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ROTARY SHAKER TOP

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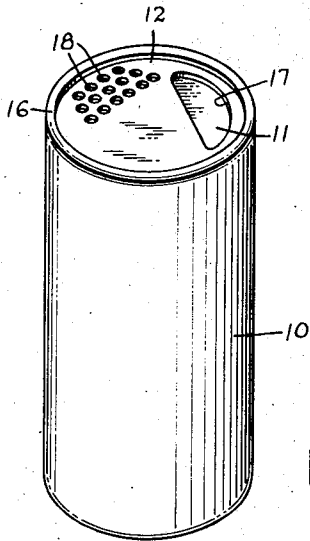


FIG. 1.

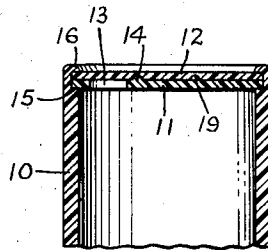


FIG. 2.

FIG. 3.

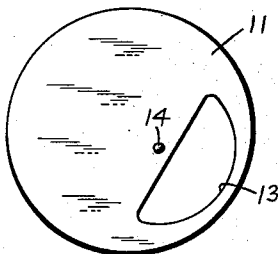


FIG. 4.

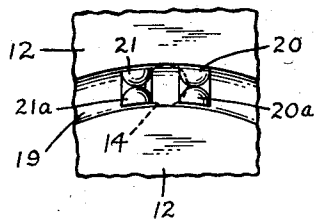
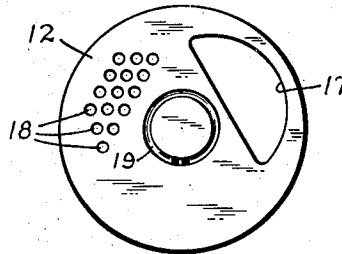


FIG. 5.

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ROTARY SHAKER TOP

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6 Claims. (Cl. 222—548)

This invention relates to shaker tops for containers for various powders or granular materials such as salt, pepper, sugar, soap powder and the like, and it relates particularly to an improved form of shaker top having locking means for selectively retaining the shaker top in closed, sifting or pouring position.

Shaker tops provided heretofore for salt and spice boxes and the like, usually include a closure member provided with a pouring opening and a rotatable or slidable member provided with a hole and/or a series of sifting openings that can be brought selectively in alignment with the hole in the closure member to enable the contents of the container to be discharged. Some of these prior types of containers rely solely on friction for retaining the cooperating elements in their closed, open or sifting positions and such tops have not been altogether satisfactory in many instances, particularly when the containers are subjected to vibration or are handled carelessly.

Other types of shaker tops, usually formed of thin sheet metal, may include a detent and recess type of locking mechanism for retaining a closure in its closed position. Such an arrangement is more satisfactory than the friction types of retaining means, but is not very satisfactory for plastic shaker tops, which are now used for many purposes.

In accordance with the present invention, a shaker top is provided in which a locking means is provided that enables the shaker to be locked in closed position or released for movement to a shaking or dispensing position and in which the locking mechanism also serves as a guide for movement of the elements of the shaker top.

More particularly, shaker tops embodying the present invention may be of a type including a pair of relatively rotatable discs, one of which is secured to the end of the container in non-rotatable relation while the other is rotatable relative to the fixed closure member. Both closure members have pouring openings and the outer member may also have sifting openings therein. Offset from the center of one of the closure members is a small detent or bump which engages in a circular groove formed in the other closure member, thereby serving to maintain proper alignment of the closure members and guiding them during relative rotation. Small spaced-apart projections extend into the groove and define a shallow notch in which the detent can engage to releasably resist relative rotation of the closure members. The detent and the projections in the groove can be so located that they engage when the openings in the cooperating closure members are out of alignment to keep the container closed, but other pairs of projections can be arranged also in the groove to enable the closure members to be locked in position such that the dispensing openings or shaker openings are aligned properly with the opening in the inner closure member to enable dispensing of the contents of the container.

While the above-described construction is particularly adapted to closures formed of plastic, it will be under-

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stood that the structure may also be embodied in metal or other material with equally satisfactory results.

For a better understanding of the present invention, reference may be had to the accompanying drawing in which:

Figure 1 is a perspective view of a typical container having a shaker top of the type embodying the present invention;

Figure 2 is a view in cross section taken through the shaker top of the container illustrating the assembly of the elements thereof;

Figure 3 is a plan view of the inner closure member of the shaker top;

Figure 4 is a bottom plan view of the outer closure member of the shaker top; and

Figure 5 is an enlarged view of the locking elements for retaining the inner and outer closure elements in selected positions.

For purposes of illustration, a typical container in which the present invention may be applied may consist of a cylindrical carton 10 formed of cardboard or the like and adapted to receive salt, pepper or other material. At the upper end of the container are mounted an inner closure member 11 and an outer closure member 12 which may be formed of plastic, thin metal or the like. As shown in Figure 3, the inner closure member 11 is a disc-like member having a dispensing opening 13 therein and also having a small detent 14 molded or otherwise extending from its upper surface to one side of the center of the member. The inner closure member 11 may be mounted against a shoulder 15 at the inner end of the container and is cemented or otherwise fixed thereto.

The outer closure member 12 is rotatably mounted in the end of the container 10 and may be retained in position by means of an inwardly spun flange 16 at the outer end of the shaker 10.

Referring to Figure 4, the outer closure member 12 is also of a disc-like shape and has a pouring opening 17 therein corresponding generally in shape and location to the pouring opening 13 of the inner closure member 11. Also, the outer closure 12 has a series of sifting holes 18 in it. An annular groove 19 is formed in the under-surface of the closure member 12, the groove having a radius essentially equal to the spacing of the detent 14 from the center of the inner closure member 11. This relation enables the detent 14 to engage in the groove 19 in sliding relation thereto and aids in guiding the outer closure member 12 as it is rotated relative to the inner closure member 11.

In order to lock the inner and outer closure members 11 and 12 in a position such that the opening 13 is closed by an imperforate portion of the outer member 12, the groove 19 is provided with pairs of small projections 20, 20a, 21 and 21a, each pair being arranged side-by-side across the groove and the two pairs being spaced apart along the length of the groove 19. The spacing between the pairs of projections 20, 20a, 21 and 21a is such that they engage the detent 14 snugly and thus resist relative rotation of the inner and outer closure members when the detent 14 is so engaged. The height of the projections is less than the depth of the groove 19 so that the detent 14 can be pushed between them without requiring excessive deflection of the closure members, but they are of sufficient height to prevent the detent 14 from being moved past them by vibration or contact with adjacent objects. In this way, rotation of the closure member 20 and loss of the contents of the container due to inadvertent opening of the container top are avoided.

It will be understood that a plurality of sets of protuberances 20, 20a, 21, and 21a may be provided around the ring 19, for example, to lock the sifting openings in

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alignment with the dispensing opening 13 or the dispensing opening 17 in alignment with the dispensing opening 13 so that positive alignment is assured in each case.

The locking detent and groove as described above can be formed by molding with a suitable type of plastic molding apparatus and also can be formed in a metal or composition shaker top by suitable stamping or die forming apparatus.

It will be understood that the closure members can be made of various types of materials in any desired color or surface finish and may be used in reusable containers as well as the disposable containers in which many products are sold. Therefore, the form of the invention described herein should be considered as illustrative and not as limiting the scope of the following claims.

I claim:

1. A container comprising a hollow receptacle, an inner closure member having a pouring opening therein fixed to one end of said receptacle, an outer closure member engaging said inner closure member and rotatable relative thereto, said outer member having an opening therein movable into and out of alignment with the pouring opening in the inner member, a detent extending from one of said closure members to one side of the axis of rotation of said outer member, a circular groove in the other closure member receiving said detent slidably, and projections on said other closure member extending into and spaced apart along said groove for engaging opposite sides of said detent to resist relative rotation of said closure members.

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2. The container set forth in claim 1 in which said projections engage opposite sides of said detent when the openings in said inner and outer closure members are out of alignment.

3. The container set forth in claim 1 in which said projections are arranged in pairs across said groove and are of less height than the depth of said groove.

4. A shaker top for a container comprising a first closure member adapted to be mounted on a container and having a pouring opening therein, a second closure member in face-to-face relation with said first closure member, a detent offset from the center of one of said members and projecting therefrom, the other closure member having a circular groove therein to receive said detent slidably, said second closure member having a pouring opening movable into and out of alignment with the pouring opening in the first closure member by relative rotation of said members, and projections on said other closure member extending into said groove and spaced apart a distance about equal to the width of said detent to receive the detent between them and releasably retain said closure members against relative rotation.

5. The shaker top set forth in claim 4 in which said projections are arranged in pairs across said groove and are of less height than the depth of said groove.

6. The shaker top set forth in claim 4 in which said projections receive said detent between them when said pouring openings are out of alignment.

No references cited.