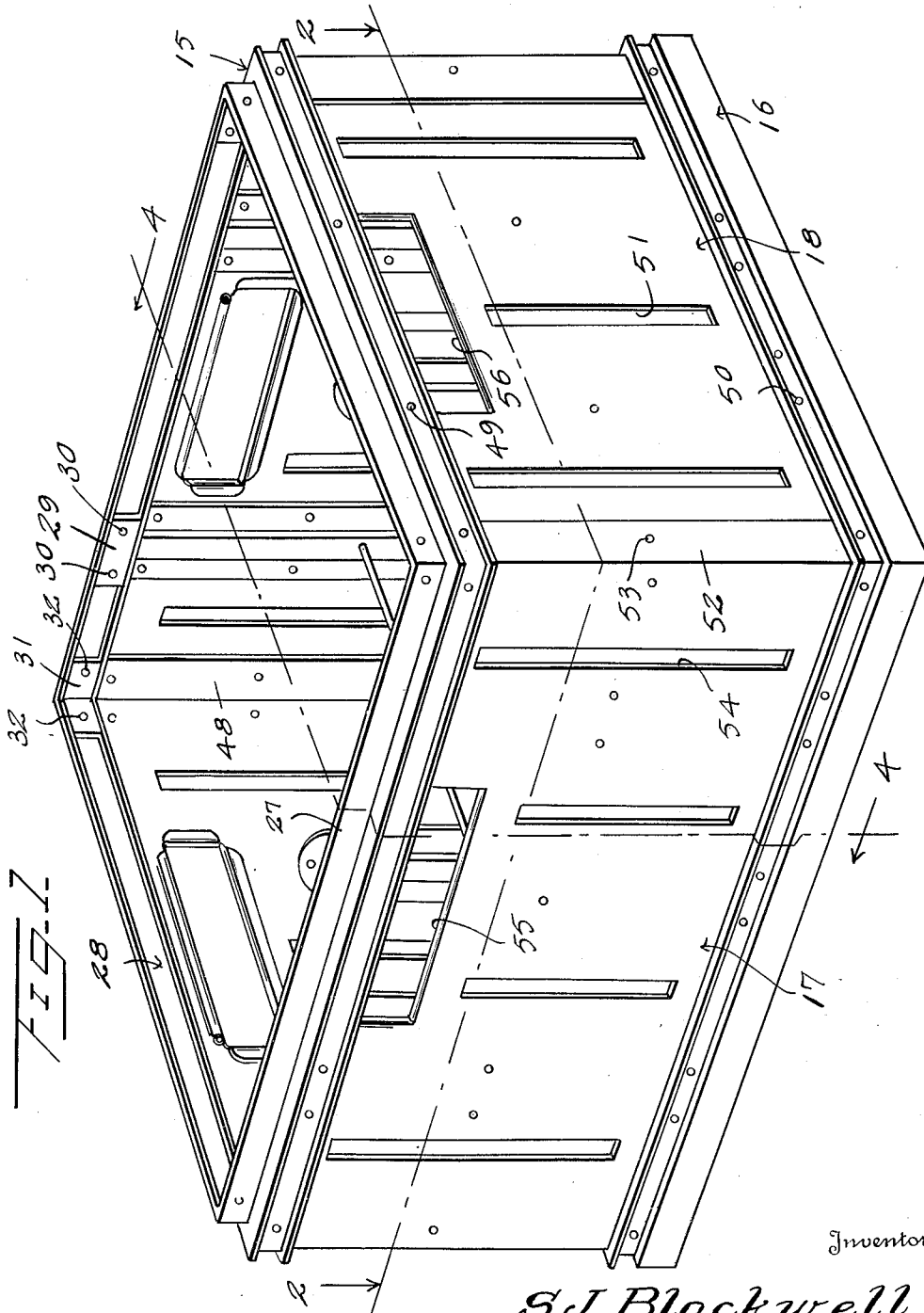
S. J. BLACKWELL

2,513,709

BOTTLE CRATE

Filed Oct. 7, 1946

7 Sheets-Sheet 1



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July 4, 1950

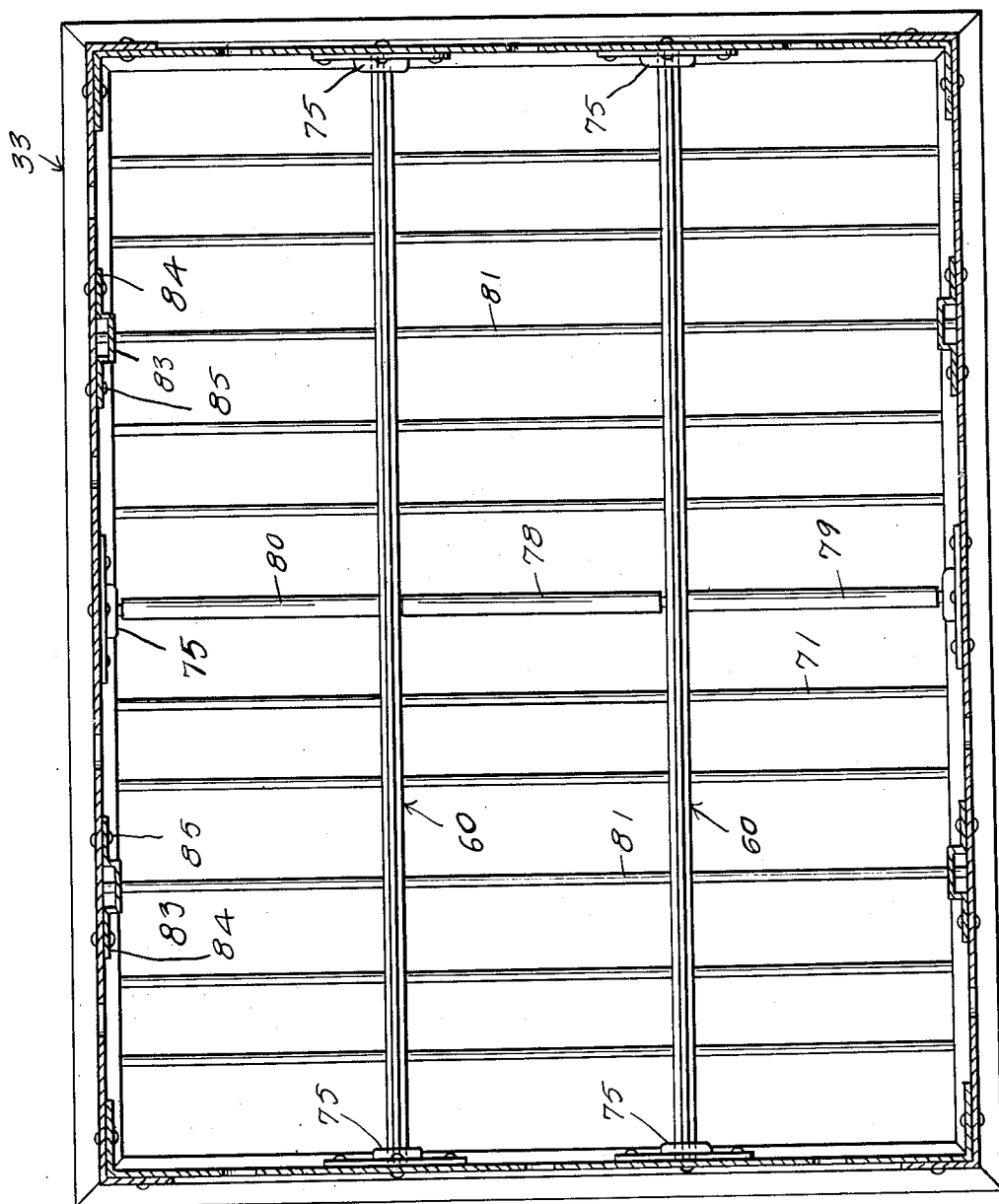
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BOTTLE CRATE

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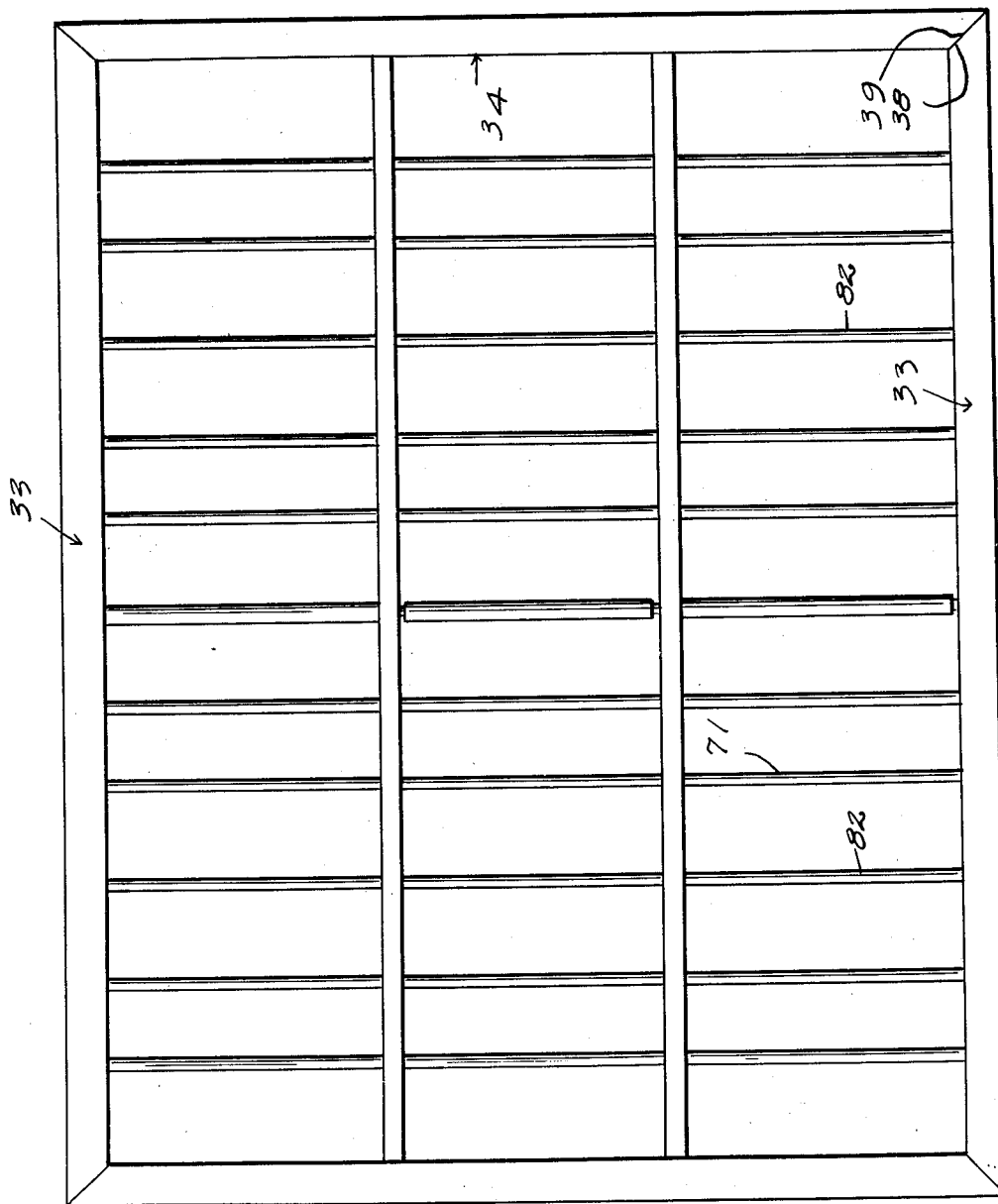


FIG. 3-

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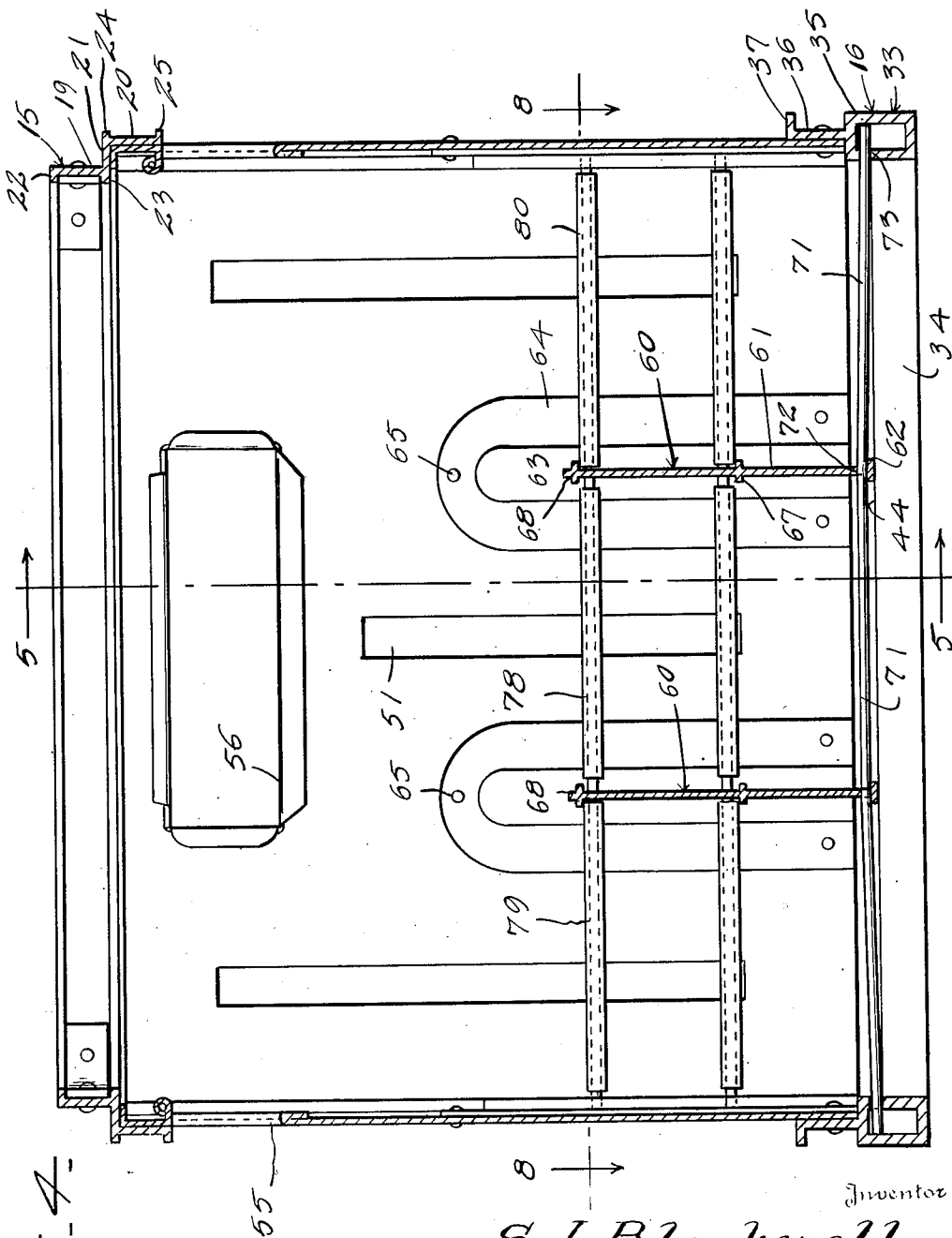
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Filed Oct. 7, 1946

7 Sheets-Sheet 4



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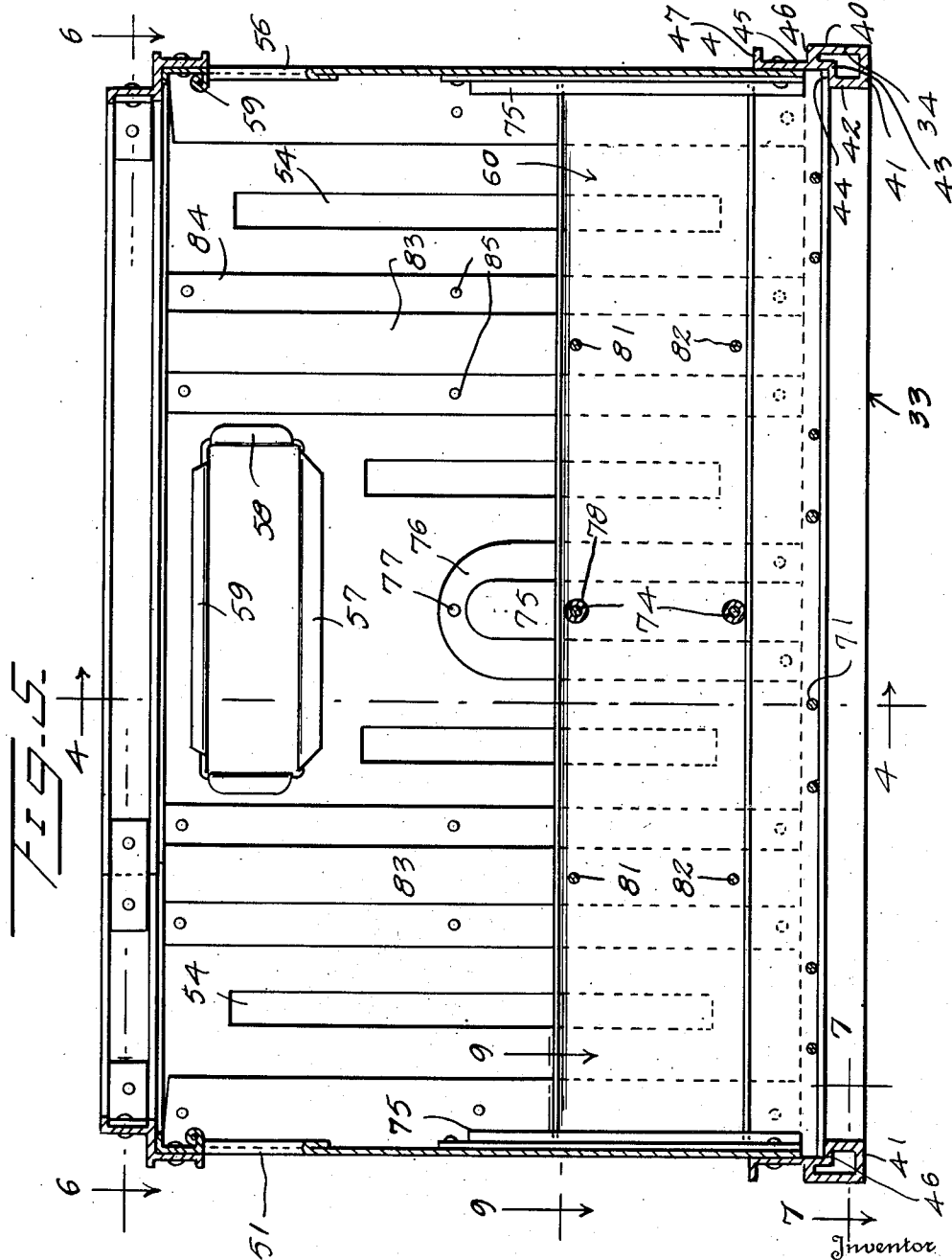
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BOTTLE CRATE

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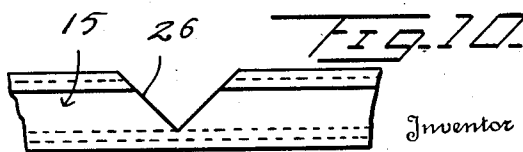
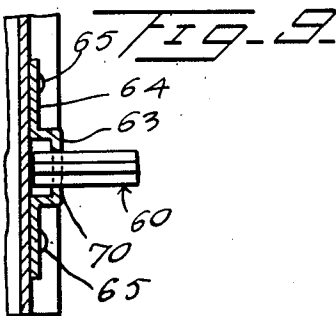
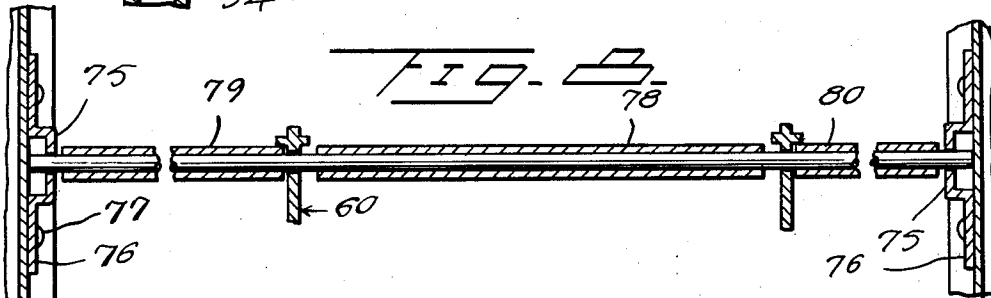
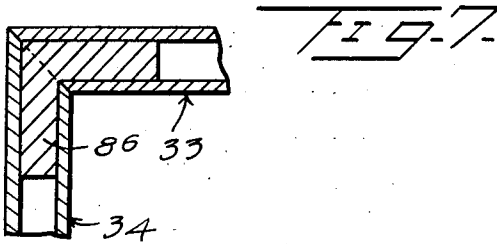
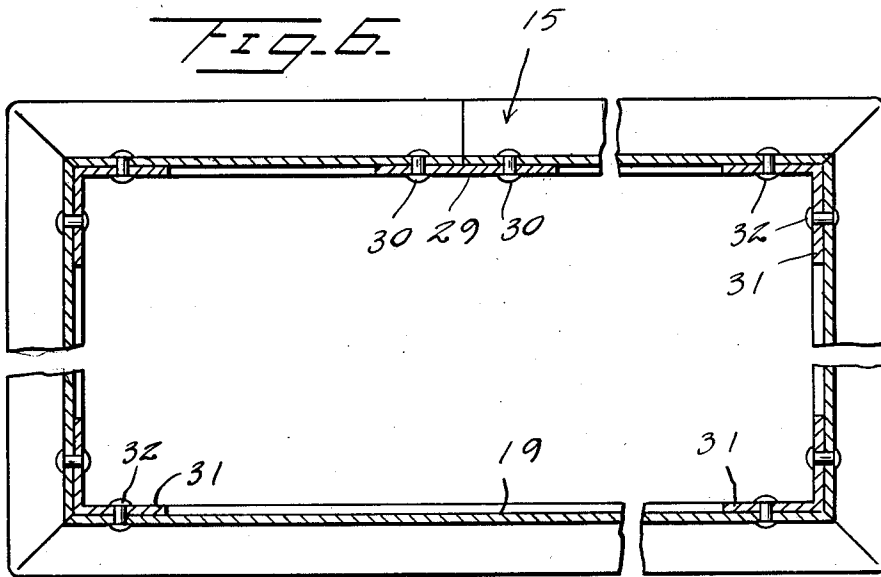
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Fig. 12.

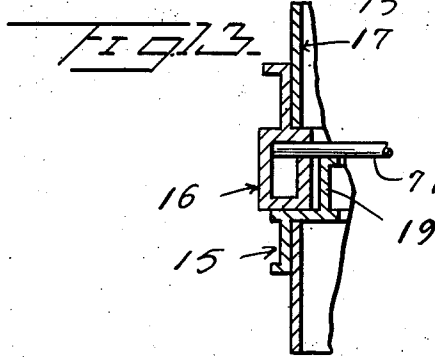
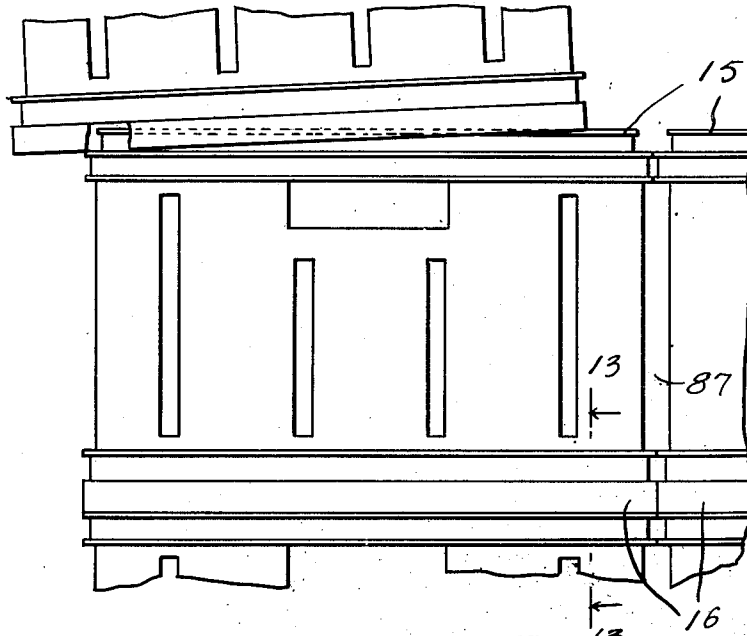
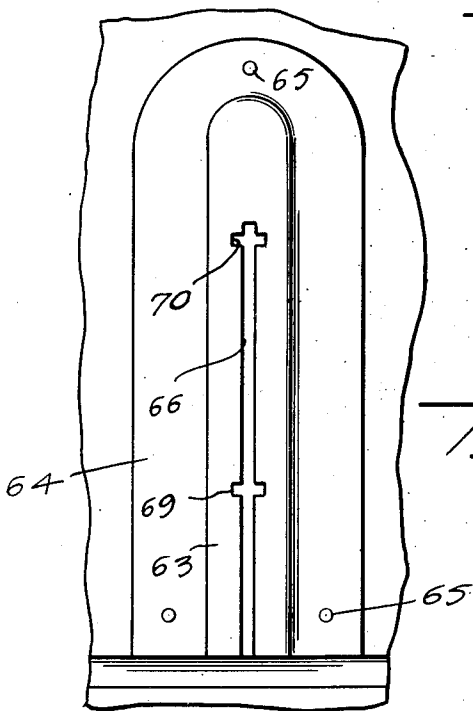


Fig. 11



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2,513,709

BOTTLE CRATE

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Application October 7, 1946, Serial No. 701,801

2 Claims. (Cl. 220-97)

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This invention relates to bottle crates.

An object of this invention is to provide a metal bottle crate which may be partly formed of extruded metal, and partly out of sheet metal.

Another object of this invention is to provide a bottle crate wherein the upper and lower portions thereof are designed for the nesting and locking of superposed crates, and are designed in such a manner that in the mounting of one crate upon another the upper crate may be initially engaged with a lower crate at one end or side thereof, and then slid inwardly until the lower portion of the upper crate drops over and partially telescopes the upper portion of the lower crate.

A further object of this invention is to provide a metal crate which is so assembled that a damaged part can be readily replaced.

A further object of this invention is to provide a crate which by reason of its construction will occupy a smaller space than wooden crates, and is also of substantially less weight than wooden crates.

A further object of this invention is to provide in a crate of this kind, an improved means for mounting and supporting the divider and bottom forming bars.

A further object of this invention is to provide a crate of this kind including ribbed longitudinal partition plates, and an improved means of supporting these plates from the end walls of the crate.

With the above and other objects in view, my invention consists in the arrangement, combination and details of construction disclosed in the drawings and specification, and then more particularly pointed out in the appended claims.

In the drawings,

Figure 1 is a perspective view of a bottle crate constructed according to an embodiment of this invention,

Figure 2 is a horizontal section taken on the line 2-2 of Figure 1,

Figure 3 is a bottom plan of the crate.

Figure 4 is a transverse section taken on the line 4-4 of Figure 1,

Figure 5 is a longitudinal section taken on the line 5-5 of Figure 4,

Figure 6 is a horizontal section, partly broken away, taken on the line 6-6 of Figure 5,

Figure 7 is a fragmentary sectional view taken on the line 7-7 of Figure 5,

Figure 8 is a fragmentary sectional view taken on the line 8-8 of Figure 4,

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Figure 9 is a fragmentary sectional view taken on the line 9-9 of Figure 5,

Figure 10 is a fragmentary plan view of a portion of the upper frame in blank form,

Figure 11 is a fragmentary inner elevational view of one of the partition supporting members,

Figure 12 is a detail side elevation, partly broken away, showing the nesting and locking of a plurality of these crates together,

Figure 13 is a fragmentary sectional view taken on the line 13-13 of Figure 12.

Referring to the drawings, the numerals 15 and 16 designate generally upper and lower rectangular frame members, and the numerals 17 and 18 designate generally the opposite side and end walls respectively of the crate which are fixed between the upper and lower frame members. The upper frame member 15 is formed of an elongated extruded strip of metal which is formed with a pair of offset webs 19 and 20 connected together by a connecting web 21. The web 19 at its upper edge is formed with an inwardly projecting flange 22, and at its lower edge with an inwardly projecting flange 23. The lower web 20 is formed at its upper edge with an outwardly projecting flange 24, and is formed at its lower edge with a second outwardly projecting flange 25.

The frame 15 is formed by extruding metal through a forming die which will form the configuration hereinbefore described, in an elongated strip of metal and this strip of metal is then mitered as indicated at 26 in Figure 10 so that the metal strip may be bent to form the opposite sides and ends 27 and 28 respectively of the upper frame. The formed frame strip has the opposite ends thereof secured together by means of a block 29 which is fastened by rivets or other suitable fastening means 30 to the inner side of the web 19.

At the corners of the frame 15 the corners are reinforced by means of angled reinforcing members 31 secured by rivets or fastening means 32 to the inner side of the web 19 between the flanges 22 and 23. The lower frame 16 is formed of opposite side members 33 and opposite end members 34. The side members 33 are formed of an elongated tubular member 35 which has extending from the upper wall thereof a web 36 having an outwardly projecting upper flange 37. The tube 35 is substantially rectangular in transverse section, as shown in Figure 4. The opposite ends of the side members 33 are mitered as indicated at 38 so as to abut against the mitered confronting end 39 of an end member 34.

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The end members 34 are formed with a lower tubular member having an outer vertical wall 40, a bottom wall 41, and an inner vertical wall 42.

The vertical wall 42 is substantially shorter than the outer wall 40, as shown in Figure 5, and a right angular wall 43 extends from the upper end of the inner wall 42 so as to thereby form a shoulder or seat 44. A vertical web 45 extends from the top wall 46 of the tube formed by the end member 34, and the web 45 is formed with an upper outwardly projecting flange 47. The end walls 18 are formed of a flat sheet of metal which is provided at the opposite vertical edges thereof with inwardly bent extension 48. The upper edge of the end wall 18 is adapted to be secured to the inner side of the lower web 29 by means of rivets 49 or other suitable fastening means. The lower edge of the end wall 18 is secured by fastening means 50 to the inner side of the web 45.

The end walls 18 may be formed with openings 51 at spaced points so as to provide for ventilation and to permit the contents of the crate to be cooled when the crate is placed in a refrigerator and a series of these crates are disposed in superposed relation. The side walls 17 are formed of a flat metal sheet which is provided at the opposite vertical edge thereof with right angular extensions 52 adapted to overlap the adjacent end portions of the end walls 18. The extensions 48 are adapted to overlap the inside faces of the side walls 17 and these extensions 48 and 52 provide a reinforcing means for the corners of the crate.

The overlapping extensions of the side and end walls are secured together by fastening means 53. The side walls 17 may also be provided with elongated openings 54 to permit ventilation and also to reduce the weight of the metal forming the side walls. The side and end walls are also provided with hand holds 55 and 56 which are of like construction and are formed by punching out a portion of the metal forming the side and end walls and then bending a portion of the remaining metal downwardly, as indicated at 57, and laterally as indicated at 58.

The upper edges of the openings or holes 55 and 56 have projecting inwardly thereof a rolled metal flange 59 which will provide a smooth surface for engagement with the fingers projecting through the hand holds.

The crate herein disclosed also includes a pair of longitudinally extending partition plates generally designated as 60. These plates 60 include a flat body 61 disposed in upright position and formed at its lower edge with a pair of oppositely extending flanges 62. The flanges 62 are adapted to rest on top of the shoulder 44 of the end members 34, and the plate 61 is adapted to be disposed in vertical position and is mounted at the opposite ends thereof in vertically disposed channel members 63 formed with flanges 64 secured by fastening members 65 to the inner surfaces of the end members 18. The channel member 63 is formed with an elongated vertical channel 66 within which the plate 61 is adapted to loosely engage, and the plate 61 is formed between the upper and lower edges thereof with oppositely extending horizontal flanges 67. The plate 61 is also formed adjacent the upper edge thereof with an upper pair of oppositely extending flanges 68. The channel member 63 is formed with notches 69 within which the flanges 67 are adapted to engage and is also formed with

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upper notches 70 within which the upper flanges 68 are adapted to engage. These flanges 67 and 68 and the notches 69 and 70 provide a supporting means for supporting the plate 61 from the end channel members 63.

The crate also includes a plurality of transversely extending bottom forming bars 71. The bars 71 are extended through opening 72 formed in the partition plates 61 adjacent the upper sides of the lower flanges 62, and the bottom forming bars are then extended outwardly and mounted in openings 73 formed in the inner walls of the side members 33. The openings 73 are disposed in a plane below the plane of the openings 72 so that the bars 71 will be bent downwardly and thereby be placed under tension.

The bars 71 are held against endwise movement by the outer walls of the tubular members 33, as shown in Figure 4. A pair of centrally disposed transversely extending bars 74 are extended through the partition plates 61 and engage at the opposite ends thereof in vertical channel members 75 having flanges 76 which are secured by fastening means 77 to the inner sides of the side members 17.

In order to provide for holding the partition plates or members 60 against undue bending, I have provided spacer tubes 78, 79 and 80 which are loosely engaged about the bars 74 and are interposed between the partition members 60, and these members and the opposite side walls. Outer pairs of vertically spaced divider bars 81 and 82 are also extended loosely through the partition members 60 and the opposite ends of the bars 81 and 82 are loosely disposed in vertically disposed combined channel or reinforcing members 83. The channel or reinforcing members 83 extend the full height of the side members 17 and are formed with opposite side flanges 84 secured by fastening means 85 to the inner sides of the side members 17. The adjacent ends of the lower side and end members 33 and 34 are connected together by means of right angular connecting members 86 which engage within the tubes formed by these side and end frame members.

In the use of this crate, the bottles which are preferably square in transverse section, are positioned in the spaces formed by the transverse bars 74, 81 and 82 and the longitudinal partition members 60. When it is desired to superpose one crate on top of another the upper crate may be slid over the upper edge of the upper frame 15 after the manner shown in Figure 12. In this manner one end of the lower frame member 34 will form a slide engaging the upper edge of the upper frame 15 with the opposite side members 33 of the lower frame telescoping over the inset portion or web 19 of the upper frame 15. The upper crate may be pushed forward until the end sliding on the upper edge of the upper frame 15 drops down over the adjacent end of the upper frame and in the superposed position of the upper crate the lower frame 16 thereof will rest on the horizontal connecting web 21 of the upper frame, and at the same time the transverse bottom forming bars 17 will rest on the upper side of the flange 22 and the upper edge of the web 19 as shown in Figure 13.

With a construction of this kind when the crates are to be superposed one on the other, the operation of superposing the crate is performed without having to register the lower frame of the upper crate with the top of the lower crate, or

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as is the practice, to lift the upper crate over the projecting lugs of the lower crate, then moving the upper crate endwise or transversely of the lower crate and again lifting the upper crate over the projecting lugs which are carried by the lower crate.

This crate is preferably made substantially entirely out of aluminum, with the exception of the bottom forming and divider bars and when any portion thereof becomes damaged, such damaged portion can be replaced by removing the rivets and replacing the damaged portion with a new portion. This crate will be very materially lighter than wooden crates and the height of this crate is substantially less than the height of crates at present available so that more of these crates may be stacked in a given height than with the prior or wooden crates.

In Figure 12 there are shown several crates in stacked relation and there are also shown several crates in end to end relation. The provision of the upper and lower frames which project from the side and end walls of the crate forms an air space 87 between adjacent crates. The stacks of crates may be placed very close together, in contacting relation if desired or necessary, and there will still be air circulating space between the stacks, so that the stacks in a refrigerator will be cooled in a shorter space of time than when no circulating space is provided, as is the case with wooden crates now in use.

What I claim is:

1. In a bottle crate having upper and lower rectangular frame members, opposite ends and sides fixed between said frame members and partitions fixed between said ends and sides, said upper frame member including a vertical web, an inwardly projecting flange on the upper edge of said web, a second vertical web on said upper flange offset inwardly from said first web, said lower rectangular frame member comprising tubular reinforcing members forming a rectangle having an inside perimeter in excess of the outside perimeter of the rectangle formed by said second web,

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whereby said second web may be seated within a juxtaposed lower frame member for positioning superposed similar crates.

2. In a bottle crate having upper and lower rectangular frame members, opposite ends and sides fixed between said frame members and partitions fixed between said ends and sides, said upper frame member comprising a vertical web, an inwardly projecting flange at the upper end of said web, and a second vertical web on the inner edge of said flange offset inwardly from said first web, said lower frame member including tubular side and end members, said tubular members formed with bottom supporting means, and said second vertical web of said upper frame member engageable between the side and end tubular members for positioning superposed similar crates.

SANFORD J. BLACKWELL.

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