April 13, 1954 E. F. DELINE ET AL 2,675,167

BOTTLE CASE PARTITION

Filed Oct. 27, 1950

2 Sheets-Sheet 1

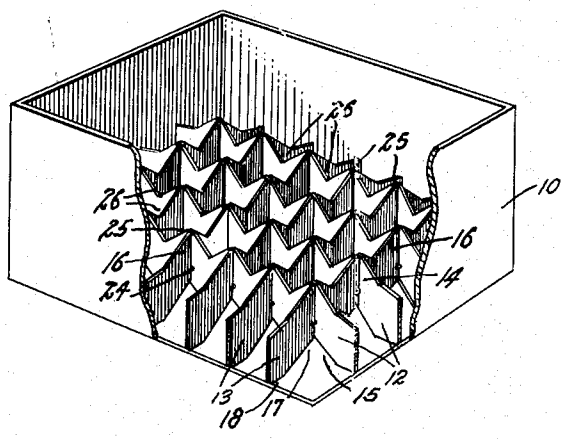


Fig. 1.

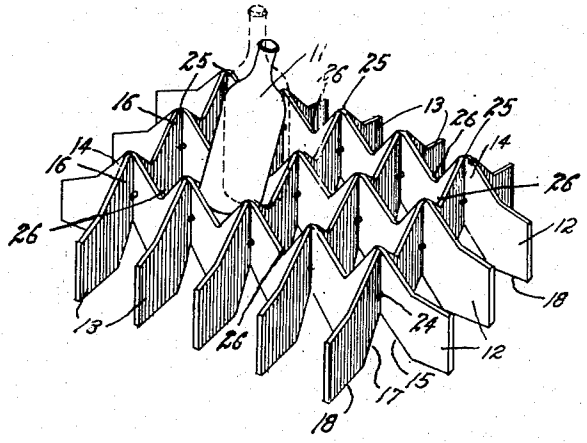


Fig. 2.

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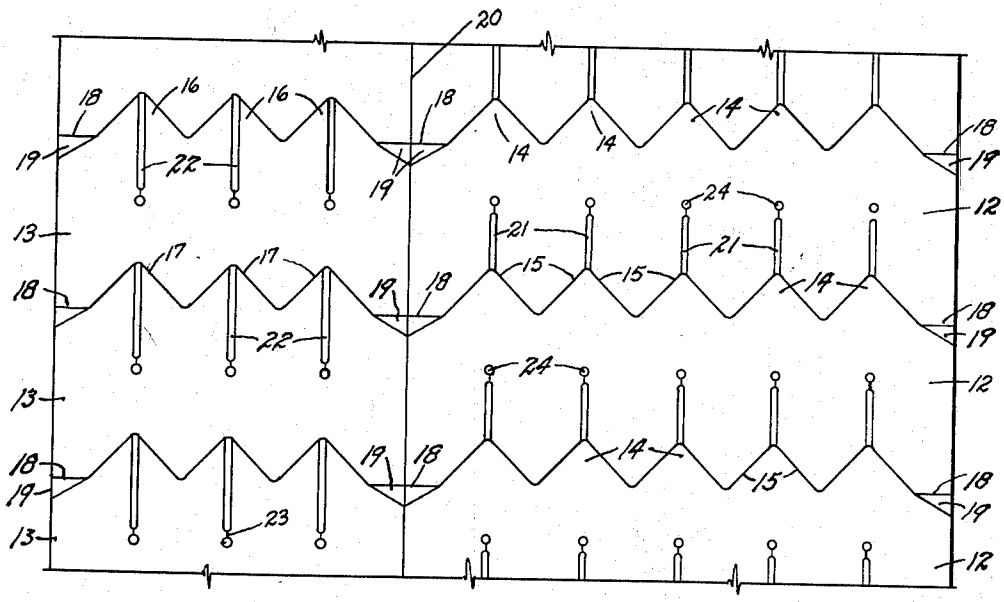


Fig. 3.

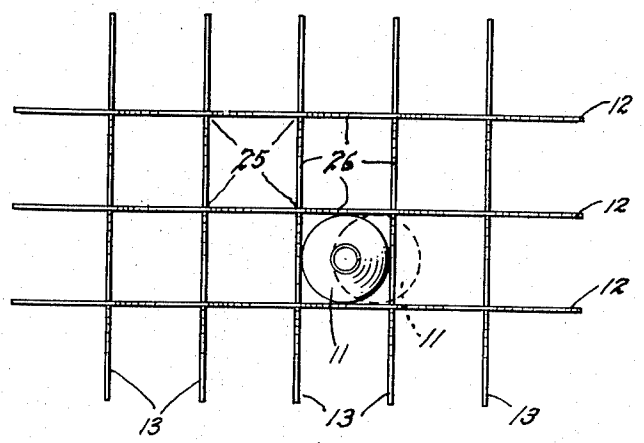


Fig. 4.

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BOTTLE CASE PARTITION

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Application October 27, 1950, Serial No. 192,481

1 Claim. (Cl. 229—42)

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This invention relates to a bottle crate, and more particularly to a bottle-separating partition for bottle crates. The usual bottle crate partition consists of a plurality of intersecting partition members defining separate compartments for the bottles. Such partition members have not been satisfactory for use with modern bottle packing machines. A bottle packing machine rapidly and simultaneously lowers the entire case load into the case. If the case or the partitions therein are out of line with the descending bottles, the latter will not enter their compartments and will tilt and clog the packaging machine.

The principal object of this invention is to provide a bottle case partition structure which need not be in alignment with the descending bottles, but which will act to guide the individual bottles into their compartments regardless of misalignment of the case or partitions.

Another object of the invention is to provide an automatically aligning partition structure which can be cut from a continuous sheet of cardboard or the like without waste.

A further object is to provide highly efficient interlocking means for securing the lateral partition members to the longitudinal partition members.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawings:

Fig. 1 is a perspective view of a bottle carton with the improved partition structure in place therein;

Fig. 2 is a similar view illustrating a portion of the partition structure on an enlarged scale, illustrating the automatic action of aligning a bottle with the compartments in the partition structure;

Fig. 3 is a plan view of a cardboard blank, illustrating the method of blanking the improved partition members therefrom; and

Fig. 4 is a plan view of the partition structure, illustrating the action of a misaligned bottle thereon.

In Fig. 1 a typical bottle carton is illustrated at 10, and in Figs. 2 and 4 a typical bottle is illustrated at 11.

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The improved partition structure is stamped from a continuous strip of cardboard, the cutting being along the lines indicated in Fig. 3. The cardboard is stamped to produce a continuous series of longitudinal partition members 12 adjacent to a continuous series of cross partition members 13. The longitudinal partition members 12 are separated from each other on a zigzag cut line to produce a plurality of points 14 along the upper edge. The cutting of the points on one of the longitudinal members simultaneously forms a corresponding series of notches 15 in the bottom edge of each strip 12.

The same method of cutting is used for the lateral partition members 13, that is, they are cut to form a series of points 16 along the upper edges, and a corresponding series of notches 17 along the lower edges. This method of cutting avoids waste of the cardboard, since each zigzag cut line forms the upper edge of one strip and the lower edge of another.

At the extremity of each strip a horizontal cut line 18 is formed in alignment with the points along the lower edge of each member, which in cooperation with the inclined adjacent cut leaves small triangular pieces 19, which are discarded. The longitudinal members 12 are separated from the transverse members 13 by means of a continuous, longitudinal cut line 20 extending throughout the length of the cardboard blank.

A slot 21 is stamped from the cardboard at the apex of each notch 15 in the longitudinal members 12, and a similar slot 22 extends downwardly from each point 16 of the lateral members 13. The width of the slots 21 and 22 corresponds substantially to the thickness of the cardboard from which the members are stamped.

The slots 22 in the lateral members 13 extend further into the member than the slots 21 extend into the longitudinal members. The reason for this difference in length is to allow points 23 in the slots 22 to extend into holes 24 formed at the extremities of the slots 21 to lock the transverse partition members 13 to the longitudinal partition members 12 when the structure is assembled.

The partition members cut from the cardboard strip are assembled in rectangular relation, as shown in Fig. 4, by slipping the longitudinal members downwardly into the slots 22 until the slots 21 pass over the lower portions of the lateral members 13, and until the points 23 snap into engagement in the holes 24. This produces a plurality of square compartments with a four-sided peak or point 25 at the corners of each compartment, formed by the points 14 and 17,

and with indented notches **26** in the upper edges of each side wall of each compartment formed by the valleys between the peaks **25**. The notches **26** are V-shaped, straight-sided, and preferably have an included angle of 80°. At the bottom, the corners of each compartment incline upwardly, due to formation of the notches **15**.

The straight, inclined sides of the notches **26** in the upper edges of the four sides of each compartment cooperate with the round bottoms of the bottles **11** to produce what is in effect four inclined planes all directed downwardly and inwardly toward the axis of each compartment. These empirical, inclined planes have the effect of forcing a bottle which is descending in misalignment with its compartment, as shown in broken line in Figs. 2 and 4, toward the axis of that compartment, as shown in solid line in the latter figures. This action is very definite and positive, yet is exceedingly difficult to illustrate or describe. It is due to the fact that the notches **26** continually become narrower as the bottle descends. Therefore, the chord or an imaginary line drawn across the bottom of the bottle where it aligns with the partition must continually become shorter in order that the bottle may move downwardly. As the chord becomes shorter, the axis of the bottle must move inwardly toward the axis of the pocket. Therefore, the bottle is automatically forced into alignment with the pocket axis as it descends.

If the sides of the notches are inclined very gradually, the more rapid will be the movement of the bottle toward the axis of the compartment. However, gradual sides require a greater weight of bottle. It has been found by experiment that an inclined angle of approximately 80° is the most satisfactory for the usual bottle.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied, within the scope of the appended claim, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

A partition structure for bottle cartons comprising a plurality of longitudinal partition members formed of sheet material and disposed in spaced parallel relation to each other, a plurality of transverse partition members formed of sheet material and disposed in spaced parallel relation to each other, said longitudinal and transverse partition members being disposed at right angles to each other to form rows of rectangular bottle receiving cells, all of said partition members having zig-zag upper and lower edges providing the partition members with upwardly tapered points along their upper edges and with upwardly tapered inverted V-shaped recesses along their lower edges disposed directly beneath the points of the upper edges, said longitudinal partition members having vertical slots extending upwardly from the top of the recesses formed in their lower edges, said transverse partition members having vertical slots extending downwardly from the apices of the points formed in their upper edges, each partition member being also formed with openings disposed in alignment with the respective slots and in spaced relation with respect to the inner ends of the respective slots and each opening being connected to its companion slot by a narrow slit, the crossed portions of the partition members being disposed through the respective slots and each partition member having the portions along the opposite sides of its slits fitting into the openings of the partition member that it crosses.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
D. 138,782	Schwartzberg	Sept. 12, 1944
760,842	Bischoff	May 24, 1904
929,604	Kruse	July 27, 1909
1,605,426	Caldwell	Nov. 2, 1926
1,808,531	Coyle	June 2, 1931
2,293,893	Faulkner	Aug. 25, 1942
2,486,743	Haffner	Nov. 1, 1949