Jan. 15, 1957 J. C. DE SHAZOR, JR 2,777,615

SHAKER TOP WITH POURING SPOUT

Filed Jan. 11, 1956 2 Sheets-Sheet 1

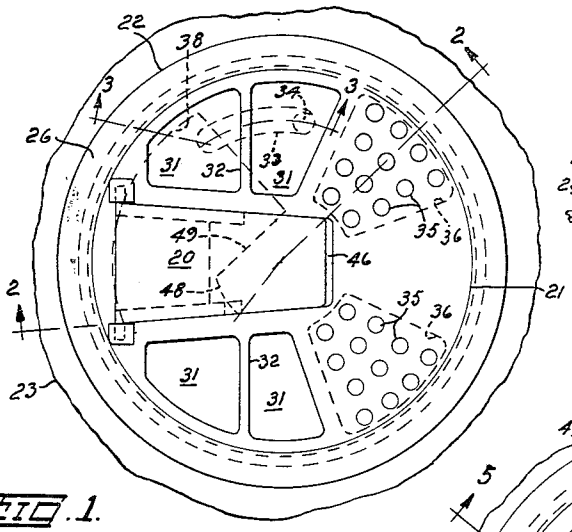


FIG. 1.

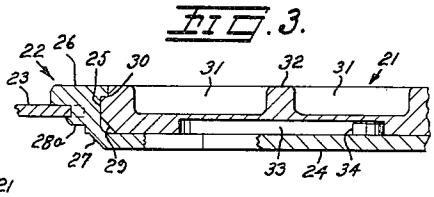


FIG. 3.

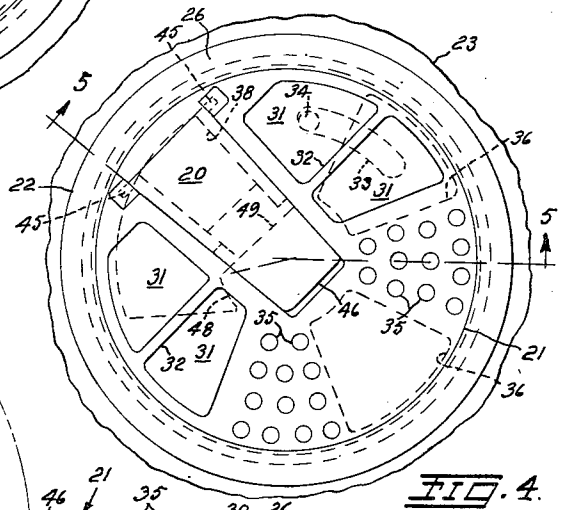


FIG. 4.

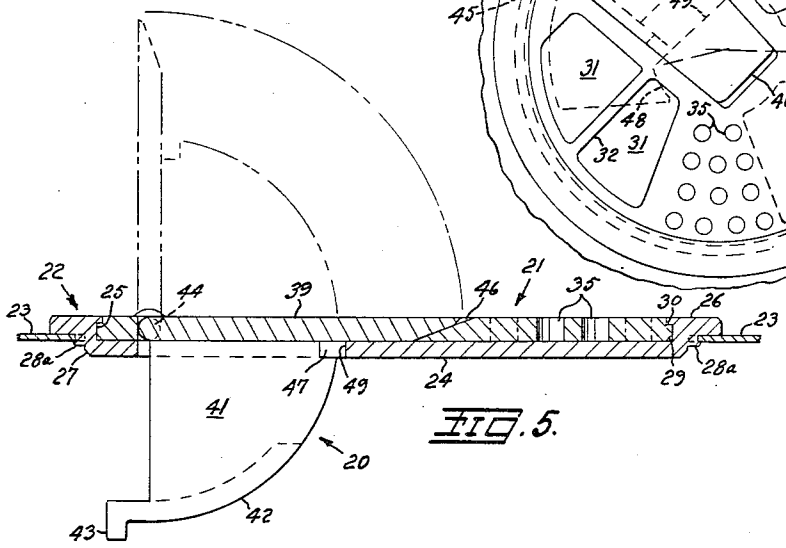


FIG. 5.

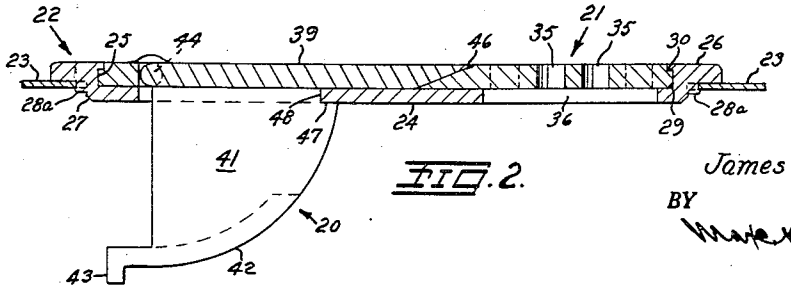


FIG. 2.

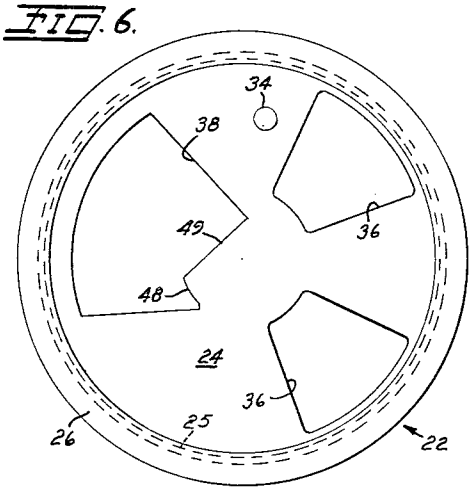
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SHAKER TOP WITH POURING SPOUT

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FIG. 6.



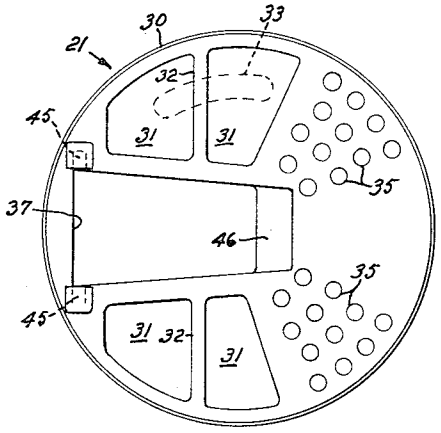


FIG. 7.

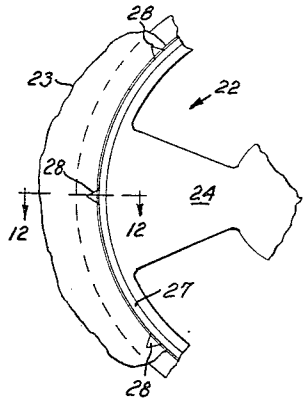


FIG. 8.

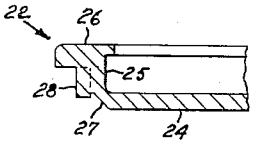


FIG. 12.

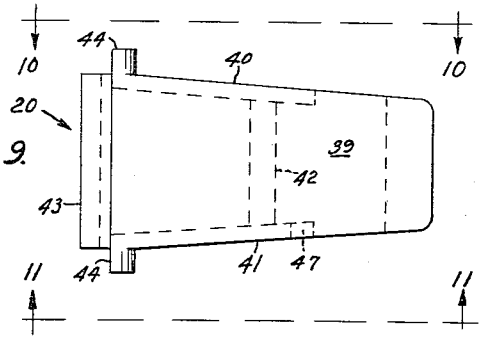


FIG. 9.

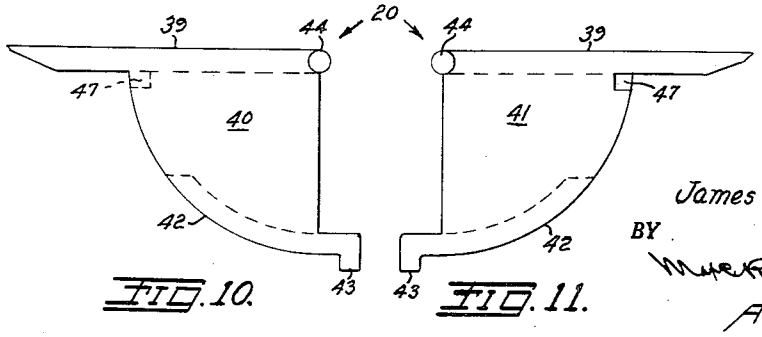


FIG. 10.

FIG. 11.

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SHAKER TOP WITH POURING SPOUT

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Application January 11, 1956, Serial No. 558,515

5 Claims. (Cl. 222—480)

This invention relates generally to containers in which material such as granular salt is merchandised and more particularly to an insert to be staked into a hole formed in the top of such a container, the insert being adapted to provide at the option of the user either a shaker top or a pouring spout for the container.

This invention is an improvement over the shaker top shown in my copending application S. N. 501,952, filed April 18, 1955 of which this application is a continuation in part.

The primary object of the invention is to provide in one device to be inserted in the top of a dispensing container for granular salt or the like optional means for sprinkling or pouring the contained material from the container.

It is a second object to provide such a unitary device in which both the sprinkling or shaker means and the pouring means can be in closed position at the same time but that only one of the sprinkling or the pouring means can be open at the same time.

It is a third object to provide such a unitary device consisting of three pieces of molded plastic material permanently assembled by snapping one piece into another piece to form a three piece assembly with the one piece rotatably secured to the other piece and a third piece hingedly secured by the one piece and the other piece to rotate with the one piece.

It is a fourth object to provide such a device of thermoplastic material which after insertion into a mating hole formed in the top of a container can be staked in place by locally heating and deforming the device.

It is a fifth object to provide such a device of malleable material which after insertion into a mating hole formed in the container can be staked in place by mechanically locally deforming the device at room temperature.

How these and other objects are attained is explained in the following description referring to the attached drawings in which

Fig. 1 is a plan view of the assembled device of this invention installed in the fragmentary top of a container for granular material and with the parts of the device relatively positioned for shaking or sprinkling the granular material from the container.

Fig. 2 is a sectional view of the assembled device along the line 2—2 of Fig. 1.

Fig. 3 is a fragmental sectional view of the assembled device along the line 3—3 of Figure 1.

Fig. 4 is a plan view of the assembled device of this invention installed in the fragmentary top of a container for granular material and with the parts of the device relatively positioned for pouring the granular material from the container through the spout of the device.

Fig. 5 is a sectional view of the assembled device along the line 5—5 of Fig. 4.

Fig. 6 is a plan view of the stator of the device of this invention.

Fig. 7 is a plan view of the rotor of the device of this invention.

Fig. 8 is a fragmental bottom plan view of the stator of Fig. 6.

Fig. 9 is a plan view of the spout of the device of this invention.

Fig. 10 is a side elevation of the spout of Fig. 9 taken along the line 10—10 of Fig. 9.

Fig. 11 is a side elevation of the spout of Fig. 9 taken along the line 11—11 of Fig. 9.

Fig. 12 is a fragmental sectional view along the line 12—12 of Fig. 8.

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

Referring now to the drawings, in Figs. 1, 2 and 3 are shown the fully assembled form in which the present invention is practically illustrated by way of example only, it being understood that the invention may be practiced in other forms and with other details.

As illustrated the invention comprises a combined shaker top and pouring spout made up of a spout 20 hingedly secured by a rotor 21 and a stator 22. Rotor 21 is rotatably secured in stator 22 as shown and stator 22 is adapted to be secured in a mating hole formed through the cardboard top 23 of a container for granular material like table salt for example. Spout 20 always rotates with rotor 21.

Stator 22, see also Figs. 6, 8, and 12, is seen to be formed with a bottom wall 24, a side wall 25 and a top flange 26 overhanging side wall 25 outwardly to rest on container cover 23 and inwardly to confine rotor 21 rotatably within stator 22.

Shown in greater detail in Figs. 8 and 12 it is to be noted that the bottom outer corner 27 of the underside of stator 22 is bevelled for the purpose of piloting the assembled device into the mating hole formed in part 25. Also formed on the outside of sidewall 25 and extending downwardly from the underside of flange 26 are multiple triangular ribs 28 adapted to engage the container top 23 and prevent the rotation of the stator 22 in top 23 when rotor 21 is rotated in stator 22. Ribs 28 extend downwardly (Fig. 12) beyond the upper edge of bevel 27 so that for a short distance the ends of ribs 28 are free. This freedom of the ends of ribs 28 is designed to make easier the mechanical deformation of the ends of ribs 28 after rotor 22 has been pressed into top 23 for the purpose of permanently securing stator 22 into top 23.

The deformation of ribs 28 for the purpose noted is accomplished by pressing a metal ring having a rectangular section with an inner diameter the same as the outer diameter of side wall 25 upward with sufficient force to crush ribs 28 over top 23 as shown at 28*a* in Figs. 2, 3, and 5. Although the heat method of staking the stator into the container top as shown in application S. N. 501,952 above noted is still used and gives a very satisfactory result, it has been found that the mechanical staking method just described allows a greatly speeded up machine operation of assembling the device into the container top and is therefore an invention of considerable commercial importance within itself.

As shown in Figs. 2, 3, and 5 the lower outer corner of rotor 21 is beveled as at 29 in order to pilot rotor 21 into its assembled position in stator 22. Although the outer diameter of rotor 21 is greater than the inner diameter of flange 26 of stator 22 the plastic material of which the parts are made is sufficiently elastic for rotor 21 bearing on its beveled surface 29 to be pushed into stator 22 until the inwardly extending edge of flange 26 snaps over the rabbetted corner 30 of rotor 21.

Rotor 21 is formed with depressions 31 in its top side for the purpose of forming finger bars 32 as abutments for the fingers of the user to engage in rotating rotor 21.

Also rotor 21 is formed with an arcuate upward de-

pression 33 from its under side adapted to receive short pin 34 formed upwardly on bottom wall 24 of stator 22. Pin 34 engaged in slot 33 has the double purpose of setting the rotational limits of rotor 21 and also giving an additional drag or rotational resistance to rotor 21. For the latter purpose pin 34 (Figs. 1 and 4) is seen to set frictionally close to the radially inner edge of slot 33.

At one limit of relative rotation of pin 34 and slot 33 shaker holes 35 in rotor 21 are in register with sector shaped holes 36 in stator 22, while at the other limit holes 35 are blanked off by imperforate sections of bottom wall 24 of stator 22.

Hole 37 formed through rotor 21 is adapted to receive spout 20 to rotate with rotor 21 and hole 38 formed through bottom wall 24 of stator 22 is adapted to receive spout 20 with the full rotational movement allowed of rotor 21 with respect to stator 22 by pin 34 and slot 33.

As shown in Figs. 9, 10, and 11, spout 20 is formed with a top plate 39 a pair of side plates 40, 41, and an arcuate shroud 42 formed with a hook end 43. Axle ears 44 laterally extending from one end of top plate 39 rest in assembly on the top of bottom wall 24 of stator 22 and are hingedly enclosed by pockets 45 formed upwardly in the underside of rotor 21. The other end of top plate 39 is bevelled as shown on the under side to rest on the sloping surface 46 at the inner end of hole 37 in rotor 21. The bevelled end of top plate 39 is formed to remain separated at its tip from surface 46 so that a finger nail can be inserted in the gap between them to rotate spout 20 about its ears 44.

Attention is now called to the cooperation between the inner edge of hole 38 formed through the bottom wall of stator 22 and the slot 47 formed through the side plate 41 of spout 20. The inner edge of hole 38 is formed with an arcuate part 48 concentric with the center of rotation of the rotor and a straight part 49. As shown dotted in Fig. 4 and full line in Fig. 5, when rotor 21 is at its limit position where holes 35 are closed the hinge axis of spout 20 is parallel to edge part 49 of hole 38. Side plates 40 and 41 of spout 20 clear edge part 49 and spout 20 can be rotated about its axle ears at will to either open spout 20 for pouring or to close spout 20 to set the container away for further use. When spout 20 is opened its open limit position is determined by the striking of the under side of bottom wall 24 of stator 22 at edge part 49 by the hook end 43 of shroud 42 of spout 20.

Now if it were desired to rotate the rotor 21 to open the shaker holes 35 and the spout was either all or partially open side plate 41 would strike edge part 49 near edge part 48 for the reason that edge part 48 is at a greater radius from the center of rotation than is the edge of side plate 41. But if the spout were fully closed the rotor and spout could be turned to the open position of all the holes 35 for the reason that notch 47 formed in side plate 41 of spout 20 has its back vertical edge at a greater radius from the center of rotation than is the edge part 48 of hole 38.

Figs. 1, 2, and 3 illustrate the condition where the rotor is at the one limit of its rotation where the holes 35 of the rotor are open to the inside of the container through holes 36 of the stator. The spout is closed and locked closed by the radial edge of slot 47 abutting the underside of edge part 48.

Figs. 4 and 5 illustrate the condition where the rotor is at the other limit of its rotation where holes 35 are out of register with holes 36, side plates 40, 41 of spout 20 are edge on to edge part 49 of hole 38 of stator 22 and since side plates 40, 41 clear edge part 49 spout 20 may be opened or closed at will.

Having thus listed some of the objects of the invention, illustrated and described one form in which the invention may be practiced and explained its operation, I claim:

1. In combination with a container for granular material, said container having a hole formed through a wall

thereof, a combined shaker and pouring means for said granular material inserted in said hole and secured therein, said combined means comprising a stator, a rotor and a pouring spout, said spout being hingedly secured to said rotor by said stator to be movable into and out of pouring position about a horizontal axis and said rotor being rotatably secured to said stator to rotate between limit positions in either direction about a vertical axis, said rotor and stator including means cooperable at one limit of rotation of said rotor to form a shaker means for said salt and said spout and said stator including means cooperable at said one limit of rotation to prevent the opening of said spout and at the other limit of rotation of said rotor to release said spout for movement to its pouring position.

2. In combination with a container for granular material, said container having a hole formed through a wall thereof, a combined shaker and pouring means for said granular material secured in said hole, said combined means comprising a stator, a rotor and a pouring spout, said rotor being rotatably secured in said stator to rotate relative thereto between a first limit position in one direction of rotation and a second limit position in the other direction of rotation, said rotor and said stator including cooperating means forming a material dispensing shaker open at said first limit position in said one direction of rotation of said rotor relative to said stator and closed at said second limit position in said other direction of rotation, means hingedly securing said spout to said rotor to hinge about an axis in a plane normal to the axis of rotation of said rotor, means limiting the hinging of said spout about its hinging axis between a closed position of said spout and a pouring position of said spout and interlocking means formed on said stator and said spout to permit the rotation of said rotor relative to said stator only when said spout is in its closed position and to permit the rotation of said spout to its pouring position only when shaker is closed.

3. A dispensing top insert for merchandising and dispensing container of granular material, said top insert comprising a stator and a rotor including a pouring spout hinged thereto for movement between a closed position and a pouring position, said stator being formed with a bottom wall, a cylindrical side wall raised from the outer edge of said bottom wall and a flange parallel to said bottom wall formed at the top of said side wall to extend inwardly and outwardly therefrom, said rotor being generally disklike in shape with an outer diameter substantially the same as the inner diameter of the side wall of said stator for the height of said side wall and a reduced outer diameter substantially the same as the inner diameter of said flange of said stator for the height of said flange, said rotor being rotatably secured in said stator by said equal diameter surfaces and overhanging surfaces joining the surfaces of unequal diameter of each of said stator and said rotor, said rotor and said stator including means forming a material dispensing shaker open at one limit position of rotation in one direction of said rotor with respect to said stator and closed at another limit position of rotation in the other direction of rotation of said rotor with respect to said stator, means permitting said rotor to be rotated with respect to said stator only when said spout is in its closed position and permitting said spout to be moved to its pouring position only when said rotor is at said another limit position, the material of which said insert is made being sufficiently resilient for said rotor to be positioned into said stator through the central opening in said top flange of said stator.

4. The top insert of claim 3 including rib means formed on the outside of said cylindrical side wall of said stator perpendicular to said flange, said rib means being of sufficient length away from said flange to form short free ends extending beyond the attachment of said ribs to said side wall and said material of which said stator is made being sufficiently malleable for said free ends of said ribs to

be mechanically deformed to secure a wall of said container between the underside of said flange and the deformed free ends of said ribs.

5. The top insert of claim 3 including an arcuate slot formed in the underside of said rotor and an upstanding pin formed in the top side of said bottom wall of said stator, the free end of said pin being engaged in said slot to determine said limit positions of said rotor with respect to said stator and a side of said pin being frictionally engaged with a side of said slot to limit the freedom of rotation of said rotor in said stator.

References Cited in the file of this patent

UNITED STATES PATENTS

1,959,874	Mills	May 22, 1934
2,254,581	Punte	Sept. 2, 1941
2,745,577	Davis	May 15, 1956