

Aug. 10, 1937.

R. E. READ ET AL

2,089,297

BOTTLE SPACER

Filed April 24, 1935

2 Sheets-Sheet 1

Fig. 1.

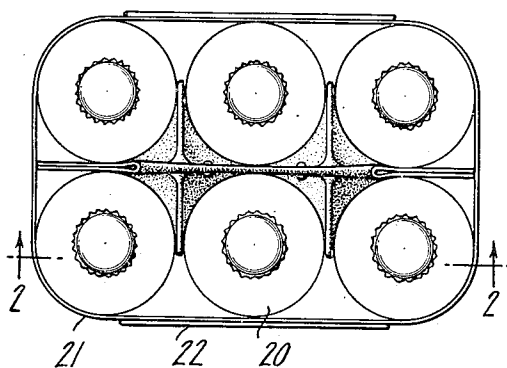


Fig. 2.

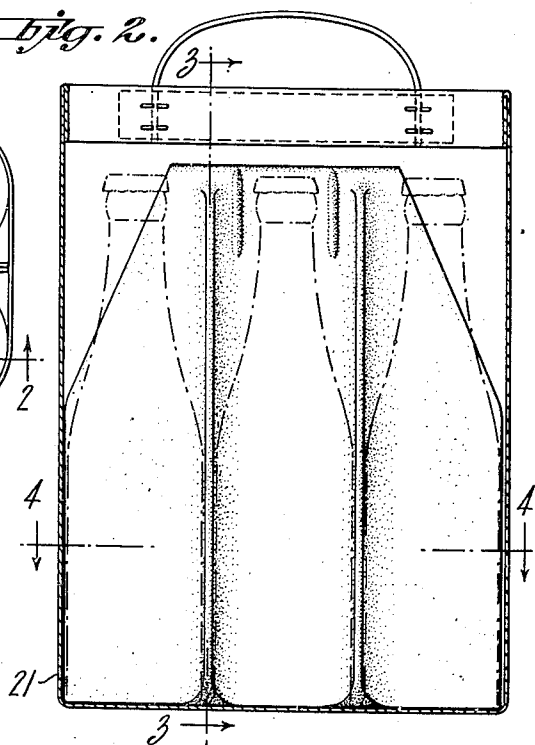


Fig. 3.

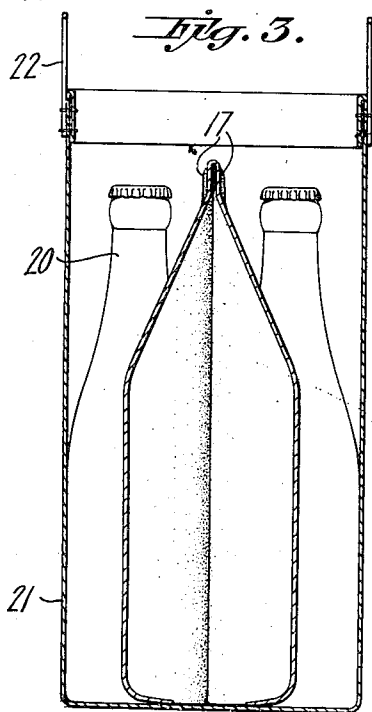


Fig. 4.

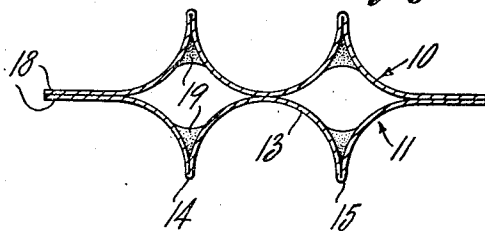
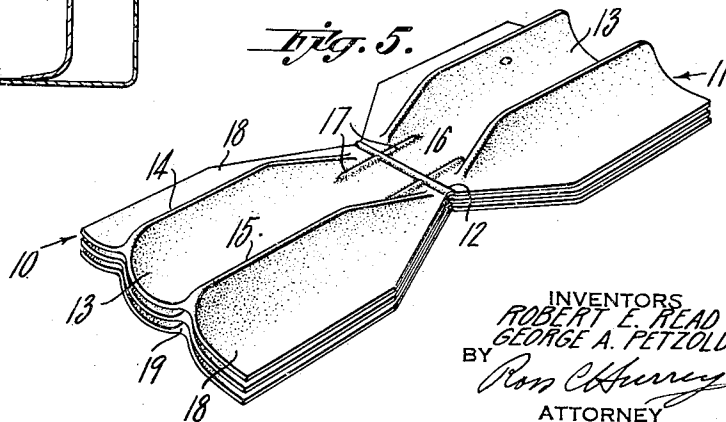


Fig. 5.



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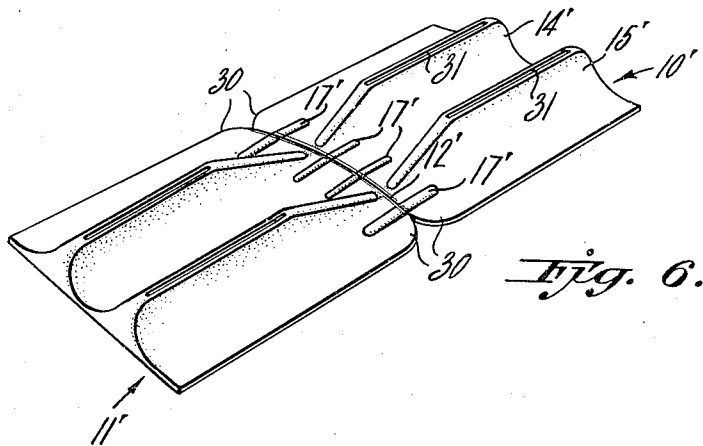


Fig. 6.

Fig. 8.

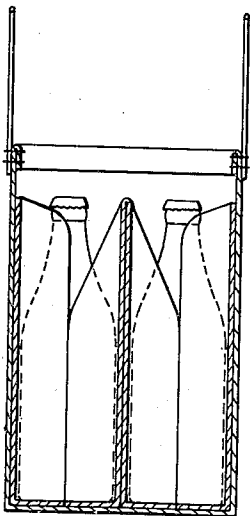
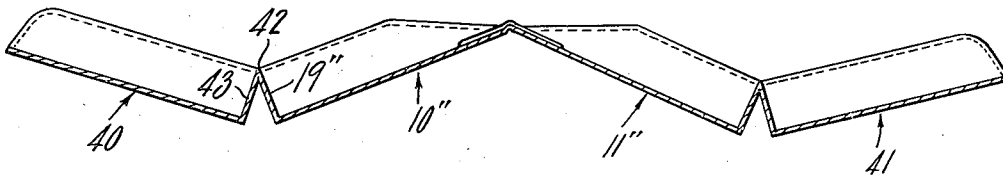


Fig. 9.

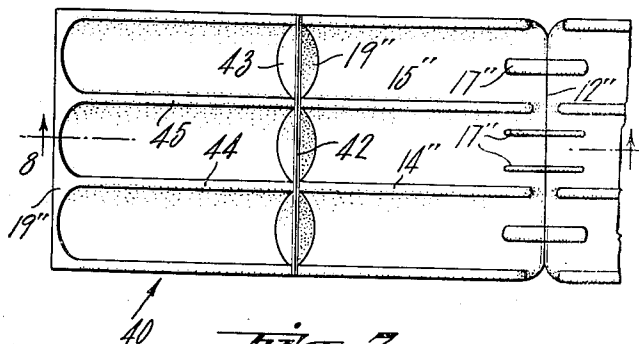


Fig. 7.

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BOTTLE SPACER

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Application April 24, 1935, Serial No. 17,888

6 Claims. (Cl. 229-21)

Our present invention relates to improvements in spacing devices for bottles and other fragile articles, and, more particularly to an improved spacing means or divider which will provide a satisfactory cushioning means for bottles and other fragile articles during shipment. Our improved spacing means or divider is so designed as to carry out its function irrespective of the type of carton or case in which the articles are packed. Thus, our improved spacing means or divider is designed for use in cartons, cases, baskets, hampers, bags, or any other type of container.

In the handling and shipping of bottled goods and/or fragile articles care must be taken to avoid direct contact between the packed articles as it has been found that breakage during shipment is due primarily to such direct contact between the packed articles. Accordingly, it is the primary object of our present invention to provide a spacing means or divider for packed articles which will prevent direct contact between the said articles.

Another object of our present invention is to provide a spacing means or divider made of a suitable cushioning material, preferably a molded pulp material, so constructed as to be self-sustaining, and so shaped as to provide, in operative position, cells conforming substantially to the external configuration of the articles to be packed.

A further object of our present invention is to provide a divider or spacing means so constructed and designed that it may be shipped in substantially flat form thereby reducing the amount of space used in shipping and hence reducing the cost of shipment of the spacing means or dividers to the bottling plant or packing concern. Although our present invention is chiefly concerned with the provision of a suitable packing spacer, or the like, for bottles it will be obvious to those skilled in the art that our present invention is suitable for use in the packing of articles of various forms, shapes and sizes, its use being limited only by the fact that certain types of articles do not lend themselves to the use of separating means or dividers. The spacing means or divider constituting the subject matter of our present invention has been designed so as to be readily manufactured by a substantially continuous molding operation, as, for example, by the conventional suction molding process. It is to be understood, however, that the process used is but incidental to our present invention.

These and other objects of our present invention will become more apparent from a study of

the following description taken with reference to the accompanying drawings in which:

Fig. 1 is a top plan view of our spacing means or divider showing the same in operative position in a suitable container;

Fig. 2 is a sectional view taken along the lines 2-2 of Fig. 1;

Fig. 3 is a sectional view taken along the lines 3-3 of Fig. 2;

Fig. 4 is a sectional view taken along the lines 4-4 of Fig. 2; the container being omitted for purposes of clarity;

Fig. 5 is a perspective view of our improved spacing means or divider showing how a plurality of spacing means or dividers may be stacked for shipment;

Fig. 6 is a perspective view of a modified form of spacing means in which greater strength and rigidity is obtained and in which ordinary variations in the size of articles may be compensated;

Fig. 7 is a plan view of a second modified form of the invention in which greater protection is obtained while the advantages of the preceding forms are utilized to their fullest extent, the entire article not being disclosed, but sufficient thereof to enable a full understanding;

Fig. 8 is a side elevation of the modification disclosed in Fig. 7, the entire article being displayed in the form in which it is shipped in order that a plurality may be nested as in Fig. 5; and

Fig. 9 is a view similar to Fig. 3 showing this latter form of the invention positioned in a suitable outer container and protecting a plurality of bottles.

Referring now more particularly to the drawings in which like numerals indicate like parts we have shown one embodiment of our invention in Figs. 1 to 5 inclusive. Referring now to Fig. 5 we have shown a spacing means or divider formed preferably of moulded pulp material comprising two sections 10 and 11 connected together by hinge 12. Each section is identical in construction but in view of the fact that they are connected together it will be appreciated that they are opposite in relation to each other. Each of the sections is provided with a centrally located rounded or concave portion 13 of sufficient size to embrace a bottle or similar article substantially to its median point. The sides of this central portion are defined by ridges 14 and 15 into which the said sides merge. It is to be understood that these ridges need not extend so as to substantially embrace a bottle to its median point but may be extended to a greater or less

depth, if desired. The central portion 13 is substantially semi-circular in shape and is provided with a flattened surface 16 located adjacent the hinge 12.

5 Extending from the hinge on either side thereof are a pair of spaced ribs 17 extending in parallel relation to each other. By this construction the hinge is reinforced so that the material is not broken away by continual bending of the hinge, and the ribs prevent bellying of the material adjacent the hinge, thereby permitting the sections 10 and 11 to contact with each other substantially their entire length. Thus, even though the hinge be of considerable width the contact between the sections 10 and 11 is at all times maintained.

15 On either side of the central portion 13 there is provided an extension 18 which is preferably in the shape of an arc of 90°, although it may be extended tangentially beyond the end of the arc, if desired. At the end of each section there is provided an end wall 19 formed by deforming the ridges 14 and 15. These end walls effectively brace the free ends of the central and side sections and assist in preserving their rounded cross-sectional shape. These end walls are preferably at an inclination to the general plane of the blank, primarily for ease in the molding process, but they may be formed at any other desired angle.

30 The hinge 12 is preferably of the width of the central portion 13 but it may be of a greater width if desired and in that case the blank would approach a rectangular plan outline. However, by cutting away the side members so that the hinge is of the width of the central portion not only is a better hinge action obtained but a better appearing article is formed.

The blank thus formed permits a plurality of spacing means or dividers to be nested and to be shipped in as small a space as possible. This feature is of extreme importance from a commercial angle since in shipping articles space is at a premium. When the two sections of the blank are folded together along the hinge line there is formed the spacing means or divider illustrated in Figs. 1 to 4 inclusive. The flattened portions 16, as hereinbefore described, enable the two sections to have surface contact with each other throughout their entire length. It will be appreciated that the flattened portions also provide a convenient means by which the divider may be grasped and held in shape while inserting the same between bottles or other articles. Our improved spacing means or divider also presents opposed outwardly extending ridges forming pockets or partial pockets with the abutting or adjacent walls of the container within each of which an article may be protected from engagement with other articles.

60 In the use of our improved spacing means or divider the bottles 20, preferably six in number, may be placed in a bag 21, or other suitable carton, the spacing means or divider being folded into operative position and inserted between the bottles as is shown in Figs. 1 to 3 inclusive. It will be noted that the ridges 14 and 15 project between the bottles and thereby maintain the bottles separated from each other. In commercial practice the filled bag 21 may be packed in an outer container or master case, possibly with a number of other filled bags, and the retailer, upon the sale of a half dozen bottles, may remove the bag from the container. To this end we have provided the bag with handles 22.

75 By making the end walls 19 substantially ver-

tical to the body of the blank the ridges of the spacing means or divider will extend substantially to the bases of the bottles, and, by having the upper ends of the ridges formed with a longer slope the spacing means or divider is provided with an upwardly tapering top which may be more easily grasped for proper manipulation.

Referring to Fig. 6 a modified form is disclosed wherein the hinge between sections 10 and 11 is substantially the width of the sections, whereas in the first disclosed form the hinge is but slightly greater than the central portion. In this form the hinge 12' is also further distinguished by the hinge being arched above the normal plane of the sections. The effect of this is to create a greater cushioning effect in the separator when inserted between articles, inasmuch as when the two sections are folded together the corners 30 will be the first portions to come in contact and will thereafter resist any force tending to cause the rear walls of the pockets to become engaged throughout their length. As a result of this the bottoms of the two sections tend to spring outward away from each other and thereby resiliently space opposed articles to a greater extent. In this form, due to the increased width of the hinge, there are a greater number of reinforcing ribs 17' made possible, thereby further strengthening the separator.

A further feature illustrated in this figure which may be applied to any of the forms of the device is that the tops of the ridges 14' and 15' are cut away or slit at 31 whereby the side walls of the pockets resiliently readjust themselves to any normal variation in the size of the articles. By the use of these slots the ridges 14' and 15' can normally be made broader than usual in order that the pocket in its normal position will closely conform to the smallest usual size of the article, but may expand to accommodate the largest usual size of the article. It is well known that the ordinary machine moulded bottle may vary as much as one eighth of an inch in diameter, and this form of the invention allows for such variations.

45 Figs. 7 to 9 inclusive disclose a form of the device wherein greater protection is obtained and which is of greater utility inasmuch as it will retain the form of a carrying bag to a greater extent than otherwise possible. This form of the invention comprises the two sections 10'' and 11'' joined by a hinge line 12'' and reinforced by ribs 17''. A feature herein illustrated is that the outer pockets may be extended to complete the semi-circular enclosure for the outer articles. The major feature of this form of the invention is that second pocket completing sections 40 and 41 are hinged to the base of the sections 10'' and 11'', respectively. This is accomplished by forming a complete end wall 19'' normal to the general plane of the sections 10'' and 11''. This vertical wall terminates in a hinge 42 at the level of the tops of the ridges 14'' and 15'' between pockets. The hinge 42 joins a vertical wall 43 on the sections 40, 41 to the end wall 19'' on the primary sections. The section 40 comprises semi-circular pockets opposed to the pockets in the primary sections thereby completing cylindrical nests within which the articles are fully protected. The pockets in section 40 are defined by ridges 44 and 45 in alignment with ridges 14'' and 15'', respectively, so as to be in contact therewith when the primary and secondary sections are folded as shown in Fig. 9. The section 40 may termi-

nate in an end wall 19" similar to that of the other sections.

It will be appreciated that the sections 40, 41 need not extend to the full height of the article as illustrated in Fig. 9, but this is the preferred form inasmuch as greater protection will be afforded and the walls of the carrying container will be braced thereby.

It is obvious that various modifications of our present invention may be made without departing from the spirit or scope of our present invention and it is to be clearly understood that our present invention is not to be limited except by the scope of the following claims which are to be broadly construed, the illustrated forms being solely for the purpose of illustration and explanation.

What we claim as new is:

1. A blank for an article spacing means or divider comprising two sections hinged together at an end, each section comprising a formed sheet of uniform thickness having ridges therein, said ridges being reinforced by a wall at the end opposite the hinged end, and smaller reinforcing ridges in each sheet adjacent the hinged end, said first ridges defining a central concave portion and an outer concave portion at each side thereof, the edges of said sections sloping inwardly adjacent said hinged ends so that the hinge is substantially the width of the central portion.

2. A spacing device comprising two sections each of which is formed with ridges extending in opposite directions so as to form pockets, said sections being connected at their ends along a hinge, said hinge being curved upwardly from the plane of the device when it is opened so as to resiliently oppose the folding of said divider so as to bring the back walls of said pockets into engagement.

3. Article spacing means comprising a symmetrical sheet of substantially uniform thick-

ness having a central transverse hinge-line, and ribs extending at right angles to said hinge-line and spaced therefrom and equally spaced from the center line of the sheet normal to said hinge-line; the sheet being curved cylindrically from said longitudinal center line to the apex of each of said ribs and being similarly curved from the outer side of said ribs to the outer edges of said sheet, said transverse hinge-line being curved in the opposite direction to the curves of said sheets.

4. A spacing device comprising hinged sections, each section being formed with ridges defining article receiving pockets, the crests of said ridges being slotted longitudinally thereof.

5. A spacing device comprising hinged sections, each section being formed with ridges defining article receiving pockets, the crests of said ridges being slotted longitudinally thereof, and end portions of said ridges being transversely braced to maintain the form of said sheet.

6. Article spacing means comprising a symmetrical sheet of substantial uniform thickness having a central transverse hinge-line along which the sheet is designed to be doubled upon itself, and ribs extending at right angles to said hinge-line and spaced therefrom and equally spaced from the center line of the sheet normal to said hinge-line, the sheet being designed to be doubled so as to cause said ribs to face outwardly therefrom, the sheet being curved cylindrically from said longitudinal center line to the apex of each of said ribs and being similarly curved from the other side of said ribs to the outer edges of said sheet, said sheet being fashioned adjacent said hinge-line in such a manner as to cause said sheet resiliently to oppose being doubled along said hinge-line.

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