

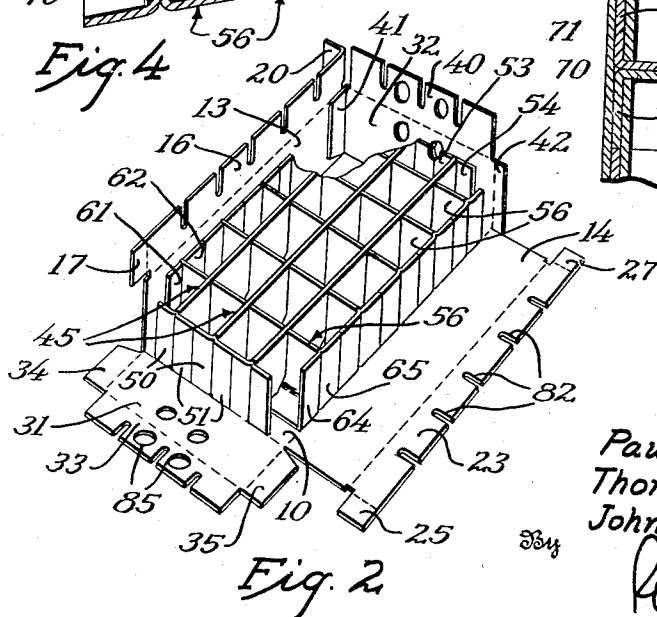
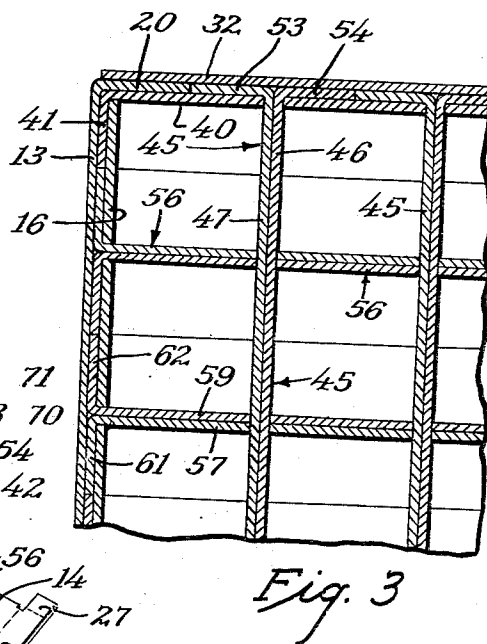
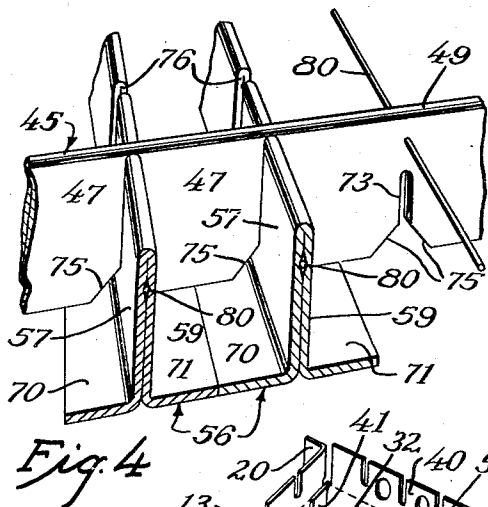
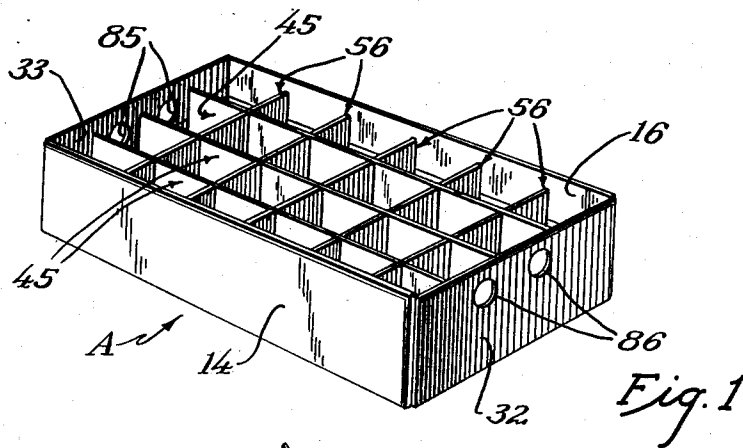
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P. A. SCHILLING ET AL
CELLULAR CASE

2,647,679

Filed Nov. 28, 1949

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

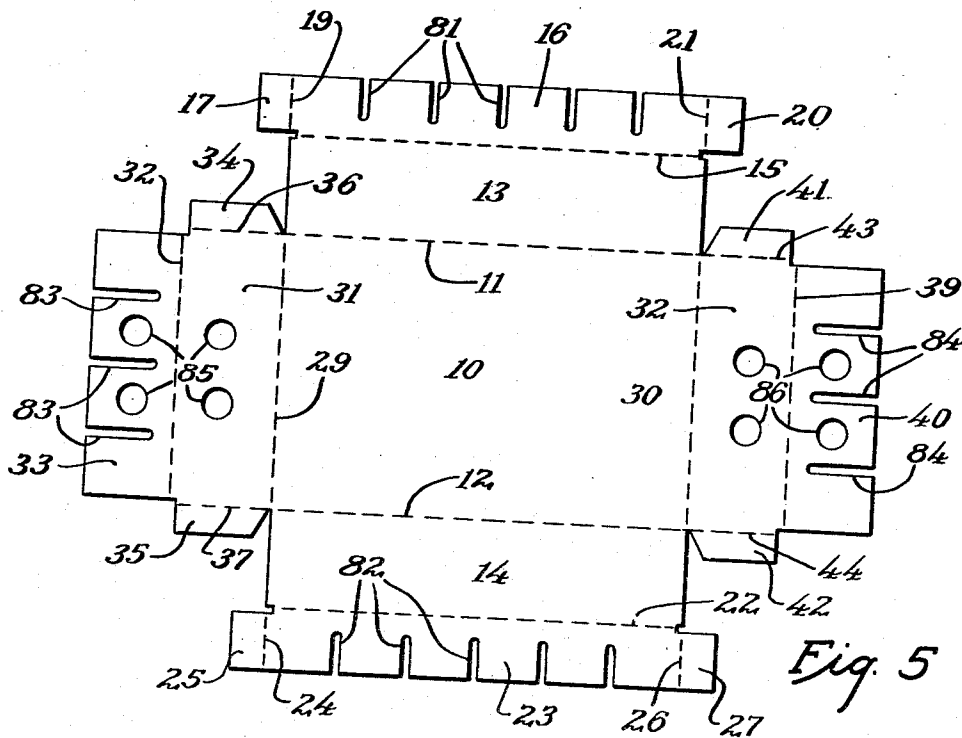


Fig. 5

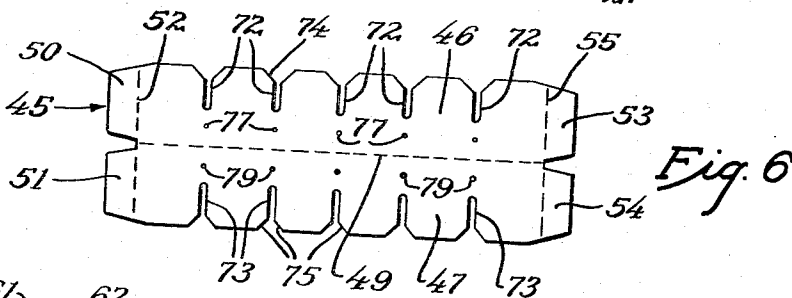


Fig. 6

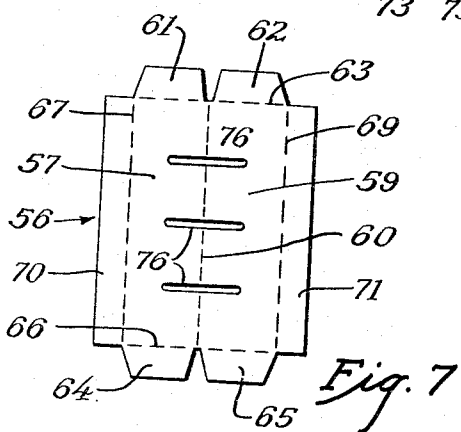


Fig. 7

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CELLULAR CASE

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4 Claims. (Cl. 229—15)

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Our invention relates to an improvement in cellular cases and deals particularly with a type of case or tray in which may be carried a series of bottles or similar articles.

Soft drinks are often sold in case lots, each case containing twenty-four bottles. These cases are often constructed of wood and are used repeatedly over relatively long periods of service. Cases of this type formed of wood are quite expensive to manufacture. Furthermore, the dividers or filler members dividing the case into cells often are split or fractured in continuous use and the case must either be repaired or replaced.

The object of the present invention lies in the provision of a cellular case formed of paper board or similar material. These cases may be produced at relatively low cost and are substantially the same size as the wooden cases often used for this purpose. The cases are somewhat lighter in weight than the wooden cases often employed for this purpose, and are tough and resilient to withstand the strain of use over a period of time.

A feature of the present invention lies in the provision of a sectional or cellular case in which the partitions as well as the outer casing are formed of fiber. As a result the case may be virtually completely formed of paper board at a cost considerably less than the cost of production of wooden cases for the same purpose.

A feature of the present invention lies in the provision of fillers forming partitions between the various cells which are connected together in a manner to hold the filler members rigidly in proper relationship. Fillers are often formed by slotting a series of parallel partition forming members with vertical slots extending downwardly from the upper edges thereof and in providing intersecting partition forming members which are slotted from the lower end thereof. One series of parallel partition forming members may thus be arranged to intersect with the other series of partition forming members, but the filler members which are slotted from their upper edge often become bent out of vertical position during use of the case. We provide means of tying the vertically slotted filler members together to hold the upper edges thereof from lateral movement, thereby eliminating any chance for these members to be bent out of vertical position.

A feature of the present invention lies in providing filler members which intersect along right angles with tying means for holding the elements in proper relationship. The partition elements which are slotted upwardly from their lower edges are provided with wire ties which extend through

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these members above and in line with the vertical slots therein. These wires are connected to the right angularly extending partition forming members in a manner to hold the intersecting members in proper relationship.

A feature of the present invention lies in the provision of fillers which are formed by elements folded along their upper edge and extending with opposite sides in parallel contacting relation. Such partition forming elements having a rounded upper edge possess considerable strength and present a rounded edge to bottles being dropped into the case.

An added feature of the present invention lies in the provision of reinforcing wires extending within at least some of the partition forming elements between sides thereof, these wires acting to hold the folded partition elements in proper shape.

A feature of the present invention lies in the provision of flanges on the lower edges of certain of the partition forming elements which are designed to lie flat upon the floor of the case. These flanges reinforce the bottom of the case and increase the life thereof.

An added feature of the present invention lies in the manner in which the filler members are anchored in the walls of the case. The side walls of the case are provided with lining flaps which are folded to overlie the inner surfaces of the walls and which are slotted to support the fillers in proper spaced relation. Anchoring flanges on the ends of the partition forming elements may extend between the liner flaps and the case walls for increased anchorage.

These and other objects and novel features of our invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of our specification:

Figure 1 is a perspective view of a case showing the general construction thereof.

Figure 2 is a perspective view of the case in partially formed condition showing the manner in which the case walls are assembled.

Figure 3 is a sectional view horizontally through the case on a plane parallel to the bottom of the case.

Figure 4 is a perspective view of certain of the partition forming elements showing the manner in which these elements are assembled.

Figure 5 is a diagrammatic plan view of the body of the case showing the construction thereof.

Figure 6 is a diagrammatic plan view of the

blank used in the formation of certain of the partition forming elements.

Figure 7 is a diagrammatic plan view of the blank from which the remaining partition forming elements are formed.

The case A is provided with a body best shown in Figure 3 of the drawings. The body includes a bottom panel 10 which is foldably connected along parallel fold lines 11 and 12 to side wall panels 13 and 14 respectively. The panel 13 is connected along a fold line 15 to a side wall liner panel 16. This liner panel 16 is provided at each end thereof with an anchoring tab. One tab 17 is connected to one end of the panel 16 along a fold line 19. The other anchoring tab 20 is connected to the other end of the panel 16 along a fold line 21.

The side wall panel 14 is connected along a fold line 22 to a liner panel 23. One end of the liner panel 23 is connected along a fold line 24 to an anchoring tab 25. The other end of the liner panel 23 is connected along a fold line 26 to an anchoring tab 27.

The bottom panel 10 is connected along fold lines 29 and 30 to end wall panels 31 and 32 respectively. The fold lines 29 and 30 are preferably at right angles to the fold lines 11 and 12. The end wall panel 31 is connected along a fold line 32 to a wall liner panel 33. The ends of the wall panel 31 are provided with anchoring flanges 34 and 35 connected thereto along fold lines 36 and 37 which are substantially extensions of the fold lines 11 and 12.

The partition forming elements which extend longitudinally of the case are best illustrated in Figure 6 of the drawings. These elements are indicated in general by the numeral 45 and include wall panels 46 and 47 connected along a fold line 49. Anchoring tabs or flaps 50 and 51 are connected to the panels 46 and 47 along a fold line 52, while similar anchoring flaps or tabs 53 and 54 are connected to the wall panels 46 and 47 along a fold line 55. The fold line 49 is arranged to be uppermost when the partition forming members 45 are in place so as to provide a folded upper edge on these longitudinally extending members.

The transversely extending partition forming elements are best shown in Figure 7 of the drawings and are indicated by the numeral 56. The partition forming members 56 include wall panels 57 and 59 connected along a center fold line 60. The panels 57 and 59 are provided at one end with anchoring tabs or flaps 61 and 62 respectively, connected along the fold line 63. The other ends of the walls 57 and 59 are provided with anchoring tabs or flaps 64 and 65 respectively, which are foldably connected to their wall panels along a fold line 66.

In preferred form of construction the wall panels 57 and 59 are connected along parallel fold lines 67 and 69 to base flanges 70 and 71. The flanges 70 and 71 are designed to overlie the bottom 10 of the case and to reinforce the same.

The case is assembled by first arranging the fillers upon the base panel 10. If preferred the fillers can be separately formed and placed upon the base panel in unison. The partition elements 45 are preferably folded along their center line 49 so that the opposite sides 46 and 47 are in generally parallel virtually contacting position. The panels 46 and 47 are each provided with a series of slots therein, the slots of one panel aligning with the slots of the other. The panel 46 is provided with a series of slots 72 which extend

inwardly from the free edge substantially at right angles to the edge and to the center fold line 49. A similar series of slots 73 are provided in the panel 47 in alignment with the slots 72. The ends of the slots are preferably tapered or beveled as indicated at 74 and 75 to simplify the assembly problem.

The partition elements 56 are similarly folded about their center fold line 60 and the flanges 70 and 71 are folded outwardly into co-planar relationship. Slots 76 which intersect the fold line 60 at right angles and extend an equal distance into both panels 57 and 59 are provided in this partition unit. The folded partition units 45 are inserted downwardly over the folded partition units 56 in such a way that the slots 72 and 73 embrace portions of the panels 57 and 59 aligned with the slots 76. When thus assembled the partitions intersect in the manner best illustrated in Figure 4 of the drawings.

The partition elements 45 are provided with apertures 77 in the panel 46 and with aligned apertures 79 in the panel 47. In folded condition of the partition units 45 the apertures 77 and 79 are aligned. Wire rods 80 are inserted between the panels 57 and 59 of the partition units 56 and extend through the apertures 77 and 79 of the partition units 45. These wires hold the upper portions of the partition units 56 from lateral movement relative to the partition units 45 and reinforce these units 56. The wire rods 80 also prevent accidental disengagement of the partition units 45.

Figure 4 is diagrammatic in form and shows the manner in which the rods 80 extend through the partition units. In actual practice the partition unit 56 must be in place before the wire rod 80 is inserted and this wire rod can not be inserted prior to the assembly of the partition units 56 as might seem indicated from Figure 4.

When the partition units have been connected together they are placed upon the bottom panel 10 of the case in the manner best illustrated in Figure 2 of the drawings. The end flanges 50 and 51 at one end of the partition unit 45 are bent into co-planar relationship and the flanges 53 and 54 are similarly folded into a common plane. The anchoring tabs or flanges 61 and 62 of the partition unit 56 are also folded into the same plane as are the flanges or flaps 64 and 65 at the other end thereof.

When the case has been assembled to this point the end walls 31 and 32 are folded upwardly into upstanding position and the anchoring flaps 34, 35, 41 and 42 are bent into right angular relation with these walls 31 and 32. The front and rear walls 13 and 14 are next folded upwardly into upstanding relation, the ends of these walls overlapping the flaps 34, 35, 41 and 42. It will be noted that these anchoring flaps fold into open areas at the corners of the partition unit and therefore do not increase the thickness of the side walls at these points.

The flange 16 is next folded into the case to lie inwardly of the anchoring flanges 61 and 62 at one end of the partition units 56. The flange 23 is also folded down to lie inwardly of the anchoring flaps 64 and 65 as well as the attaching flaps 36 and 42 of the end walls. During this folding action the flaps 17 and 20 of the flange 16 fold inwardly of the end panels 31 and 32. Similarly the flaps 25 and 27 fold inwardly of these end walls 31 and 32. These flaps 17, 20, 25 and 27 lie in the same plane as the anchoring flaps 50, 51, 53 and 54 of the partition units 45.

As a next step of the assembly operation the flanges 33 and 40 are folded into the case to lie inwardly of the end walls 31 and 32. These end flanges overlie the anchoring flanges 50, 51, 53 and 54 of the partition units 45 and firmly anchor the ends of these partition units within the wall structure. The flaps 16 and 23 are slotted as indicated at 81 and 82 respectively so as to fit within the partition structure. The end flanges 33 and 40 are similarly slotted as indicated at 83 and 84 to fit within the partition structure. The various flanges and walls are next stitched in place by a stitcher of usual construction, the flaps 16, 23, 33 and 40 being stitched to the side and end walls to which they are foldably connected.

The end wall 31 and the flap 33 connected thereto are provided with aligned finger openings 85 by means of which one end of the case may be engaged. The walls 32 and 40 are provided with similar finger holes 86 which are arranged in registry. The finger holes 86 provide a means of supporting the other end of the case.

It will be seen that in preferred form of construction the partition units are firmly anchored to the case walls and reinforce the side and end walls of the case. Similarly the flanges 70 and 71 of the partition units 56 preferably overlie and reinforce the bottom panel 10 of the case. The partition units are centrally folded so as to present an upwardly directed folded edge so as to guide bottles into the various partitions. Similarly the flanges 16, 23, 33 and 40 present upwardly directed folded edges which present a smooth upper surface to the case.

The case may be provided with suitable drain openings not illustrated in the drawings so that any liquid within the case may easily drain therefrom. The position and location of such openings is not believed of importance in the present invention.

In accordance with the patent statutes, we have described the principles of construction and operation of our bottle case and while we have endeavored to set forth the best embodiment thereof, we desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of our invention.

We claim:

1. A cellular case including a partition structure, the partition structure including a series of first parallel partition members and a series of second parallel partition members intersecting the first partition members at substantially right angles, the first partition members each including a pair of wall panels foldably connected along their upper edges and having vertical slots therein communicating with their lower edges, the second partition members including parallel panels foldably connected together along their upper edges and having vertical slots therein communicating with the upper edges, the slots of each partition member being designed to accommodate a portion of an intersecting partition

member, an outer case having a bottom panel, side and end wall panels connected to said bottom panel and extending upwardly therefrom, said side wall panels having flaps on the upper edge thereof folded down into substantially parallel relation therewith, said flap having notches therein terminating in spaced relation to the upper edges thereof engageable over said second partition members to hold the same in place, and said side walls holding said wires from endwise movement.

2. The structure defined in claim 1 and including flanges hingedly connected to the lower edges of the second partition members and folded outwardly to overlie the bottom panel and engage in edge abutting relation to form a continuous liner for said bottom panel, said flaps on said side walls holding said flanges flat against said bottom panel.

3. A cellular case including a partition structure, the partition structure including a series of first parallel partition members and a series of second parallel partition members intersecting the first partition members at substantially right angles, the first partition members each including a pair of wall panels foldably connected along their upper edges and having vertical slots therein communicating with their lower edges, the second partition members including parallel panels foldably connected together along their upper edges and having vertical slots therein communicating with the upper edges, the slots of each partition member being designed to accommodate a portion of an intersecting partition member, out-turned flanges on the ends of said panels of all of said partition forming members, said flanges extending in edge abutting relation to form side and end walls encircling said partition structure.

4. The structure defined in claim 3 and including an outer shell having a bottom panel, side wall panels foldably connected to the bottom panel and extending outwardly of said flanges on said partition forming members, and flanges on said wall panels foldable inwardly of the flanges on said partition forming members.

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