Aug. 9, 1966 R. L. BUTZKO 3,265,280

DOUGHNUT PACKAGE

Filed April 14, 1964

Fig. 1.

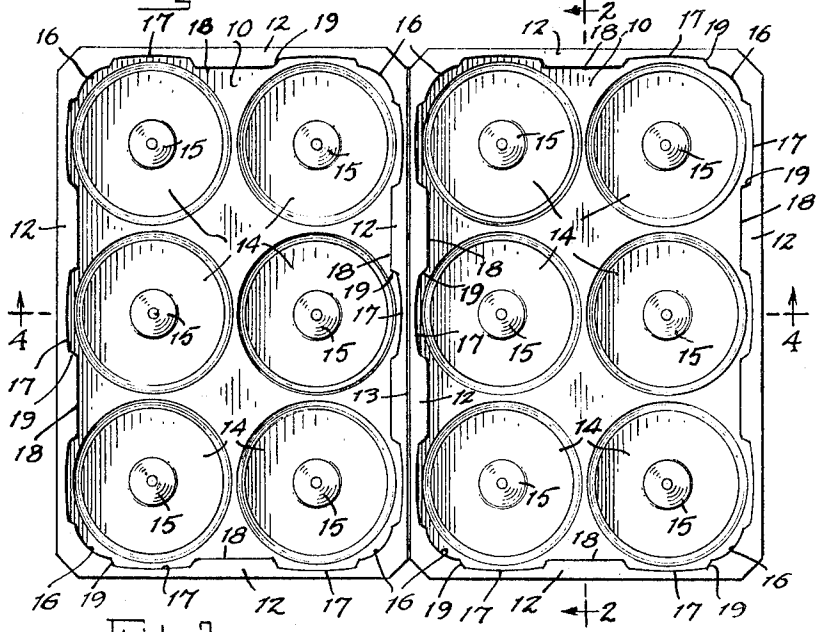


Fig. 2.

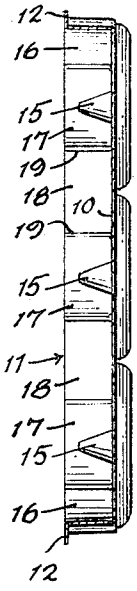


Fig. 3.

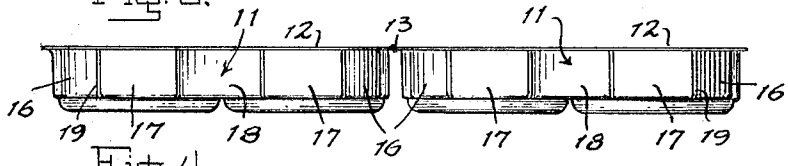


Fig. 4.

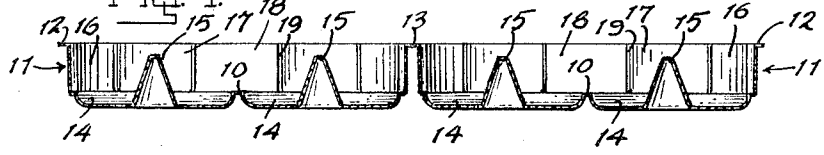


Fig. 5.

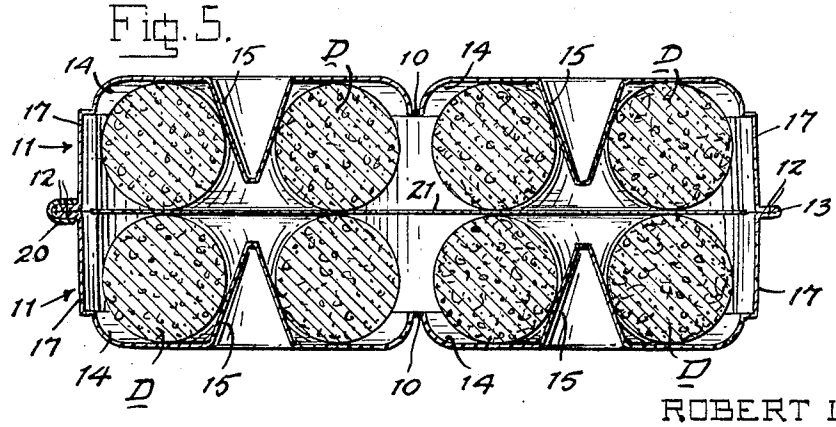


Fig. 6.

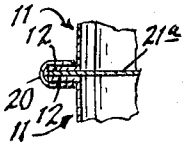


Fig. 7.

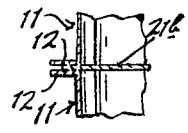
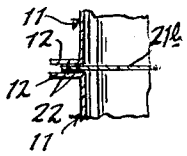


Fig. 8.



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United States Patent Office 3,265,280 Patented August 9, 1966

3,265,280

DOUGHNUT PACKAGE

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Filed Apr. 14, 1964, Ser. No. 359,579
3 Claims. (Cl. 229—2.5)

The present invention relates to a doughnut package. Doughnuts, both of the plain variety and those coated with sugar, cinnamon, frosting, or the like, present a difficult packaging problem in that contact with each other for any considerable time causes their contacting surfaces to adhere and deteriorate, becoming soggy, crumbly and otherwise undesirable. Also, the tendency of the doughnuts in contact with each other to move about in the package contributes to their deterioration.

It is an object of the present invention to provide an improved package including means to position the individual doughnuts against relative movement and out of contact with each other. A further object is to provide a package formed of transparent plastic sheet material whereby the contents will be completely visible.

Another object is to provide a package which may be economically molded by vacuum or pressure forming procedures from thin plastic sheet material, for example, polyvinyl film, such material being non-absorbent, impervious to air and moisture, and free from odor or other contaminating factors. A further object is to provide a package molded from thin sheet material and embodying a structural form making for both extremely light weight and substantial rigidity against distortion and crushing. A still further object is to provide a package which is capable of nesting engagement with a similar package, to the end that a large number of such packages may be stored in a small space preparatory to their use.

Other objects and advantages will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings wherein a satisfactory embodiment of the invention is shown. However, it will be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawings:

FIG. 1 is a plan view of a package according to the invention shown in its open position;

FIG. 2 is a sectional view taken along the line 2—2 of FIG. 1;

FIG. 3 is an end elevation;

FIG. 4 is a sectional view taken along the line 4—4 of FIG. 1;

FIG. 5 is an enlarged sectional view of the closed package with doughnuts contained therein, the sectional showing being the same as that of FIG. 4.

FIGS. 6, 7 and 8 are enlarged fragmentary sectional views showing modified securing means.

Referring to the drawings, the doughnut package according to the exemplary embodiment of the invention illustrated therein is formed from thin plastic sheet material, for example, polyvinyl film, by well-known vacuum or pressure forming procedures and, as shown in FIG. 1, comprises two matching or complementary receptacle sections of rectangular form joined together along one side by a hinge connection to thus enable the two sections to be folded into superimposed position to form a closed container, which may then be secured or sealed along the unhinged sides. It is pointed out that the two receptacle sections may if desired be separate and when superimposed to form a container secured or sealed along all four sides.

Each receptacle section comprises a horizontal planar base wall **10** of generally rectangular form and a side

wall **11** joined at one edge to the base wall and provided at its other edge with a lateral outwardly extending flange **12**, thus providing a pan-like receptacle open at one side. In the illustrated embodiment, where the two matching receptacle sections are hingedly connected, the flange portions **12** along the adjacent longitudinal edges of the two sections are integrally connected and are delineated by a crease or score line **13** molded therein, thus enabling the easy hinge movement of one section into and out of superimposed closed relation with the other. The base wall **10** of each section is provided at its inner side with a plurality of spaced circular pockets **14**, and centrally of each pocket there is provided a cone-shaped projection **15**, the convergent end of which terminates in a plane inwardly of the plane of the flange **12**. The pockets are arranged in such relation that when the two receptacle sections are superimposed the pockets of one will register with the pockets of the other. In the illustrated embodiment six pockets are provided in each receptacle part arranged in two longitudinal rows of three each, the resultant package thus being adapted to accommodate twelve doughnuts.

The side wall **11** is provided at each corner with a curved panel portion **16** and along its sides with outwardly offset panel portions **17** in line with the pockets **14** and inwardly offset panel portions **18** between the panel portions **17**. Between the panel portions **17** and **18** there are provided relatively narrow vertically disposed connecting wall portions **19** which provide the side wall with a series of spaced stiffening columns to give it substantial rigidity against distortion or crushing, the stiffening effect being enhanced by the merging of the wall portions **19** into the flange **12**. At the same time the outwardly offset panel portions **17** provide clearance spaces at the inner side of the side wall in which the peripheries of the doughnuts positioned in the recesses may be received without contacting the side wall.

As seen in FIG. 5 a doughnut D is engaged in each pocket **14** of both receptacle sections with the conical projection **15** wedgingly engaged in the hole of the doughnut, so that each doughnut is thus positioned against lateral movement to prevent its contact with the side wall or with the adjacent doughnuts. The two receptacle sections are folded about the hinge line **13** into superimposed position with the flanges **12** superimposed along the three unhinged sides where they are secured or sealed by suitable means, for example by heat-sealing, by stapling, or by an adhesive tape **20** folded about the superimposed flanges. Prior to closing the two receptacle sections of the container a separation sheet **21** of plastic film, cardboard, paraffin paper, or the like may be interposed between the superimposed doughnuts. Thus the individual doughnuts are completely out of contact with each other and are supported within the container against relative movement. The plastic material of the package, including the separation sheet **21**, is preferably transparent so that the contents are visible for inspection by prospective purchasers.

In the modification shown in FIG. 6, the four marginal edges of the separation sheet **21***a* are extended and interposed between the superimposed flanges **12** of the two receptacle sections where they are clamped by the securing tape **20** folded about the flanges. Obviously the flanges and the interposed sheet may be secured by other suitable means, as for example staples.

In the modification shown in FIG. 7, the separation sheet **21***b* has its marginal edges secured between the superimposed flanges **12** by heat sealing, this procedure being carried out by well-known means to cause the engaged surfaces of the flanges and the separation sheet to homogeneously adhere. In this case the separation sheet is of a suitable material capable of heat sealing. In the

case of the receptacle sections being formed of a material which is difficult to heat seal, for example oriented polystyrene, the separation sheet may be of a diverse material having the capability of heat sealing to the material of the receptacle sections, such material being for example wax paper. In order to facilitate separation or opening of the receptacle sections the edge of the separation sheet is preferably inwardly offset so that an unadhered space is provided extending inwardly from the outer edges of the flanges. With this arrangement the flange of one section may be readily lifted or peeled from the separation sheet by exerting a sufficient force thereon to break the heat seal. Also, one receptacle section may be open while the other remains closed by leaving the separation sheet in place.

In the modification shown in FIG. 8 pressure-sensitive adhesive 22 is interposed between the surfaces of the flanges and the margin of the separation sheet. Such adhesive may be conveniently applied either to the marginal upper and lower surfaces of the separation sheet or to the opposed surfaces of the flanges. With this arrangement the container may be readily opened by separation of the adhesive seal, and may be resealed by applying pressure to the flanges to cause the pressure-sensitive adhesive to adhere.

In the modifications shown in FIGS. 6, 7 and 8 it is pointed out that in the case of the receptacle parts being hinged along one side the sealing will be along the unhinged sides, while in the case of the receptacle parts being separate the sealing will be along all four sides.

What is claimed is:

1. A doughnut package for a plurality of doughnuts, each comprising a substantially circular cross-section ring-shaped body having a hole defined by the convex inner wall of said body; said package comprising a pair of complementary matching receptacle parts formed from thin plastic sheet material molded to shape, each said part comprising a base wall of generally rectangular form, a side wall joined at one edge to the periphery of said base wall along its four sides, and a lateral flange extending outwardly from the other edge of said side wall along its four sides, said base wall having a plurality of spaced pockets at its inner side each of circular outline defined by a planar base wall portion parallel to and outwardly offset from said base wall and a continuous circular peripheral wall portion entirely separated from said side wall and the peripheral wall of each adjacent pocket adapted to receive a doughnut with its outer periphery entirely out of contact with said side walls and with the outer periphery of adjacent doughnuts, and a conical projection centrally of each of said pockets extending

within said receptacle part in convergent relation away from said base wall portion and terminating in a plane intermediate said base wall part and the plane of said lateral flange, said projection having a diameter at its base substantially larger and a diameter at its peak substantially smaller than the minimum diameter of the hole of the doughnut received in the respective pocket, whereby said projection is adapted to wedgingly engage within said hole to restrain lateral displacement of said doughnut in said pocket, said pair of receptacle parts adapted to be disposed in opposed relation with their said lateral flanges superimposed to form a closed container and with said pockets and projections of the respective receptacle parts in opposed registering relation, a separation sheet disposed in the meeting plane of said receptacle parts in their opposed closed relation having its marginal edge portion disposed between said flanges whereby the opposed doughnuts are out of contact with each other, and means for securing said flanges in superimposed relation.

2. The invention as defined in claim 1, further characterized in that said lateral flanges of said pair of receptacle parts are integrally connected along one side of each of said parts to form a hinge connection.

3. The invention as defined in claim 1, further characterized in that said side wall comprises outwardly offset panel portions respectively in line with said pockets to provide clearance spaces for the outer wall of doughnuts received in said pockets, inwardly offset panel portions between said outwardly offset panel portions, and connecting wall portions between said outwardly and inwardly offset panels constituting spaced stiffening columns extending between the edges of said side wall.

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