

July 17, 1934.

F. D. GRAY ET AL

1,967,026

PACKING CONTAINER FOR FRAGILE ARTICLES

Filed July 23, 1929

2 Sheets-Sheet 1

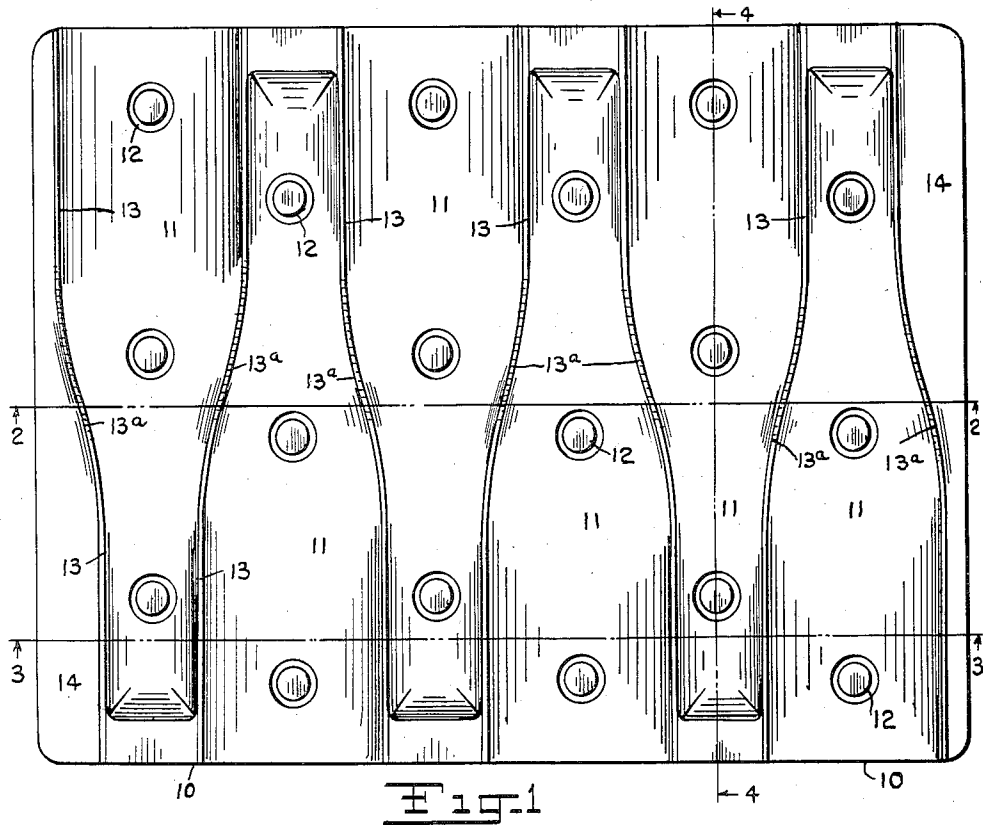


Fig. 1

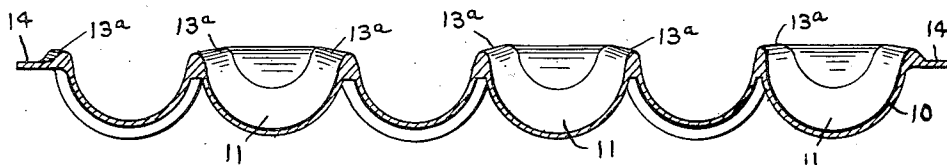


Fig. 2

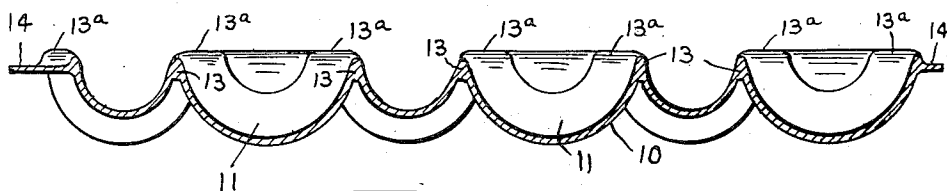


Fig. 3

Inventor
Fred D. Gray
Leon Mank
By their Attorney
S. J. Cox.

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2 Sheets-Sheet 2

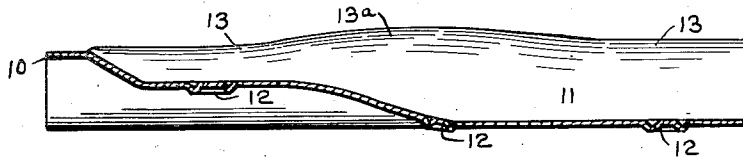


Fig. 4

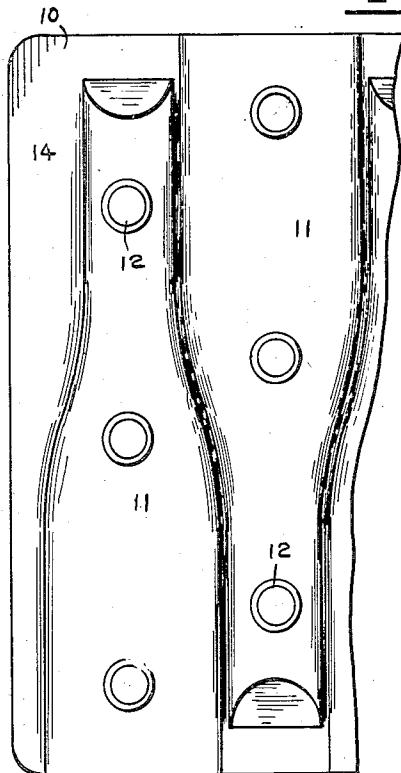


Fig. 5

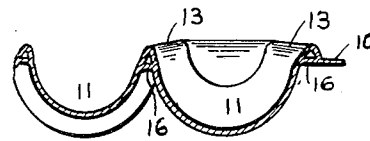


Fig. 7

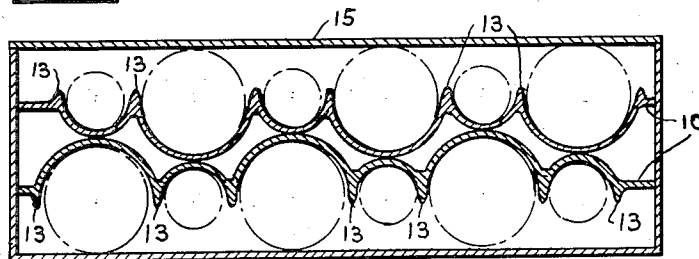


Fig. 6

Inventors
Fred D. Gray
Leon Mann
By their Attorney
S. J. Cox.

UNITED STATES PATENT OFFICE

1,967,026

PACKING CONTAINER FOR FRAGILE ARTICLES

Fred D. Gray, Herkimer, and Leon Mann, Mount Vernon, N. Y., assignors, by mesne assignments, to Holed-Tite Packing Corporation, a corporation of New York

Application July 23, 1929, Serial No. 380,446

14 Claims. (Cl. 217—21)

The present improvements relate, in general to packing for fragile articles and more particularly to packing for bottles containing beverages, such as ginger ale and the like.

shaped cushion members 12 which may also serve as interlocking members for the trays after the manner set forth in the co-pending application of Leon Mann, Serial No. 239,877, filed December 14, 1927.

5 A primary object, among others, is to provide a novel tray or receptacle for bottles of the type indicated wherein the packed articles are cushioned throughout and protected along their periphery as well as at their weaker points.

10 A further object is to provide a bottle tray which may be produced in one manufacturing operation and one which is provided with integral reinforcing and cushioning ribs or flanges along the edges of the bottle holding recesses.

15 Another object is to provide a receptacle of the character described wherein the bottle holding recesses are of a depth greater than the form of a half bottle.

20 A further object is to provide a novel packing unit adapted to be used in standard or other cartons or crates or in containers adapted to hold a dozen bottles wherein packing, transportation and dispensing is facilitated and the breakage of the packed articles reduced to a minimum.

25 Other objects and advantages of the present improvements will be apparent to those skilled in the art upon reference to the accompanying specification and drawings in which—

30 Fig. 1 is a top plan view of a tray embodying the present improvements;

Fig. 2 is a section on line 2—2 of Fig. 1;

Fig. 3 is a section on line 3—3 of Fig. 1;

Fig. 4 is a section on line 4—4 of Fig. 1;

35 Fig. 5 is a bottom plan view of a portion of the tray;

Fig. 6 is a section through a container for a dozen bottles, illustrating one application of the present improvements;

40 Fig. 7 is a section, similar to Fig. 2, with parts broken away, illustrating a modified detail.

Referring to the drawings, the trays 10 are of sheet form and are provided with a series of article receiving recesses 11 conforming generally to the shape of a bottle and arranged so that the neck and body portions of alternate bottles are adjacent. This arrangement is illustrated in Fig. 1 and is desirable for economy in space, compactness, as well as to secure more even distribution of the weight of the articles.

50 The tray, recesses therein, as well as the elements hereinafter described, are made integral with the sheet in one manufacturing operation. The sheets are preferably made of felted wood pulp or other fibres on molds or dies and thereby are inherently resilient and elastic, due among other reasons, to the intimately matted fibres. Due to their texture and form, therefore, the trays 10 serve as cushioning and protecting means throughout their entire extent.

60 The recesses 11 may be provided with dome

65 It is notable that the recesses 11 conform generally to the shape of a half bottle and are slightly deeper so that their longitudinal edges extend slightly above the horizontal medial line of a bottle. Along such longitudinal edges, the recesses 11 are joined by upstanding ribs or flanges 13, so that the peripheral edges merge and together with the protruding ribs form relatively rigid reinforcing members along each side of the recesses.

70 These reinforcing members are more clearly seen upon reference to Figs. 2, 3 and 6 and it is notable that they are substantially thicker than the cross section of the remainder of the tray. Furthermore, these ribs 13 protrude beyond the plane of a half bottle, so that they render the effective receiving portion of the recesses somewhat greater than the dimensions of a half bottle.

75 While the ribs or flanges 13 extend along and in between the recesses, it is notable that a similar rib is provided along the border of the end recesses and between them and the horizontal portions 14 of the trays.

80 It is known that breakage in bottles of the general shape in question usually occurs at the shoulder portion where the bottle is weaker. The present improvements accordingly provide additional cushioning and reinforcement at these points. The ribs 13 have portions 13^a at the shoulders of the bottle shaped recesses, which are slightly thicker and protrude to a greater degree, thereby serving as an added protection to the weaker portions of the bottle. Upon reference to Fig. 4, the portions 13^a will be more evident.

85 The trays 10 have been illustrated with six bottle holding recesses, although that number may be increased and diminished without departing from the scope of the improvements. In Fig. 6, a container 15, adapted to carry a dozen bottles, is illustrated. The trays 10, two in number, are disposed back to back between the layers of bottles so that each recess 11 partially surrounds the bottles. This manner of packing the goods has been found preferable, although it is apparent that complementary trays might be placed along the bottom and top of the container, or any other manner of packing employed.

90 Tests have shown that breakage in articles of this character are attributable largely to contact between bottles of a container rather than to contact with objects exterior thereto. The present improvements have accordingly been designed to completely segregate the bottles, not only by providing a cushioning tray between lay- 95

ers, but also by providing the protruding ribs or flanges 13, 13^a, between bottles of a layer. The manner of accomplishing this is clearly seen in Fig. 6, where the ribs extend beyond the horizontal medial line of the bottles and thereby serve as cushioning and reinforcing means between bottles of a row.

It is notable that the ribs 13, 13^a bordering the recesses 11 are substantially triangular in cross section, this shape lending rigidity to the structure so as to withstand shocks. As heretofore noted, these triangular ribs are formed of intimately matted fibres, so that they tend to preserve their shape, but will yield under pressure, returning to their original form upon release of pressure. In this manner, an excellent cushion effect is obtained, while crushing or collapsing is prevented by the thickness and shape of the walls.

While the efficiency of the improvements is ascribed to the texture and form of the trays as specifically described, it is apparent that the general form of the sheet and other elements thereof may assist in attaining the results. Tests, with trays of the type herein described, have shown a substantial decrease in the breakage of bottles, the present tray being well over fifty per cent more efficient than prior known types.

In Fig. 7, a portion of a tray 10 is illustrated wherein the ribs 13 protrude as previously described but in this instance they are hollow, the bases of the walls of adjacent recesses being connected by webbing 16. An air pocket accordingly extends through the rib and assists in the cushioning effect of this member.

Due to the depth of the recesses 11 and the protruding flanges or ribs 13, it is seen that the bottles are given no opportunity to roll or move against their neighbors. Should a bottle move out of axial alignment with its recess, the shifting weight would cause a distortion or change in shape of said recess with the result that the bordering ribs would be pulled inwardly to grip the bottle and thereby retain it from further lateral movement.

Various modifications within the scope of the present improvements will occur to those skilled in the art.

We claim:

1. A tray for packing bottles and other cylindrical articles comprising a sheet of unfinished pulp material having bottle holding recesses formed therein said recesses being deeper than half a bottle, and reinforced portions connecting said recesses and sheet.

2. A tray for packing bottles and other cylindrical articles comprising a sheet of unfinished pulp material having bottle holding recesses formed therein said recesses being deeper than half a bottle, said recesses being joined to one another along their longitudinal edges by reinforced portions.

3. A receptacle for bottles and the like comprising a sheet of material having bottle holding recesses formed therein said recesses being deeper than half a bottle, a cushioning and reinforcing rib interposing said recesses, said recesses merging with said ribs.

4. An article of manufacture comprising a sheet of material with a plurality of bottle shaped recesses said recesses being deeper than half a bottle, contiguous edges of said recesses being united by thickened rib portions.

5. An article of manufacture comprising a sheet of material with a plurality of bottle shaped recesses, the longitudinal edges of said recesses having upstanding cushioning and reinforcing ribs said recesses being deeper than half a bottle.

6. An article of manufacture comprising a sheet of material with a plurality of bottle shaped recesses, said recesses being deeper than a half bottle, the longitudinal edges of said recesses having upstanding ribs, and webbing connecting the lower portions of said ribs.

7. An article of manufacture comprising a sheet of material with a plurality of bottle shaped recesses, the longitudinal edges of said recesses having reinforcing portions protruding beyond the plane of the longitudinal axes of bottles packed therein.

8. In a bottle packing, a receptacle for an individual bottle comprising a sheet having a recess substantially conforming to the shape of a half bottle, the longitudinal edges of said recess having longitudinally curved portions protruding beyond the horizontal medial plane of a bottle packed therein adjacent the shoulder thereof.

9. In bottle packing, a receptacle for an individual bottle comprising a sheet having a recess substantially conforming to the shape of a half bottle, the longitudinal edges of said recess protruding beyond said half bottle limits, the edges at the shoulder portion of said recess protruding to a greater degree than the remaining edge portions.

10. A tray for packing bottles comprising a sheet of unfinished pulp material having bottle holding recesses of half bottle shape formed therein, said recesses formed with alternate neck and body portions in line, and cushioning and reinforcing members protruding beyond said recesses and between same.

11. A tray for packing bottles comprising a sheet of unfinished pulp material having bottle holding recesses of half bottle shape formed therein, said recesses formed with alternate neck and body portions in line, contiguous edges of said recesses being united by cushioning ribs protruding beyond said recesses.

12. An article of manufacture in combination, a sheet of unfinished pulp material having bottle holding recesses formed therein said recesses having deep and shallow portions for accommodating the body and neck portions of a bottle, said recesses being deeper than the contour of a half bottle, and reinforcing means of non-uniform height along the edges of said recesses.

13. A tray for packing fragile articles having elongated recesses positioned side by side for receiving articles in reclined position, upright separating ribs between adjacent recesses, the intermediate portions of such ribs being higher than the portions separating the recesses adjacent their ends.

14. A tray for packing fragile articles having bottle shaped recesses positioned side by side for receiving bottles in reclined position, upright rib portions along the sides of the recesses and between the ends thereof, said portions extending above the medial line of a bottle reclining in a recess whereby to hold same by engagement with a portion of the upper half thereof.

FRED D. GRAY.
LEON MANN.