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2,064,308

SHAKER TOP CAN

Filed March 7, 1935

Fig. 1.

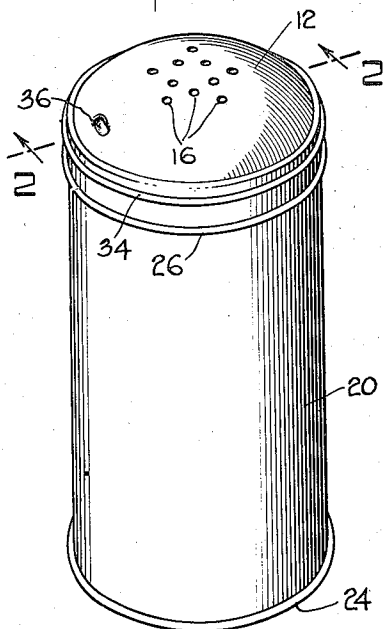


Fig. 2.

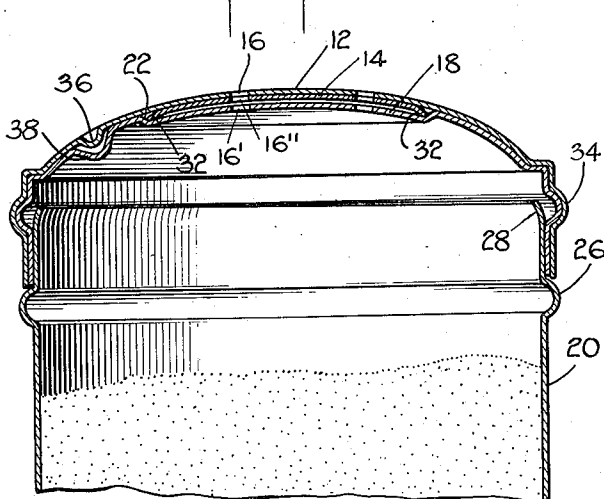


Fig. 3.

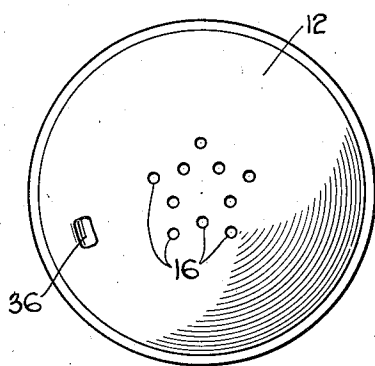


Fig. 4.

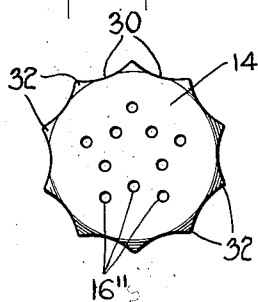
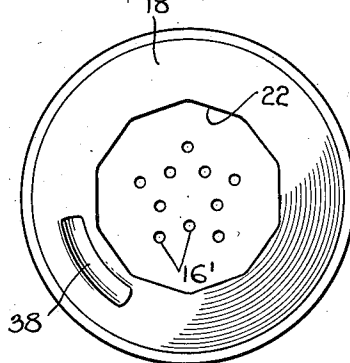


Fig. 5.



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SHAKER TOP CAN

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8 Claims. (Cl. 221-64)

This invention relates to shaker top cans.

Shaker top cans are popular, but suffer from the defect of not being truly sift-proof or leak-proof when closed. This is particularly true when the can is used for a very finely comminuted powder. The primary object of my invention is to generally improve shaker top cans with a view to making the same permanently sift-proof.

To the accomplishment of the foregoing and other objects which will hereinafter appear, my invention consists in the shaker top can elements and their relation one to the other as hereinafter are more particularly described in the specification and sought to be defined in the claims. The specification is accompanied by drawing, in which:

Fig. 1 is a perspective view of a can embodying features of my invention;

Fig. 2 is a section taken in elevation in the plane of the line 2-2 of Fig. 1;

Fig. 3 is a plan view of the top of the can;

Fig. 4 is a plan view of the resilient intermediate member used in the can; and

Fig. 5 is a plan view of the fixed head closing the upper end of the can.

Referring to the drawing, and more particularly to Fig. 2, the shaker top assembly of my invention considered in one aspect comprises two members 12 and 14 which are matingly perforated at 16 and which are relatively transversely or slidably movable in order to bring the perforations into or out of registry. One of these members, in this case the intermediate member 14, is made of resilient sheet metal and is so shaped as to exert a sealing pressure on the member 12.

Considered in another aspect, the shaker top assembly comprises three members 12, 14 and 18, the member 18 being a fixed head permanently closing the upper end of the can body 20, the member 12 being an outer top movable relative to the head 18. One of these members, in this case the head 18, is depressed or recessed away from the other to receive the intermediate sealing member 14. The intermediate member 14 is transversely immovably related to head 18 and in operation, the members 14 and 18 act as a single member with respect to the opening or closing effect of movement of the top 12. The intermediate member 14 is, however, relatively movable in an axial direction and in the present case exerts an axial sealing pressure upwardly against the top 12. This effects a tight seal when perforations 16 are moved out of registry, and the tight seal is maintained throughout the life of the container.

Considering the specific embodiment of the invention in greater detail, the can body 20 is cylindrical and is permanently closed at its lower end by a bottom 24. It is outwardly beaded near its upper end at 26, the bead 26 serving as a protective bead for shielding the lower edges of members 12 and 18. The can body is tapered at 28 and is so dimensioned as to receive the flange or skirt of head 18 with a force fit. The fit is so tight that the upper end of the can is permanently closed by head 18, which in turn is fixedly or non-rotatably secured to the can body. Head 18 is preferably domed or upwardly convex in configuration, and its central part is depressed or recessed at 22, this recess preferably having a polygonal or non-circular outline as is clearly shown in Fig. 5. The central or recessed part of head 18 is cut away or apertured and in the present case is perforated by a group of perforations 16'.

Intermediate member 14 is matingly polygonally or non-circularly outlined as is clearly shown in Fig. 4. Intermediate member 14 may be placed in recess 22 and is non-rotatable therein. It is preferably made of resilient sheet metal and is shaped to exert an upward pressure in the assembly. In the present case, the otherwise polygonal periphery of the intermediate member is scalloped or indented at 30 to form spring feet or points 32 which are bent downwardly on a radius shorter than the curvature of the domed top. This is clearly evident from inspection of Fig. 2. Intermediate member 14 is perforated with a nest of perforations 16' registered with the perforations in head 18.

The top 12 overlies head 18 and intermediate member 14 and is secured against axial displacement by peripheral bead 34. Top 12 is perforated with a similar nest of perforations 16 adapted to register with those in members 14 and 18. Top 12 is, however, movable or rotatable on head 18 so that the perforations may be brought into or out of registry, thereby opening or closing the container. The movement of top 12 is preferably limited in conventional fashion as by the use of a stop lug 36 struck downwardly in top 12 and slidable in an arcuate groove 38 struck downwardly in head 18. It will be evident from the drawing that the motion-limiting mechanism 36, 38 is preferably located outside of the recess 22 and therefore outside of the effective sealing portion of the shaker top assembly.

It is believed that the mode of constructing my improved shaker top can as well as the many advantages thereof will be apparent from the foregoing detailed description thereof. The

three-part shaker top is assembled prior to the formation of bead 34, which is then formed to hold the parts in operative assembled relation. The assembly is pressed on the open tapered end of the can body with a force fit. The assembly is simple and inexpensive and departs but little from the simplest forms of shaker top. The slight departure, however, centering about the use of an intermediate sealing member providing axial pressure between relatively slidable or oscillatable members, results in a greatly improved and permanently sift-proof shaker top.

There is no leakage sidewardly between the fixed head and the relatively oscillatable top because the peripheral portion of the assembly is at least as well fitted as an ordinary two-part assembly, and the path which powder would have to take in escaping sidewardly and downwardly is a long and tortuous one, and includes the bead 34 at which there is maintained tight engagement by reason of the resilient insert.

It will be understood that the top member may be recessed upwardly to receive a downwardly pressed intermediate member instead of the downwardly recessed arrangement shown, but I prefer the latter because it provides a smooth top for the container. It will also be appreciated that while I show relative oscillation of the parts of the shaker top to open or close the same, this is done primarily because the cam body is cylindrical in shape. If differently shaped, it may be surmounted by a circular top with oscillatable mechanism as here shown, or by a longitudinally reciprocable top. I may also observe that the aperture through the member carrying the spring gasket or intermediate member may be made in various shapes or may take the form of a single large hole, but I prefer the present arrangement because it insures maximum rigidity and consequent adequate support of the spring gasket even when the gasket pressure is made high in value. It is probably unnecessary to mention that the mechanism for limiting the movement of the top between fully open and fully closed positions may be varied widely and may even be omitted entirely.

I may further point out that while I have referred to the intermediate member as being made of resilient sheet metal, the shape given said member in accordance with the present disclosure is such that a high and adequate degree of resilience is obtained even when using ordinary sheet metal.

It will therefore be apparent that while I have shown and described my invention in preferred form, many changes and modifications may be made in the structure disclosed without departing from the spirit of the invention defined in the following claims.

I claim:

1. A shaker top can comprising a can body closed at one end by three superposed perforated members, the perforations being so located as to be in registry with the perforations in at least one position of the members, one of said members being fixed, a second being movable relative thereto, and the third being interposed between said fixed and movable members and being made of resilient sheet metal so shaped as to constantly exert a sealing pressure between the first and second members, said intermediate member being immovable relative to one of said other members, whereby the perforations of the immovably related members remain in alignment.

2. A shaker top can comprising a can body

closed at one end by a perforated fixed head, a perforated top surmounting and movable relative to the fixed head, the perforations in the top being in registry with the perforations in the head in at least one position of the top, and a third perforated member interposed between said head and top, said third member being perforated in registration with one of said members and being transversely immovably related to said member, said third member being made of resilient sheet metal so shaped as to exert a sealing pressure between the fixed and movable members.

3. A shaker top can comprising a cylindrical can body closed at one end by a circular domed perforated fixed head, a perforated top surmounting and oscillatable relative to the fixed head, the perforations in the top being in registry with the perforations in the head in at least one position of the top, and a third perforated member interposed between said top and head, said third member being non-rotatably related to and perforated in registration with one of said members, said third member being made of resilient sheet metal so shaped as to exert sealing pressure axially between the fixed and movable members.

4. A shaker top can comprising a cylindrical can body, a member fixedly mounted on and closing the upper end of the can body, a movable outer member surrounding said fixed member and oscillatable thereon, the central part of one of said members being recessed away from the other on a polygonal outline and being apertured within said outline, a polygonally shaped intermediate member received in said recess, said intermediate member being made of resilient sheet metal so shaped as to exert an axial sealing pressure on the adjacent member, said intermediate and adjacent members being perforated, and said perforations being in registration in at least one position of the outer member.

5. A shaker top can comprising a cylindrical can body, a domed head fixedly mounted on and closing the upper end of the can body, the central part of said head being depressed or recessed on a polygonal outline and apertured within said outline, a matingly polygonally shaped perforated intermediate member received in said depression, and an outer perforated member surrounding said fixed and intermediate members, the perforations of the outer member being in registry with those of said intermediate member in at least one position of the outer member, said outer member being oscillatable for bringing the perforations in said outer member into or out of registry with the perforations in the intermediate member, said intermediate member being made of resilient sheet metal shaped to a convexity greater than that of the outer member, and thereby exerting an axial sealing pressure against said outer member.

6. A shaker top can comprising a cylindrical can body, a domed head fixedly mounted on and closing the upper end of the can body, the central part of said head being depressed or recessed on a polygonal outline and perforated within said outline, a matingly polygonally shaped perforated intermediate member received in said depression, the perforations of said intermediate member being in registry with the perforations in the fixed top, and an oscillatable perforated outer member surrounding said fixed and intermediate members, the perforations in said outer member being in registry with those of said inner and intermediate members in at least one position of the outer member, said outer member being oscillatable for bringing the perforations in said outer member

into or out of registry with the perforations in the inner and intermediate members, said intermediate member being made of resilient sheet metal so shaped as to exert an axial sealing pressure.

5 7. A shaker top can comprising a can body closed at one end by three superposed sheet metal members, one of said members being fixed, a second being movable relative thereto, and the third
10 being interposed between said fixed and movable members and being so shaped as to constantly resiliently exert a sealing pressure between said relatively movable members, one of said members
15 and said third member being perforated, said perforations being in registration in at least one

position of the movable member, and the remaining member being also apertured.

8. A shaker top can comprising a can body closed at one end by a circular apertured fixed head, a perforated circular top surmounting and
5 oscillatable relative to the fixed head, and a third member made of sheet metal and interposed between said top and head, said third member being non-rotatably related to one of said members and
10 perforated, the perforations in said third member being in registration with those of the other of said members, said third member being so shaped as to exert sealing pressure axially between the fixed and movable members.

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