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CONTAINERS

Filed June 16, 1967

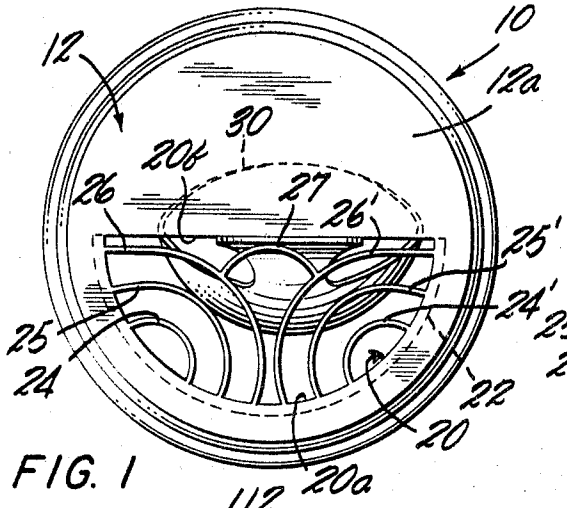


FIG. 1

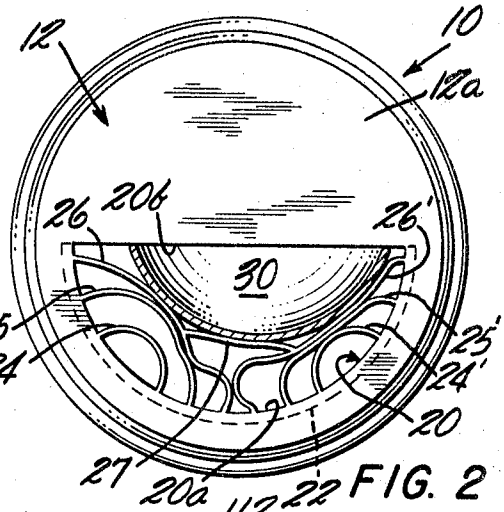


FIG. 2

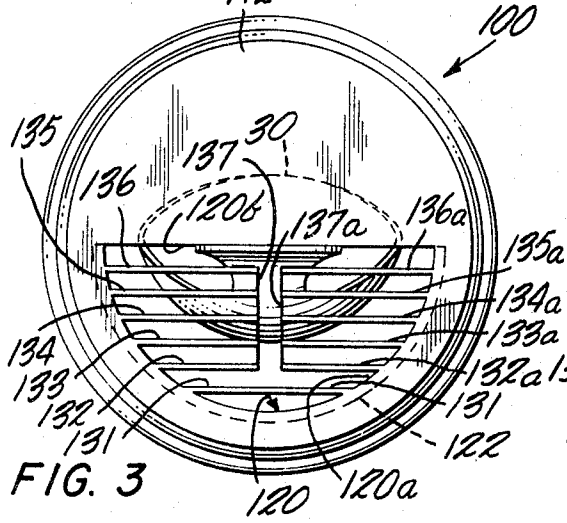


FIG. 3

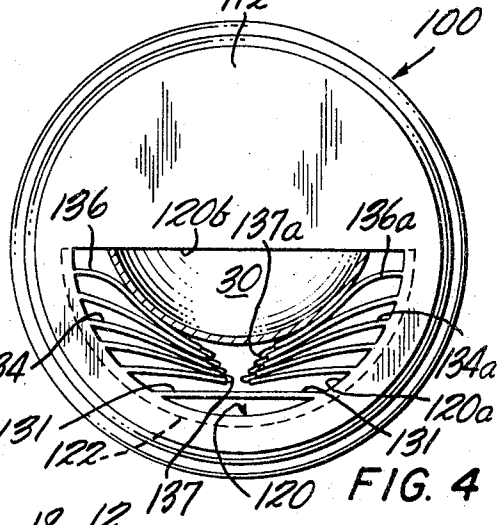


FIG. 4

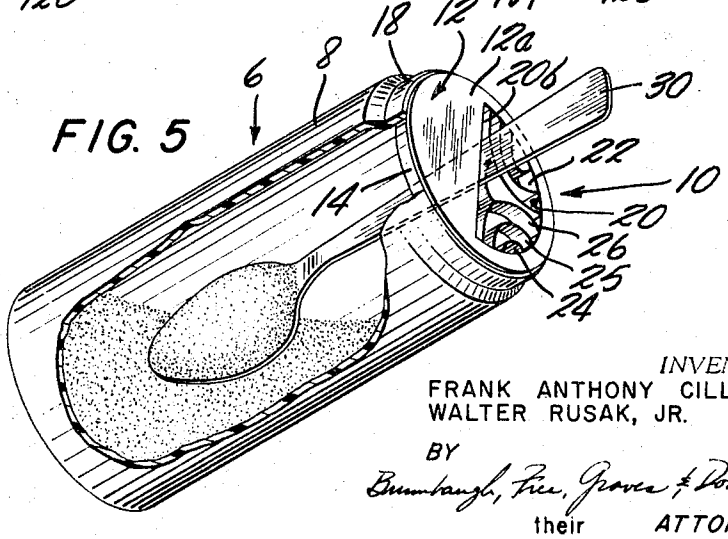


FIG. 5

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CONTAINERS

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Int. Cl. B65d 47/04, 25/38; A47g 19/24

ABSTRACT OF THE DISCLOSURE

In a container for granular products, an outlet structure having an opening through which the product can be poured or shaken or can be removed by a spoon. A plurality of resilient elements extend into the opening and form obstructions for breaking up lumps of the granular product when the product is poured or shaken from the container, but the elements are resiliently deflectable to enable a spoon to be admitted through the opening.

This invention relates to containers for granular products, and, more particularly, to a novel and improved outlet structure for such containers which permits the product to either be poured or shaken out of the container or be removed in a measured amount using a spoon.

Many types of granular products are packaged for consumer sale and use in containers which are provided with an outlet for pouring the product from the container. Some types of containers for such products include a grid or the like in the opening for the purpose of enabling the product to be sprinkled rather than poured in a mass from the container. Other types provided an opening having a perforated plate for this purpose. In the types of containers in which a granular product is to be poured or shaken from the containers, it is generally not possible to remove the product by any other way unless the outlet structure also forms a removable part of the closure, even though it may be desired, from time to time, to remove a measured amount of the product in a measuring spoon or the like, such as when the product is an ingredient of a recipe, for example.

An outlet structure for containers, in accordance with the invention, enables a product to be dispensed from the container by shaking or pouring and also permits it to be removed with a spoon. In particular, the outlet structure comprises a member having an opening through which the product can be poured or removed by a spoon, and a plurality of resilient elements extending into the opening and normally defining in the opening outlet spaces of predetermined dimensions which constitute obstructions to the dispensing of lumps of the product of a size greater than a maximum predetermined size for convenient use and, further, serve to break up large lumps. The resilient elements are, nevertheless, deflectible and are geometrically arranged so that a spoon can be passed through them and inserted into the container through the opening to remove the product. Although the outlet structure of the invention has many uses, it is particularly well suited for granulated products of the type which are sticky and tend to form lumps or agglomerations which, if they were not broken up in the process of being shaken or poured out of the container, would often not be suitable for use. Examples of such products are grated cheeses and brown sugar. The closure structure is preferably made of a plastic which has a good "memory," that is, an ability to be repeatedly deflected and always return to its original shape.

In a preferred embodiment of the invention, the resilient elements extending into the opening of the outlet structure are interconnected and geometrically arranged so that the spoon can be inserted only through a specific portion of the opening. Assuming for the moment that it were possible to insert the spoon into the container through various portions of the opening, it would be likely in some of those portions that the resilient elements would interfere with the withdrawal of the material by entering into the bowl of the spoon and pushing the material out of it. In the closure structure of the invention, the interconnection of the resilient elements and their specific geometric arrangement prevents this from occurring. As a further preferred feature, one edge of the opening of the member is straight so that it serves as a straight-edge to level the material across a measuring spoon. In this case, the interconnected elements are arranged such that the spoon can only be inserted through a part of the opening adjacent the straight-edge. The resilient elements assist in removing measured amounts by urging the spoon toward the straight-edge to automatically level the product in the spoon.

For a better understanding of the invention, reference may be made to the following description of exemplary embodiments, taken in conjunction with the figures of the accompanying drawings, in which:

FIG. 1 is a top view of one embodiment showing a spoon in position inside the container;

FIG. 2 is a top view of the embodiment of FIG. 1, but showing the spoon in a position in which its bowl is only partially inserted into the container;

FIG. 3 is a top view of another embodiment of the invention, the view showing a spoon inserted into the container;

FIG. 4 is a top view of the embodiment of FIG. 3 with the spoon inserted with its bowl only part way in the container; and

FIG. 5 is a pictorial view showing the embodiment of the closure structure of the invention illustrated in FIGS. 1 and 2 in place on a container, a portion of the container being broken away to reveal a spoon inserted into the container.

Referring first of all to FIG. 5, the outlet structure, which is designated generally by the reference numeral **6**, is adapted to be used on any suitable type of container, such as a plastic bottle **8**, as illustrated, other types of bottles, boxes, and the like. In the embodiment shown in FIGS. 1, 2 and 5, the outlet structure **10** is in the form of a member **12** that is circular in plan and includes a thin body portion **12***a* having a downwardly extending flange **14** spaced a small distance inwardly of the perimeter of the body. The member **12** is dimensioned for accommodation within the neck **18** of the bottle with the perimeter of the body portion **12** overlying the upper edge of the neck. The outlet structure **10** may be force-fitted in the opening, or cooperative formations on the neck of the bottle and on the member providing a snap-on arrangement can be employed. These and other suitable ways of securing the outlet structure **10** to the receptacle **12** are well known to those skilled in the art and form no part of the present invention. Moreover, the closure structure might also be formed integrally with the container, rather than as a separate element. A removable and replaceable closure, such as a screw-on cap or a pivotable closure plate, for example, can be provided on the container where desired.

Referring to FIGS. 1 and 2 of the drawings, the embodiment of the outlet structure **10** includes a semi-

circular opening **20** formed in the plate or body portion **12**, the opening including a semi-circular edge **20***a* and a straight-edge **20***b* which constitutes, substantially, a diameter of the opening. The semi-circular edge **20***a* has a downwardly extending flange **22** which serves as an attachment part for a plurality of resilient elements **24** to **26** and **24'** to **26'** extending into the opening and constituting obstructions for breaking up lumps of the product into suitably sized pieces. The resilient elements are thin in the direction of the plane of the body **12**, but, as shown in FIG. 5, are relatively wide in a direction transverse to the plane of the body. They are preferably formed integrally with the member **12**.

In the embodiment of the invention illustrated in FIGS. 1 and 2, the elements **24** to **26** and **24'** to **26'** occur in two groups, one on either side of a bisector plane through the semi-circular opening. The elements of each group are spaced-apart approximately equal distances so as to define between them outlet spaces of predetermined widths. In addition to the elements **24** to **26** and **24'** to **26'**, a further element **27** interconnects the outermost ones **26** and **26'** at approximately their midpoints. The element **27** is curved so that it has a length sufficient to enable the elements **24** to **26** and **24'** to **26'** to be distended or deflected, in the manner illustrated in FIG. 2, so that a spoon **30** can be inserted into the container to remove the product. The member **10** is preferably made of a plastic, for example, polyethylene or polypropylene, which is formulated to have a good memory so that the elements will return to their original shape after the spoon is withdrawn.

The outlet structure **100** of FIGS. 3 and 4 includes a body **112** formed with a semi-circular opening **120** bounded by a semi-circular edge **120***a* and a straight edge **120***b*. The member **112** has an integral, downwardly extending flange **122** extending along the semi-circular edge **120***a* of the opening. Joined to the flange **122** and extending across the opening are resilient elements forming obstructions to the outflow of material from the container and for breaking up lumps. In particular, one element **131** is located next to the semi-circular edge **120***a* at a point remote from the straight edge **120***b*, and two groups of elements **132** to **136** and **132***a* to **136***a*, inclusive, which are parallel to each other and to the edge **120***b*, extend inwardly towards a bisector plane through the opening.

The geometrical arrangement and spacing of the resilient elements in the embodiments of FIG. 3 enables the elements to be deflected in the manner illustrated in FIG. 4 to admit a spoon into the container so that the product can be removed in a measured amount. To prevent the spoon from being inserted into any part of the opening lying between some of the resilient elements, it is preferable to interconnect the tips of the elements **132** to **136** and **132***a* to **136***a* by flexible transverse membranes **137** and **137***a* of roughly one half the thickness of the elements so that they will readily collapse when the elements are deflected upon insertion of a spoon.

In use, the resilient elements in the opening in the outlet structure constitute obstructions to the dispensing of lumps of material larger than the spaces between them and also serve to break up such lumps into pieces of a suitable predetermined maximum size which can be conveniently used. Accordingly, the outlet structure of the invention is particularly well suited for products, such as grated cheese or brown sugar, which tend to stick together and form lumps. When it is desired, however, to remove measured amounts of the products, such as for use in a recipe, the resilient elements are geometrically arranged and are of sufficient flexibility to be easily deflected by a spoon inserted through the opening in the portion thereof adjacent to the straight edge, as illustrated in FIGS. 2 and 4. The container **12** can be tipped over in the manner portrayed in FIG. 5, so that the product is more readily retained in the spoon, and then the spoon withdrawn through the opening. In passing back out of the container, the bowl of the spoon is urged toward the straight edge by the resiliency of the elements so as to automatically draw the spoon along the straight edge and level the product to provide, for example, a level teaspoon or tablespoon of the product. The automatic leveling constitutes a further desirable feature of the outlet structure of the invention.

The above described embodiments of the invention are meant to be merely exemplary, and those skilled in the art will be able to make numerous variations and modifications of them without departing from the spirit and scope of the invention. All such variations and modifications are intended to be included within the scope of the invention as defined in the appended claims.

We claim:

1. In a container for granular products, an outlet structure comprising a member having an opening therein through which the product can be poured or removed by a spoon inserted into the container through the opening and a plurality of resilient elements extending into the opening, the elements normally defining in the opening outlet spaces of predetermined dimensions and constituting obstructions in the opening for breaking up lumps of the granular product into pieces of not greater than a maximum predetermined size when the product is poured out through the opening, and the elements being resiliently deflectable to admit the spoon into the container to remove the product.

2. A container outlet structure according to claim **1** wherein at least some of the elements are interconnected within the opening such that a spoon can be inserted into the opening without the elements entering into the bowl of the spoon, whereby the elements are prevented from interfering with the removal of the product in the spoon.

3. A container outlet structure according to claim **2** wherein one edge of the opening in the member is straight and constitutes a scraping portion for leveling the product as it is removed in the spoon, and wherein the resilient elements adjacent the straight edge are interconnected.

4. A container outlet structure according to claim **1** wherein the elements are formed integrally with the member and are joined thereto at the edges of the opening.

5. A container outlet structure according to claim **4** wherein the member includes a downwardly extending flange defining at least the part of the opening where the elements are joined thereto, the elements being joined to the flange.

6. A container outlet structure according to claim **1** wherein at least some of the elements are curved and are arranged in groups defining curved spaces of substantially uniform width.

7. A container outlet structure according to claim **6** wherein the opening is generally semicircular in shape and the elements are arranged in two groups, each group being made up of a series of spaced-apart curved elements, the outermost one of which subtends approximately one half of the semicircle, and wherein an additional curved element joins the said outermost elements of the two groups.

8. A container outlet structure according to claim **1** wherein the elements are straight and disposed substantially parallel to each other.

9. A container outlet structure according to claim **8** wherein the opening is generally semicircular and includes a straight edge aligned generally along the bounding diameter thereof, and wherein the elements extend substantially parallel to the straight edge of the opening, at least some of the elements adjacent the straight edge being split along the bisector plane so as to be deflectable to enable a spoon to be inserted into the container to remove the product.

10. A container outlet structure according to claim **9** wherein the ends of the elements adjacent the straight edge and on respective sides of the bisector plane are

joined together to ensure that they will not enter the bowl of a spoon inserted into the container by preventing a spoon from being inserted except adjacent the straight edge of the opening.

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222—459, 565; 220—90