Sept. 19, 1967 R. L. SMITH 3,342,380

COMBINED SHAKER TOP AND POUR SPOUT CLOSURE FOR CONTAINERS OF FINELY DIVIDED MATERIAL

Filed May 25, 1966 2 Sheets-Sheet 1

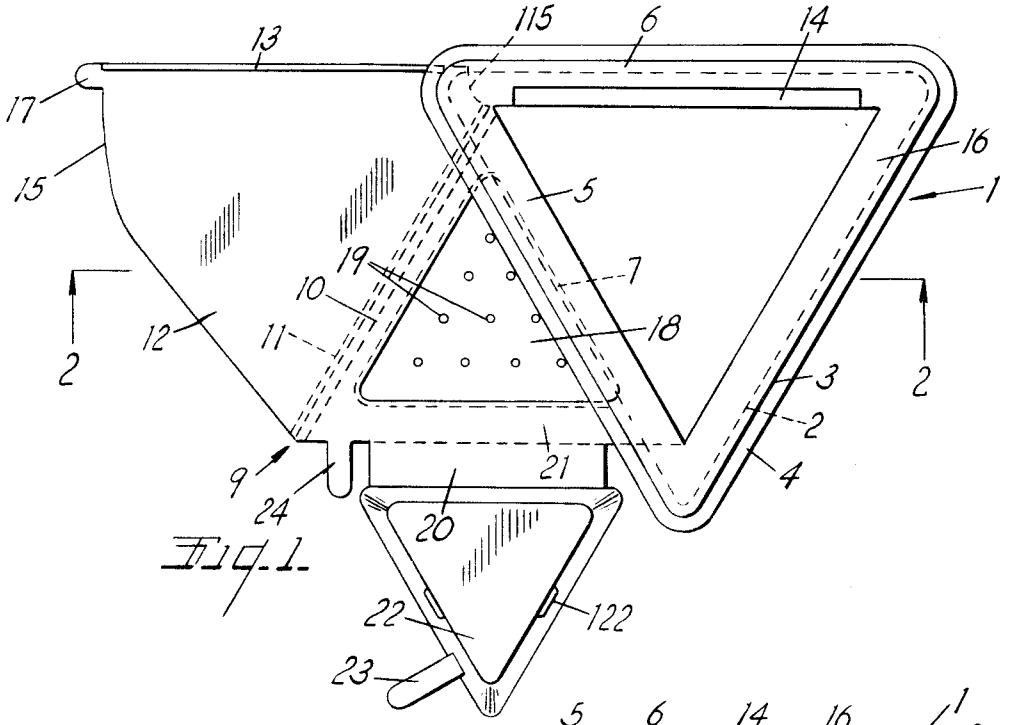


Fig. 1

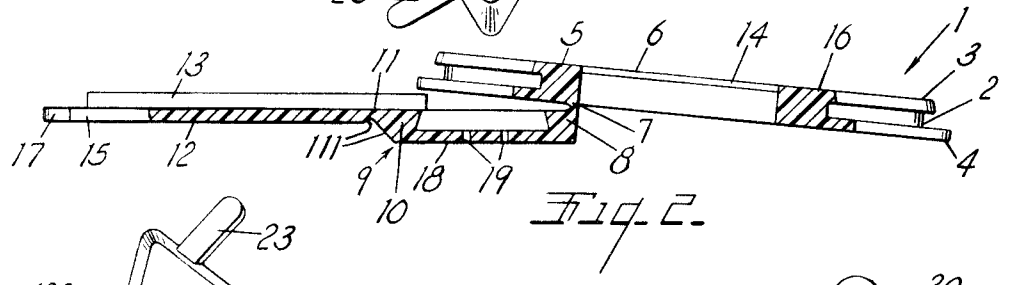


Fig. 2

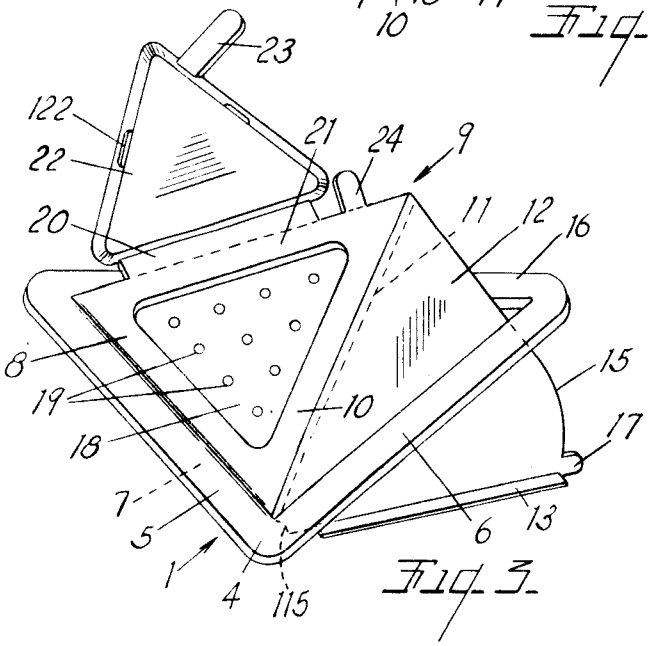


Fig. 3

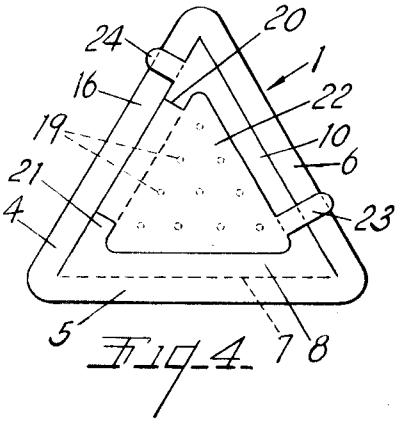


Fig. 4

INVENTOR.
Richard L. Smith
BY
Austin A. Webb
ATTORNEY.

Sept. 19, 1967 R. L. SMITH 3,342,380

COMBINED SHAKER TOP AND POUR SPOUT CLOSURE FOR CONTAINERS OF FINELY DIVIDED MATERIAL

Filed May 25, 1966 2 Sheets-Sheet 1

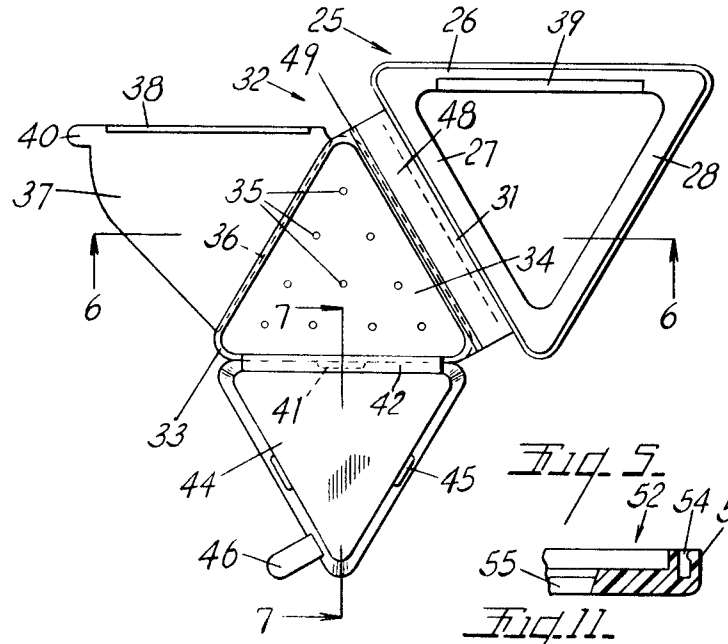


Fig. 5

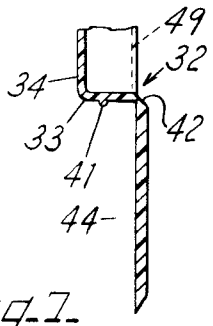


Fig. 7

Fig. 11

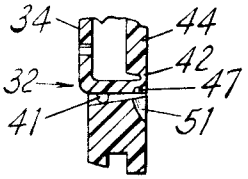


Fig. 10

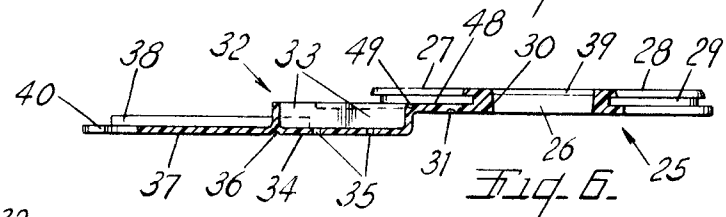


Fig. 6

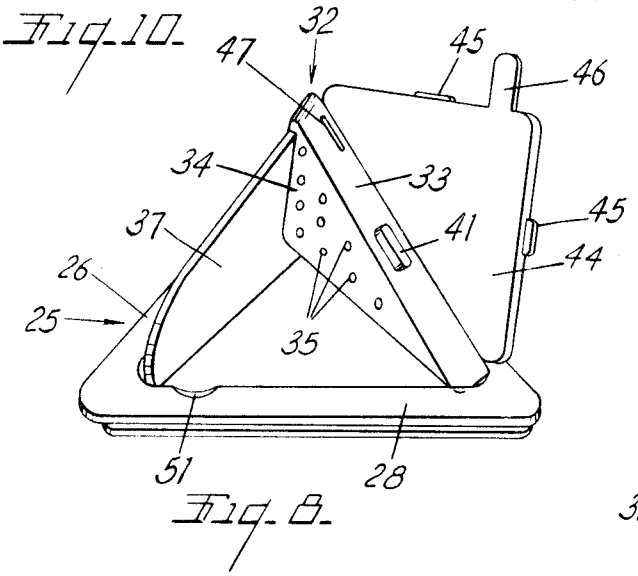


Fig. 8

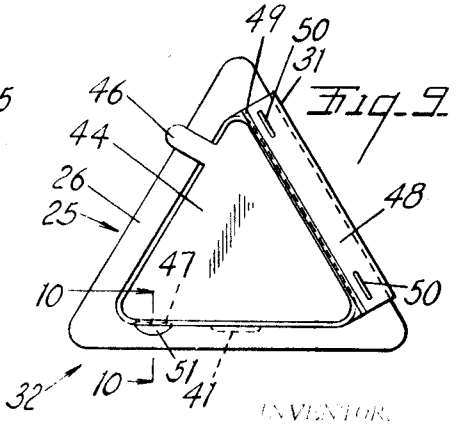


Fig. 9

INVENTOR.
Richard L. Smith
BY
Austin A. Webb
ATTORNEY.

United States Patent Office 3,342,380
Patented Sept. 19, 1967

3,342,380

COMBINED SHAKER TOP AND POUR SPOUT CLOSURE FOR CONTAINERS OF FINELY DIVIDED MATERIAL

Richard L. Smith, 5707 S. Westnedge Ave., Kalamazoo, Mich. 49002

Filed May 25, 1966, Ser. No. 552,897
10 Claims. (Cl. 222—189)

This invention relates to a combined shaker top and pour spout closure for containers of finely divided material. The principal objects of this invention are:

First, to provide a reclosable combined shaker top and pour spout closure for containers for material such as table salt which will combine a reclosable large opening and pour spout with a reclosable perforated shaker panel and cover therefor which may be formed and assembled as a single unit in the top of a salt box.

Second, to provide a combined reclosable pour spout and shaker top fitting which may be inexpensively molded as a single element and mounted in the cover of a container such as a salt box without projecting materially above the cover of the salt box so that the containers may be stacked on store shelves.

Third, to provide a closure fixture for containers of finely divided or granular material having a first closure which is easily opened to expose a perforated shaker opening and a second closure which is formed in part by the wall forming the shaker opening which can be selectively opened to provide a larger sized opening and a flow directing pour spout.

Fourth, to provide a combined reclosable shaker top and pour spout having the foregoing properties, that can be alternatively manufactured to fit in the flat wall of a container, or to engage perpendicular side walls of a container and act as an end closure therefor.

Other objects and advantages of the invention will be apparent from a consideration of the following description and claims. The drawings of which there are two sheets illustrate two practical forms of the shaker top and pour spout fixture of the invention, and two adaptations thereof fit in a flat wall of a container, or as a closure engageable with perpendicular side walls of a container.

FIG. 1 is a plan view of the bottom of a first form of the fixture as it might be molded.

FIG. 2 is a cross sectional view taken along the plane of the line 2—2 in FIG. 1.

FIG. 3 is a perspective view of the combined shaker top and pour spout assembly in erected operative position with both the pour spout opening and the shaker top closure in open position.

FIG. 4 is a top plan view of the assembled fixture with the openings closed as they would appear in a closed container.

FIG. 5 is a bottom plan view of a modified form of the combined pour spout and shaker top closure as the same might be molded.

FIG. 6 is a cross sectional view taken along the plane of the line 6—6 in FIG. 5.

FIG. 7 is a fragmentary cross sectional view taken along the plane of the line 7—7 in FIG. 5.

FIG. 8 is a perspective view of the erected pour spout and shaker top closure shown in FIG. 5 with the pour spout and shaker top closure in open position.

FIG. 9 is a top plan view of the modified assembly in closed position as it would appear when installed in a closed container.

FIG. 10 is a fragmentary, enlarged cross sectional view taken along the plane of the line 10—10 in FIG. 9.

FIG. 11 is a fragmentary, enlarged cross sectional view similar to a portion of FIG. 6, illustrating a modified

alternative construction adapted to be mounted on perpendicular side walls of a container, as a closure for the container.

Containers or boxes for table salt have been provided with alternate openings and alternate closures therefor to provide a relatively large opening with a pour spout and a separate opening with a closure fixture having a perforate wall to function as a shaker top and a cover closable over the shaker opening. The present invention provides a single fixture which economically provides both the closable pour spout opening and closable shaker top opening.

The example of the closure fixture shown in FIGS. 1 to 4 includes a first or outer frame 1 having a peripheral groove 2 around its outer edge which is adapted to receive the edge of an opening formed in the top of a salt box or similar container. The frame is capable of being snapped into the opening in the container and to this end the lower flange 3 on the bottom of the frame is slightly smaller than the top flange 4 which overlies the wall of the container when the frame is installed therein. Note that FIGS. 1 and 2 show the frame in inverted position so the flange 3 is uppermost. The frame illustrated is triangular in shape but this particular configuration is not essential so long as the frame is provided with two relatively straight divergent sides 5 and 6. Connected to the top inner corner of the side member 5 as by an integral molded web 7 is the top outer side portion 8 of a second or inner triangular frame indicated generally by the reference 9. The inner frame 9 has a divergent side portion 10 arranged to fold within the side member 6 of the outer frame and the remaining side or sides of the inner frame fit closely within the corresponding sides of the outer frame. Integrally connected to the side member 10 as by the thin membrane or hinge connection 11 is a generally triangular pour spout side wall 12 which passes inwardly through the opening in the first frame 1 and lies in inwardly projecting relation along the inner side of the side member 6 when the closure assembly is erected. The hinge or membrane 11 is formed by oppositely beveling the adjacent edges of the side portions 5 and 8 as at 111 in FIG. 2. The entire closure assembly is conveniently molded as an integral unit from a flexible plastic material so that the pour spout side wall 12 can be bent or deformed sufficiently to pass through the opening within the outer frame in the assembly of the fixture. The pour spout side wall desirably carries a perpendicular flange 13 along one edge which is adapted to overlie and move into a shallow groove 14 formed in the lower inside corner of the side 6 of the outer frame when the pour spout is open as will be described. The other edge of the pour spout side wall has an arcuate portion 15 sized to swing in frictional engagement with the juncture between the side 6 of the outer frame and the adjacent side of the outer frame which in the example illustrated is formed by a third side 16 of the triangular frame. A stop lug or ear 17 may be provided on the corner of the pour spout side wall to limit outward opening motion of the pour spout.

The second or inner frame 9 has an integral wall 18 extending across its inner side and provided with a plurality of apertures or holes 19 to form a shaker top opening in the fixture. The inner frame 9 is sized to fit in yieldable gripping engagement within the inner edges of the first frame 1 so that the holes 19 can be used as shaker openings when the pour spout wall is in closed position. To further close the shaker openings 19 and prevent the entrance of dirt and moisture into the container the inner frame 9 is provided with an integral laterally projecting web 20 of flexible plastic extending from one side portion 21 of the inner frame. The web 20

forms a flexible hinge connection to one side of a closure plate or wall **22**. The imperforate closure **22** is shaped to fit within the inner portion of the inner frame **9** and to be frictionally retained in closed position as by lugs **122** in a manner well known in the formation of shaker top closures for salt boxes.

In order to permit convenient and selective opening of either the shaker top panel **18** or the pour spout, the imperforate closure **22** is provided with an integral projecting lug or ear **23** that is desirably long enough to overlie both the inner frame **9** and the outer frame **1** when the fixture is assembled and closed. The inner frame **9** is provided with a projecting lug or ear **24** secured to one of the swinging sides of the inner frame and also adapted to overlie the outer frame when the assembly is closed as shown in FIG. 4 so that either the pour spout consisting of the inner frame **9** and the pour spout side wall **12** or the shaker top closure **22** may be opened. Normally the imperforate closure **22** will be left closed within the inner frame **9** to close the holes **19** when the pour spout is opened and in use. The edge of the pour spout side wall **12** adjacent to the hinge connection **7** is concavely curved to slide in closing engagement about the juncture of sides **5** and **6** of the outer frame as the pour spout is opened. This prevents leakage at the base of the spout, see **115**.

The modified form of the shaker top and pour spout assembly shown in FIGS. 5 through 10 is essentially the same as the first form described but may be preferred in some respects in that it is more easily molded as an integral element. The modified assembly comprises an outer or first frame **25** of triangular shape having two generally straight and divergent side members **26** and **27** and a third side **28** completing the frame. The periphery of the frame has a groove **29** formed therearound to receive the edge of an opening in a container and the inner edges of the first frame are downwardly and outwardly divergent as at **30** to facilitate snap engagement with the shaker top closure to be described.

Integrally connected to the upper and outer corner of the side member **27** as by the thin hinge connection or membrane **31** is a flap **48** having its opposite edge connected to one side of an upper or second frame indicated generally by the reference numeral **32**. The frame **32** is matching in shape to the inside of the frame **25** and the flap **48** is sized to overlie the top of the side member **27** of the outer frame **25** when the assembly is erected. The inner edges of the frame **32** are downwardly offset, triangularly arranged walls **33** with a cross wall **34** connecting their inner edges. The wall **34** is provided with a plurality of holes or openings **35** to act as shaker openings when the inner frame is closed in the outer or first frame.

Connected to the lower or inner edge of one side wall **33** of the second frame as by the thin membrane or hinge connection **36** is a pour spout side wall **37** of essentially the same shape and function as the wall **12** in the first form of the assembly. The side wall **37** has an upstanding flange **38** adapted to underlie and rest against the recess **39** in the underside of the side member **26** of the first frame when the pour spout is opened. The side wall may also have a motion limiting lug **40** to limit the open position of the pour spout. To frictionally retain the second frame **32** and the side walls **33** thereof within the opening of the first frame, one side wall **33** may have a projecting lug **41** formed thereon to engage under the beveled inner edge **30** of the first frame.

Connected to the upper and outer edge of one side of the second frame **32** as by the folding connection **42**, formed by beveling the integrally connected parts, is one side of the shaker top closure panel **44**. The closure panel is folded into the recess between the side walls **33** of the second frame and may be frictionally retained therein by projecting lugs **45**. The imperforate closure panel **44** is desirably provided with an ear or lug **46** extending from one swinging edge thereof to facilitate opening of the

closure for the shaker top. In order to facilitate opening of the pour spout, one of the sides of the second frame **32** is provided with an exterior fingernail receiving groove **47** near its upper edge. The groove is exposed by a half round recess **51** in the adjacent upper-inner edge of the outer frame when the assembly is closed. As will be apparent the second form of the pour spout and shaker top assembly and closure shown in FIGS. 5 to 9 functions in the same way as the first form illustrated.

The side walls **33** of the inner frame **32** are frictionally retained between the adjacent sides **26** and **27** of the outer frame **25** (with the pour spout side wall **37** projecting below the adjacent side of the inner frame), so when the pour spout consisting of the inwardly projecting wall **37** and the wall **34** across the inner side of the inner frame **32** is opened, the hinged section formed by the groove **49** in the flap **48** tends to remain close to side **27** of the outer frame. However, to resist any tendency of the horizontal or flap portion **48** on the hinged side of the inner frame from pulling away from the surface of side **27** of the outer frame and creating a undesired opening at the base of the pour spout, the side **27** and flap **48** connecting the two frames may be secured together after molding, base of the pour spout, the side **27** and flap **48** connect- may be by mechanical staples such as at **50** in FIG. 9, or by adhesive or bonding (not illustrated) between the lapped surfaces.

The modified form of the spout and closure assembly in FIGS. 5 to 10 has the advantage over the form shown in FIGS. 1 to 4 that all major portions of the assembly may be formed in a completely open faced mold. No re-entrant edges or projections are needed, except for the minor mold edges that form the peripheral groove **29**, the lugs **41** and **45** and the fingernail groove **47**.

While the two forms illustrated in detail are triangular in overall outline, this is not an essential limitation. FIG. 11 shows how an outer frame **52** may be provided with a downturned flange **53** on its periphery with a receiving notch **54** in its lower edge adapted to receive the edge of a container presented perpendicularly to the shaker top and pour spout assembly. Either of the assemblies illustrated may thus be formed to act as a complete end closure for a container. The contour of the container and the closure assembly is not dependent on the shape of the surrounded pour spout openings **55**.

What is claimed as new is:

1. A combined shaker top and pour spout closure for containers of finely divided material comprising,

a first frame having a peripheral edge adapted to engage the edge of a container wall defining an opening,

said frame defining a pouring opening having at least two intersecting and diverging sides,

a second frame sized to fit in mating engagement with the sides of said first frame,

a first hinge connection between one side of said second frame and one of said intersecting sides of said first frame and integral with said frames,

an integral wall closing the area within said second frame and defining a plurality of spaced shaker openings,

a spout side wall integrally connected by a second hinge connection to a second side of said second frame and extending in a plane generally perpendicular to the plane of said second frame through said opening in said first frame and along the other of said intersecting sides of said first frame,

an imperforate closure engageable with said second frame in closing relation over said shaker openings,

and a third hinge connection connecting an edge of said closure to an edge of said second frame and integral therewith.

2. A closure as defined in claim **1** in which said second frame fits within said first frame with said integral wall located on the inner side of said second frame, and said

imperforate closure fits in yieldable retained engagement within said second frame.

3. A closure as defined in claim 2 in which said imperforate closure has an integral tab on a swinging edge thereof overlying said second frame, and another tab formed integrally on a swinging edge of said second frame overlying said first frame.

4. A closure as defined in claim 3 in which said frames and said imperforate closure are triangular, and said spout side wall has an edge frictionally engageable with the juncture of two sides of said first frame in the open position of said second frame and said spout side wall.

5. A closure as defined in claim 3 in which said spout side wall and the adjacent side of said first frame have laterally overlapping projections engageable in the open position of said spout side wall.

6. A closure as defined in claim 1 in which the peripheral edge of said first frame has a laterally opening groove formed therein to receive the edge of an opening in a container wall.

7. A closure as defined in claim 1 in which said first hinge connection is formed along the outer and upper edges of said frames and includes a flap connected between the frame sides with spaced folding sections along the outer edges of adjacent sides of the two frames.

8. A closure as defined in claim 7 in which said flap overlies said outer frame and is secured thereto between said spaced folding sections.

9. A closure as defined in claim 1 in which said first hinge connection is formed along the inner edge of one side of the first frame and along the outer edge of the adjacent side of the inner frame.

10. A closure as defined in claim 1 in which said peripheral edge of said first frame is shaped to engage the edge of a container wall disposed normally to the plane of said first frame.

References Cited

UNITED STATES PATENTS

830,694	9/1906	Whitney	222—532
2,753,051	7/1956	Tupper	222—189 X
3,016,168	1/1962	Larson	222—543 X
3,018,024	1/1962	Foord	222—543 X
3,185,359	5/1965	Buntic	222—532 X

ROBERT B. REEVES, *Primary Examiner.*

F R. HANDREN, *Assistant Examiner.*