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2,777,616

SHAKER TOP

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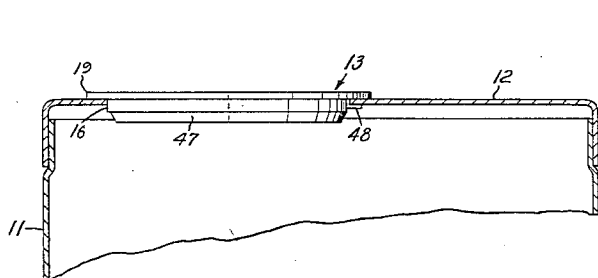


FIG. 1.

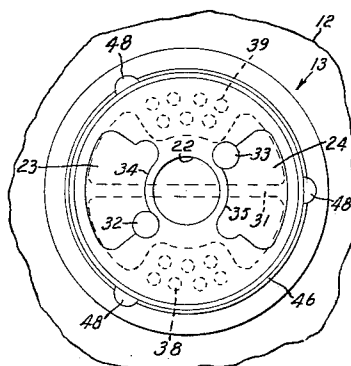


FIG. 2.

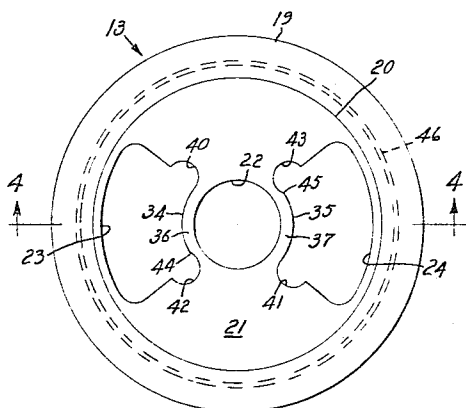


FIG. 3.

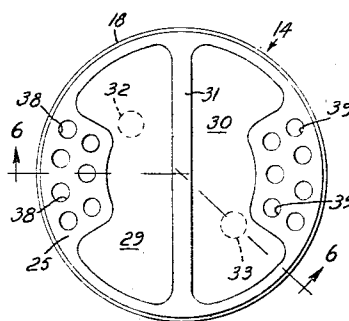


FIG. 5.

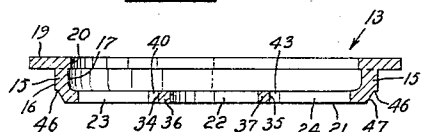


FIG. 4.

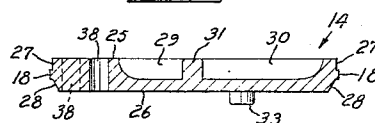


FIG. 6.

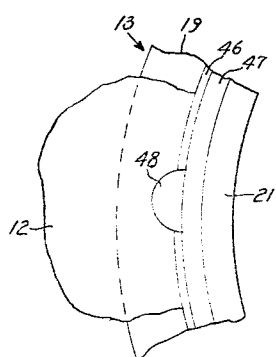


FIG. 8.

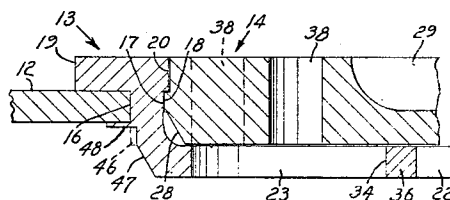


FIG. 7.

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SHAKER TOP

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1 Claim. (Cl. 222—555)

This invention relates generally to containers in which material such as granular salt is merchandised and more particularly to such containers which are provided with dispensing means which can be closed for shipment or storage and opened for dispensing the material as required by the user.

In the form of the invention here illustrated and described it comprises a cylindrical paper board container closed at each end with a cylindrically flanged circular paperboard cap one of which has inset in a circular hole formed therethrough a unique and uniquely useful shaker type dispensing means.

The primary object of the invention is to provide a shaker top for a salt dispensing container which will have no metal nor corrodable parts, which will be simple and cheap to manufacture, and which can be positively closed for shipment or storage and variably opened for use.

A second object is to provide such a container with a dispensing top insert of thermoplastic material which after insertion into the top of the container can be staked thereby by locally heating and deforming the inserted piece.

A third object is to provide such a container with a dispensing top insert having only two parts one of which is rotatable within the other to set the dispensing rate of the insert.

A fourth object is to provide such a two piece dispensing top insert for a container in which at least one of the two pieces of which the insert is formed is made of material sufficient yielding for one of the pieces to be press assembled within the other piece to be rotatable therein but not easily removable therefrom.

A fifth object is to provide such a two piece dispensing top insert for a container in which the two pieces of the top insert are relatively rotatable for adjusting the dispensing rate of the container and in which cooperating resilient detent means are formed on the two pieces for resiliently braking the two pieces against too easy relative movement in their range of dispensing rate adjustment and for resiliently locking the two pieces in their nondispensing or closed position relative to each other.

How these and other objects are attained will be explained in the following description referring to the attached drawing in which

Fig. 1 is a vertical sectional view through the container cap of this invention and the shaker dispensing means therein.

Fig. 2 is a fragmentary plan view looking upward from the under side of Fig. 1.

Fig. 3 is a plan view of the stator of the shaker dispensing means of Figs. 1 and 2.

Fig. 4 is a sectional view along the line 4—4 of Fig. 3.

Fig. 5 is a plan view of the rotor of the shaker dispensing means of Figs. 1 and 2.

Fig. 6 is a sectional view along the line 6—6 of Fig. 5.

Fig. 7 is a fragmentary enlargement of part of Fig. 1.

Fig. 8 is a fragmentary enlargement of part of Fig. 2.

Like numerals of reference refer to like parts in the several figures of the drawing.

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Referring now to the drawing there is shown fragmentarily the cylindrical paper board body 11 of a salt merchandising and dispensing container having an end cap 12 telescoped onto and secured to body 11. Inserted as shown through an eccentric hole formed through cap 12 is the two piece adjustable dispensing top insert which forms the major element of this invention. The outer piece or stator 13 will be shown to be secured against rotation in cap 12 while the inner piece or rotor 14 is seen to be rotatably secured in stator 13.

In Figs. 3 and 4 stator 13 is seen to be formed with a short cylindrical section 15 having an outer surface 16 adapted to fit snugly in the eccentric hole formed in cap 12 and an inner surface 17 adapted rotatably to receive the outer cylindrical surface 18 of greatest diameter on rotor 14. Annular flange 19 of stator 13 is seen to be of greater outside diameter than the hole in cap 12 to prevent the complete insertion of stator 13 through cap 12. Flange 19 is also seen to have a lesser inside diameter at surface 20 than the surface 18 on rotor 14. Section 15 of stator 13 is seen to be closed at its lower end with bottom plate 21 having a central cylindrical hole 22 and two arcuate holes 23, 24 formed therethrough.

In Figs. 5 and 6 rotor 14 is seen to have a top flat surface 25, a bottom flat surface 26 a greatest diameter cylindrical outer surface 18 relieved towards top surface 25 to a lesser diameter cylindrical surface 27, slightly smaller than surface 20 of stator 13, and a conical lower outer circumferential surface 28.

When rotor 14 is set into stator 13 with the conical surface 28 of rotor 14 resting against the top edge of inner cylindrical surface 20 of stator 13 and rotor 14 is pressed downward it is found that the material of which parts 13 and 14 are made is sufficiently yielding for surface 18 of rotor 14 to pass surface 20 of stator 13 and come to rest as shown in Figs. 1 and 7 with rotor 14 rotatably locked in stator 13.

Depressions 29, 30 formed in the top surface of rotor 14 define a rib 31 forming a finger abutment to be used in rotating rotor 14.

Cylindrical bosses 32, 33 depending from the bottom surface of rotor 26 extend into arcuate holes 23, 24 respectively on stator 13 and are positioned to rub tightly against surfaces 34, 35 of arcuate webs 36, 37 as rotor 14 is rotated in stator 13. Bosses 32, 33 with resilient webs 36, 37 act as frictional detents to hold rotor 14 as manually rotatably positioned in stator 13.

Holes 38, 39 formed through rotor 14 progressively move into registration with holes 23, 24 of stator 13 as rotor 14 is rotated in the opening direction until all of the holes 38, 39 open into holes 23, 24 and bosses 32, 33 come to rest in semicircular extensions 40, 41 of holes 23, 24 respectively. Moving rotor 14 in the opposite direction progressively reduces the number of holes 38, 39 in register with holes 23, 24 until finally bosses 32, 33 come to rest in semi-circular extensions 42, 43 of holes 23, 24 in stator 13 and none of the holes are in register. The shaker top is closed and is urged to remain closed by the smaller shoulders 44, 45 at the intersection of the outer arcuate surfaces of ribs 34, 35 and semicircular boundary surfaces of extensions 42, 43. In this respect it is to be noticed that the centers of extensions 42, 43 are nearer the axis of stator 13 than are the centers of extensions 40, 41 and the centers of bosses 32, 33 on rotor 14 are positioned to cause bosses 32, 33 to fit nicely in extensions 42, 43, and to require some effort to turn rotor 14 to rotate bosses 32, 33 out of extensions 42, 43 over shoulders 44, 45. Bosses 32, 33 together with shoulders 44, 45 therefore function as detents to hold the rotor 14 secure against accidental rotation to a spilling position when the container is in transit or storage.

Since a container of the type here disclosed is not gener-

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ally re-usable and any additional cost of the container affects the market for the contained material the cost of the adjustable shaker top of this invention must be negligible both in part costs and in assembly. The apparent convenience and desirability of the package can be considered to be only a selling aid or premium feature of the particular brand of material dispensed.

It has previously been noted that the shaker top closure of this invention includes only two plastic pieces which are readily assembled together by pressing the rotor into the stator. Now it should be noted that another novel feature of the device is its ready assembly into the cap 12 of the container as shown in Figs. 1, 2, 7 and 8.

Stator 13 is formed on its outer side below surface 16 with a small annular step 46 and a conical surface 47. Conical surface 47 aids in orienting stator 13 as it is dropped into the receiving hole in cap 13 and pushed into place. Then the electrically heated multiple plungers of a staking device are brought down in spaced positions around the stator 13 to strike on shoulder 46. Since stator 13 is made of a thermoplastic material the heated plungers of the staking device strike on the shoulder 46, see Fig. 7, and advancing towards the underside of cap 12, melt and displace parts of the material of stator 13 solidly against the underside of cap 12 as shown at 48 in Figs. 7 and 8.

Having thus stated some of the objects of this invention,

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illustrated and described one form in which the invention may be practiced and explained its use, I claim:

A dispensing insert for a wall of a granular material dispensing container said wall being formed with a hole therethrough to receive said insert and said insert consisting of a one piece molded plastic stator and a one piece molded plastic rotor, said stator comprising a cylindrical side band, a planar annular top flange formed on one end of said side band to overhang said side band radially inwardly and outwardly thereof and a flat bottom member secured at its periphery to said side band at the other end thereof, and said rotor being rotatably secured to said stator with the outer edge of said rotor confined between the inner surface of said cylindrical side band, the inner surface of the inwardly overhanging part of said top flange and the inner surface of said bottom member.

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