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DISPENSING CLOSURE FOR POWDER CONTAINER, HAVING
A WALL DEPRESSIBLE TO EFFECT PNEUMATIC
DISCHARGE OF CONTAINER CONTENTS
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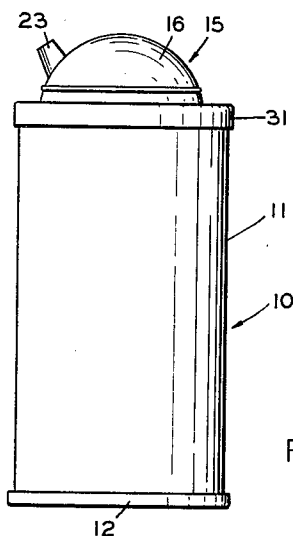


FIG.-1

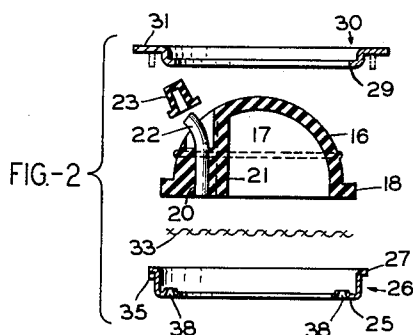


FIG.-2

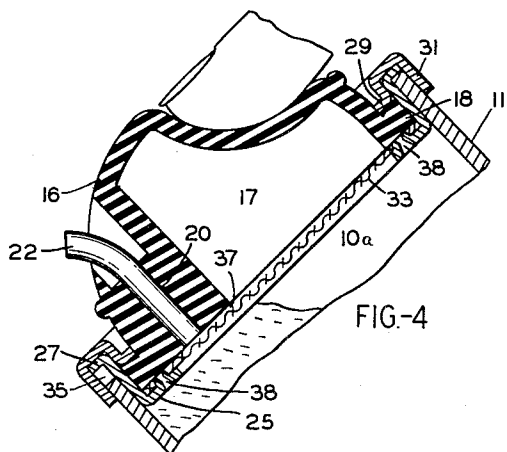


FIG.-4

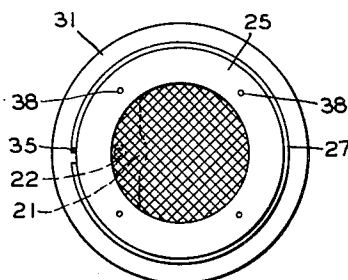


FIG.-3

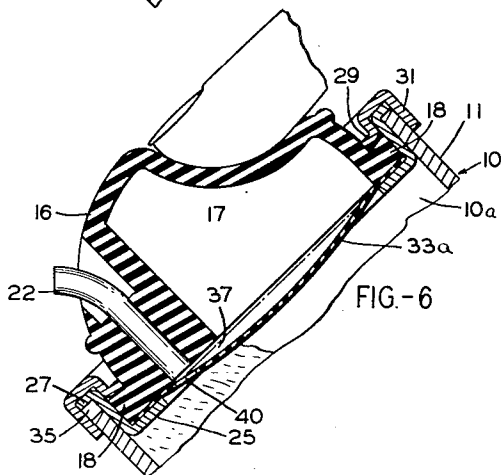


FIG.-6

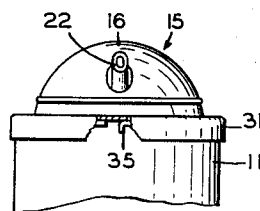


FIG.-5

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DISPENSING CLOSURE FOR POWDER CONTAINER, HAVING A WALL DEPRESSIBLE TO EFFECT PNEUMATIC DISCHARGE OF CONTAINER CONTENTS

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15 Claims. (Cl. 222-193)

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This invention relates to closure structures for powder containers and more particularly, to a dispensing closure structure by which relatively small amounts of the powder in the container to which the closure structure is secured can be repeatedly discharged or ejected through an outlet passageway with which the closure structure is provided.

The present invention has for its primary object the provision of a powder dispensing closure structure which is characterized by its structural simplicity, the economy of its manufacture, and the improved manner in which, and the improved means by which, it effects the discharge or ejection of powder.

A further object of the present invention is the provision of a powder dispensing closure structure in which the powder is intermingled and entrained with air prior to its discharge or ejection, with the result that the powder is discharged or ejected in a highly atomized condition or in cloud-like or mist-like form.

A further object of the present invention is the provision of a powder dispensing closure structure having an air chamber and means in association therewith for performing the three-fold function of preventing the air chamber from becoming a reservoir for powder, and upon expulsion of air from said air chamber, of increasing the air pressure within the container chamber and of conveying from the air chamber directly to the inlet end of the closure structure's outlet passageway a stream of air for intermingling with and entraining a relatively small quantity of powder for its discharge or ejection in atomized or cloud-like form.

A further object of the present invention is the provision of a powder dispensing closure structure in which the means in association with the air chamber for performing the aforesaid three-fold function is a flexible disc or diaphragm of either foraminous or non-foraminous character, such as a disc or diaphragm of cheese cloth, gauze or other open-mesh fabric, or a disc or diaphragm of rubber or like material.

A further object of the present invention is the provision of a powder dispensing closure structure in which the flexible disc or diaphragm thereof, upon manual depression of a flexible wall of the air chamber of the closure structure, is downwardly flexed or depressed to increase the air pressure within the powder container chamber and also, to open or further open the direct passageway for air from the air chamber to the inlet end of the closure structure's outlet pas-

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sageway. As will be readily understood, the flexure of the diaphragm, at each powder discharging operation, is effective to prevent any possibility of the direct air stream passageway from becoming blocked up by powder.

A further object of the present invention is the provision of a powder dispensing closure structure having simple but effective means for insuring its retention on a powder container in a predetermined circumferential relationship relative to any label or display matter with which the container may be provided.

Further objects of the present invention, and certain of its practical advantages, will be referred to in, or will be evident from, the following description of two embodiments of the invention, as illustrated in the accompanying drawings, in which

Fig. 1 is a side elevational view of a powder container to which is secured a dispensing closure structure embodying one form of the present invention;

Fig. 2 is an exploded view of the parts of such powder dispensing closure structure, the parts being in cross section;

Fig. 3 is a bottom plan view of such closure structure;

Fig. 4 is an enlarged longitudinal sectional view of said closure structure and the upper portion of the powder container to which it is secured, as used in the discharge or ejection of powder;

Fig. 5 is a view similar to Fig. 1 but with the powder container (in fragmentary form) and its closure structure turned 90°, a portion of the securing flange of the closure structure being broken away to show the means by which the container and the closure structure are interlocked to prevent relative rotary movement thereof; and

Fig. 6 is a view corresponding to Fig. 4 and showing a slightly modified form of closure structure embodying the present invention.

Before the closure structures here illustrated are specifically described, it is to be understood that the invention here involved is not limited to the structural details or to the particular arrangement of parts here shown, as closure structures embodying the present invention may take other forms. It also is to be understood that the phraseology or terminology herein employed is for the purpose of description and not of limitation, the scope of the present invention being denoted by the appended claims. Although closure structures embodying the

present invention are suitable for use with powder containers of various shapes and of various sizes, there is shown in Figs. 1 to 5 inclusive, for the disclosure of one embodiment of the invention, a closure structure for use with a powder container 10 of cylindrical shape and of a size enabling it to be conveniently held in one hand in the application of the powder to the desired area or surface. The container 10 may be made, of course, of any suitable material, such as metal, although the present container has its side wall 11 of cardboard or like material, with a bottom closure cap 12 of sheet metal.

The present improved closure structure, for closing the upper end of the powder container 10 and for effecting the discharge or ejection of the powder therein (an insecticide powder, for example), is of circular form in plan view. It includes a closure member 15 having a hollow dome 16, which provides an air chamber 17, and a laterally extending annular flange 18 surrounding said dome at the base thereof and preferably formed integral therewith. To enable a portion of the dome 16 to be readily depressed, for the expulsion of air from the chamber 17 thereof, the closure member 15 is preferably made of rubber or of an equivalent flexible, resilient material.

For the discharge or ejection of powder from the container 10, the dome 16 of the closure member 15 is provided at one side of the air chamber 17 with a powder outlet passageway 20, the passageway being here located in a thickened side wall portion 21 of said dome and in spaced relation relative to said air chamber 17. Preferably and as here shown, a tube 22 of metal, plastic or other suitable material is inserted into and is securely held, by friction, in said passageway, the outer end portion of said tube projecting beyond the dome 16 and forming a nozzle or spout for the convenient direction of the discharged or ejected powder to the desired area or surface. To normally close the nozzle or spout of the tube 22, a small cap 23 is here utilized, the cap being of rubber or other suitable material and being frictionally or otherwise removably secured to said tube.

In the closure structure here illustrated, the outwardly projecting annular flange 18 of the closure member 15 rests upon and is supported by an inturned annular base flange 25 of a ring member 26 of sheet metal or other suitable material, said ring member having a diameter slightly less than that of the powder container 10 and being provided at its upper end with an outturned annular flange 27 adapted to rest upon and be supported by the upper edge of said container.

Overlying the flange 18 of the closure member 15 is an inturned annular base flange 29 of a ring member 30 of sheet metal or other suitable material, the ring member 30 having a snug or press fit within the ring member 26 and being provided at its upper end with an outturned annular flange 31 which rests upon and projects laterally beyond the outturned top flange 27 of the ring member 26. The outwardly projecting flange 18 of the closure member 15 is thus held or clamped between the inturned flanges 25 and 29 of ring members 26 and 30, ring members which are frictionally retained in their telescopic relationship.

Underlying the air chamber 17 and that part of the thickened dome side wall portion 21 between such chamber and the inlet end of the

discharge tube 22 is a flexible disc or diaphragm 33. As will hereinafter more fully appear, this disc or diaphragm has a three-fold function, namely, (a) to prevent the air chamber 17 from becoming a reservoir for powder, and, upon manual depression of a portion of the dome 16, (b) to increase the air pressure within the chamber 10a of the powder container 10, and (c) to provide a direct passageway 37, for relatively high velocity air, laterally from the air chamber 17 to the inlet end of the discharge tube 22.

In the embodiment of the invention now being described—the embodiment of Figs. 1 to 5 inclusive, the disc or diaphragm 33 is of foraminous character, such as a piece of cheese cloth, gauze or other inexpensive open-mesh fabric, the disc or diaphragm being one with relatively small openings therethrough. For the support of such disc or diaphragm, the inturned base flange 25 of the ring member 26 is here utilized, the circumferential edge portion of the disc or diaphragm being clamped between such flange and the flat lower surface of the flange 18 of the closure member 15. To insure the retention of such disc or diaphragm between such flanges, the ring member flange 25 may be, and here is, provided with circumferentially spaced upturned projections 38, projections which enter openings in the open mesh fabric disc or diaphragm and which projections may be readily and economically formed by a prick punch type of operation. Although the openings through the disc or diaphragm 33 are relatively small, they are large enough to permit powder to pass therethrough, and as a result, a portion of the disc or diaphragm 33 may directly underlie, as it here does, the open inlet end of the discharge tube 22, although such disposition of the disc or diaphragm is not necessary or essential.

To secure the present improved closure structure to the powder container 10, the closure structure is inserted into the upper end portion of such container and the circumferential edge portion of the ring member flange 31 is then bent down to thereby clamp the upper end portion of the container between such bent down flange portion and the inner portion of said ring member, all as will be evident from an examination of Fig. 4. Preferably, the closure structure is secured to the container 10 with the discharge tube of the closure structure in a predetermined location relative to any label or display matter with which the container side wall 11 may be exteriorly provided. To maintain the closure structure and the container in such relationship, or in other words, to prevent relative rotary movement thereof, the ring member flange 27, which rests upon the upper edge of the container 10, here has a portion thereof partly severed therefrom and bent down to form a projection 35 (Figs. 3 and 5) for interlocking with the upper end portion of the container's side wall 11. If such side wall is of cardboard or the like, as here, the act of securing the closure structure to the container will force the closure structure's projection 35 down into the top edge of the container's side wall. If, however, the side wall of the container is of metal, a small notch may be provided in the top edge of such side wall to receive the projection 35 of the closure structure to thereby interlock the container and the closure structure against relative rotary movement.

For the discharge or ejection of powder and for convenient direction and even distribution of the discharged or ejected powder, the powder

container 10 is held in a downwardly tilted position, as in Fig. 4, the degree of tilt preferably increasing progressively as the supply of powder in the container diminishes. By a thumb or finger, a portion of the dome 16 of the closure structure is depressed, as shown in Fig. 4, to thereby effect the expulsion of air from the closure structure's air chamber 17.

The air thus expelled from chamber 17 follows two paths. One part of the expelled air travels directly downwardly, through the foraminous disc or diaphragm 33, into the interior or chamber 10a of the powder container, and thereby increases the air pressure within such container chamber. Because of the air flow restricting effect of the relatively small openings through the disc or diaphragm 33, a part of the air expelled from the air chamber 17 and which otherwise would flow downwardly into the chamber 10a of the powder container is diverted, and such diverted part of the expelled air travels laterally from the air chamber 17 directly to the inlet end of the discharge tube 22, the lateral air stream flowing through a passageway 37 above that portion of the disc or diaphragm 33 which spans the space between the air chamber 17 and the discharge tube's inlet end. As the passageway 37 is of restricted character, the lateral air stream is of relatively high velocity and hence of relatively low pressure, as compared with the air which enters the container chamber 10a from the air chamber 17.

The net result of this divided flow of expelled air from the air chamber 17 is to cause a part of the powder in the container chamber 10a, and particularly the powder near the inlet end of the discharge tube 22, to pass or find its way upwardly through the foraminous disc or diaphragm, where it is picked up by and entrained in the laterally flowing, high velocity air. As a result, the stream which enters the discharge tube 22 and which leaves such tube through the spout or nozzle thereof, is a mist or cloud of powder entrained or disseminated in air, the powder and air being "premixed" prior to discharge or ejection.

As the disc or diaphragm 33, in this embodiment of the invention, is an open mesh textile fabric, such as cheese cloth or gauze, and therefore of somewhat limp character, its normal position, in commercial forms of the invention, may be one in which that portion of the disc or diaphragm which constitutes the bottom wall of the lateral passageway 37 is slightly spaced from the bottom surface of the thickened dome side wall portion 21 which constitutes the top wall of such passageway. In actual practice, therefore, the lateral passageway always may be partly open. However, upon each depression of the dome 16, the flexible disc or diaphragm is downwardly flexed or depressed into curved form, as shown in Fig. 4 (and upwardly flexed, of course, upon each return of the depressed dome portion to its normal disposition). Therefore, upon each depression of the dome 16, the lateral passageway 37 is opened or enlarged, if already partly open, for the flow of air therethrough, air which entrains some powder and effects the discharge or ejection of such powder in cloud or mist-like form. As will be readily understood, the repeated flexure of the disc or diaphragm effectively avoids any possibility of the passageway from becoming clogged with powder.

The natural agitation of the powder container in use thereof probably causes some powder to

be deposited on the open mesh fabric disc or diaphragm 33, and such powder is, of course, readily entrained in the air expelled from the air chamber 17. However, the disc or diaphragm effectively prevents the air chamber from becoming filled with or serving as a reservoir for powder, as the disc or diaphragm serves, of course, as a partition, even though a foraminous one, in separating the air chamber 17 from the chamber 10a of the powder container.

Referring now to the closure structure of Fig. 6, in which unchanged closure structure parts are designated, for convenience, by corresponding reference numerals, it will be noted that the disc or diaphragm 33a of the closure structure of Fig. 6 is of non-foraminous character and imperforate except for an aperture 40 in alignment with the inlet end of the discharge tube 22. However, the disc or diaphragm is of flexible material, such as rubber or the like, so that upon each depression of the dome 16, for the discharge or ejection of powder, the disc or diaphragm is downwardly flexed into curved form, as shown. Such downward flexure of the disc or diaphragm not only increases the pressure of the air within the powder container chamber 10a, but also opens or enlarges a lateral passageway 37 for a high velocity air stream directly from the air chamber 17 to the inlet end of the discharge tube 22. As in the embodiment of the invention heretofore described, this laterally flowing, high velocity, low pressure air stream picks up and entrains a small amount of powder which, due to the increased air pressure within the container chamber 10a, finds its way or passes upwardly through the disc or diaphragm aperture 40 which underlies the discharge tube's inlet end. As before, therefore, the stream passing out the discharge tube 22 is a mist or cloud of powder entrained or disseminated in air.

To those skilled in the art to which the present invention relates, other features and advantages of dispensing closure structures embodying the invention will be evident from the foregoing description of two such embodiments.

What we claim is:

1. A dispensing closure structure for a powder container, said closure structure comprising a closure means provided with an air chamber having a flexible wall portion which, upon depression thereof, effects the expulsion of air from said chamber, means for connecting said closure means to a powder container, said closure structure having a passageway therethrough in spaced relation to said air chamber for the discharge of powder, the closure structure when connected to the powder container having the inlet end of its powder discharge passageway in open communication at all times with the interior of the powder container, and a flexible element having one portion thereof underlying said chamber and serving as a partition to separate said chamber from the interior of the powder container, said flexible element being effective upon depression of said flexible chamber wall portion to increase the air pressure within the interior of the powder container, said flexible element having another portion thereof underlying that part of the closure structure in the space between said air chamber and said discharge passageway, the last mentioned portion of said flexible element providing thereabove, upon the depression of said flexible chamber wall portion, a direct passageway for air from the air chamber to the inlet end of said discharge passageway.

2. A dispensing closure structure for a powder container, said closure structure comprising a closure means provided with an air chamber having a flexible wall portion which, upon depression thereof, effects the expulsion of air from said chamber, means for connecting said closure means to a powder container, said closure structure having a passageway therethrough in spaced relation to said air chamber for the discharge of powder, the closure structure when connected to the powder container having the inlet end of its powder discharge passageway in communication with the interior of the powder container, and a flexible element having a foraminous portion underlying said chamber and serving as a partition to separate said chamber from the interior of the powder container, the foraminous portion of said flexible element being effective upon depression of said flexible chamber wall portion to permit the flow of air downwardly from such chamber into the interior of said powder container to thereby increase the air pressure in the interior of such container, said flexible element having another portion thereof underlying that part of the closure structure in the space between said air chamber and said discharge passageway, the last mentioned portion of said flexible element providing thereabove, upon the depression of said flexible chamber wall portion, a direct passageway for air from the air chamber to the inlet end of said discharge passageway.

3. A dispensing closure structure for a powder container, said closure structure comprising a closure means provided with an air chamber having a flexible wall portion which, upon depression thereof, effects the expulsion of air from said chamber, means for connecting said closure means to a powder container, said closure structure having a passageway therethrough in spaced relation to said air chamber for the discharge of powder, the closure structure when connected to the powder container having the inlet end of its powder discharge passageway in communication with the interior of the powder container, and a flexible foraminous element having a portion thereof underlying said chamber and serving as a partition to separate said chamber from the interior of the powder container, said element being effective upon depression of said chamber wall portion to permit the flow of air downwardly from such chamber into the interior of said powder container to thereby increase the air pressure in the interior of such container, said flexible foraminous element having another portion thereof underlying that part of the closure structure in the space between said air chamber and said discharge passageway, the last mentioned portion of said flexible element providing thereabove, upon the depression of the flexible chamber wall portion, a direct passageway for air from the air chamber to the inlet end of said discharge passageway.

4. A dispensing closure structure for a powder container, said closure structure comprising a closure means provided with an air chamber having a flexible wall portion which, upon depression thereof, effects the expulsion of air from said chamber, means for connecting said closure means to a powder container, said closure structure having a passageway therethrough in spaced relation to said air chamber for the discharge of powder, the closure structure when connected to the powder container having the inlet end of its powder discharge passageway

in open communication at all times with the interior of the powder container, and a flexible partition forming element underlying said chamber and that part of the closure structure in the space between such chamber and the discharge passageway, said flexible element being downwardly flexed upon depression of said flexible chamber wall portion to increase the air pressure within the interior of the powder container and to provide a direct passageway for air from said air chamber to the inlet end of said discharge passageway.

5. A dispensing closure structure for a powder container, said closure structure comprising a closure means provided with an air chamber having a flexible wall portion which, upon depression thereof, effects the expulsion of air from said chamber, means for connecting said closure means to a powder container, said closure structure having a passageway therethrough in spaced relation to said air chamber for the discharge of powder, the closure structure when connected to the powder container having the inlet end of its discharge passageway in communication with the interior of the powder container, and an open mesh fabric element having one portion thereof underlying said air chamber and permitting the flow of air from such chamber into the interior of the powder container upon depression of the flexible chamber wall portion, said fabric element having another portion thereof underlying that part of the closure structure in the space between the air chamber and the powder discharge passageway, the latter portion of said flexible element providing thereabove a direct passageway for air from said air chamber to the inlet end of the powder discharge passageway.

6. A dispensing closure structure for a powder container, said closure structure comprising a closure means provided with an air chamber having a flexible wall portion which, upon depression thereof, effects the expulsion of air from said chamber, means for connecting said closure means to a powder container, said closure means having a passageway therethrough in laterally spaced relation to said air chamber for the discharge of powder, the inlet end of said discharge passageway being in communication with the interior of the powder container when the closure means is connected to said container, and foraminous means underlying said air chamber and separating it from the interior of the powder container for causing a divided flow of air from said air chamber upon depression of said flexible chamber wall portion, there being a downward air flow which increases the air pressure in the interior of said powder container and there being a lateral air flow directly from said chamber to said powder discharge passageway.

7. A dispensing closure structure for a powder container, said closure structure comprising a closure means provided with an air chamber having a flexible wall portion which, upon depression thereof, effects the expulsion of air from said chamber, means for connecting said closure means to a powder container, said closure means having a passageway therethrough in laterally spaced relation to said air chamber for the discharge of powder, the inlet end of said discharge passageway being in communication with the interior of the powder container when the closure means is connected to said container, and flexible means substantially completely underlying said air chamber for causing, upon downward flexing

of said means as the result of depression of said chamber wall portion, a divided flow of air from said air chamber, there being a downward air flow which increases the air pressure in the interior of said powder container and there being a lateral air flow directly from said chamber to said powder discharge passageway.

8. A dispensing closure structure for a powder container, said closure structure comprising a closure means provided with an air chamber having a flexible wall portion which, upon depression thereof, effects the expulsion of air from said chamber, means for connecting said closure means to a powder container, said closure means having a passageway therethrough in laterally spaced relation to said air chamber for the discharge of powder, the inlet end of said discharge passageway being in communication with the interior of the powder container when the closure means is connected to said container, and flexible foraminous means substantially completely underlying said air chamber for causing a divided flow of air from said air chamber upon depression of said flexible chamber wall portion, there being a downward air flow which increases the air pressure in the interior of said powder container and there being a lateral air flow directly from said chamber to the inlet end of said powder discharge passageway.

9. A dispensing closure structure for a powder container, said closure structure comprising a closure member having a hollow dome forming an air chamber and also having a flange surrounding said dome, means connectible to a powder container and having a supporting seat for the flange of said closure member, the dome of said closure member having a passageway extending therethrough at one side of said air chamber for the discharge of powder from the powder container, the closure structure when connected to the powder container having the inlet end of its powder discharge passageway in communication with the interior of the powder container, said dome having a depressible part which, upon depression, effects the expulsion of air from the air chamber, and a flexible element clamped between the closure member flange and its supporting seat, said element upon depression of the depressible part of said dome flexing downwardly and increasing the air pressure within the container and also providing a direct lateral passageway for air from said chamber to the inlet end of said powder discharge passageway.

10. A dispensing closure structure for a powder container, said closure structure comprising a closure member having a hollow dome forming an air chamber and also having a flange surrounding said dome, means connectible to a powder container and having a supporting seat for the flange of said closure member, the dome of said closure member having a passageway extending therethrough at one side of said air chamber for the discharge of powder from the powder container, the closure structure when connected to the powder container having the inlet end of its powder discharge passageway in communication with the interior of the powder container, said dome having a depressible part which, upon depression, effects the expulsion of air from the air chamber, and a flexible element clamped between the closure member flange and its supporting seat, said element upon depression of the depressible part of said dome, flexing downwardly and increasing the air pressure within the container and also providing a direct lateral

passageway for air from said chamber to the inlet end of said powder discharge passageway, said flange supporting seat being provided with means interlocked with said flexible element to insure its retention on said seat.

11. A dispensing closure structure for a powder container having a rim notch, said closure structure comprising a closure member having an air chamber, and means carrying said closure member and having a part for seating engagement upon and clamping connection to a powder container, said means having another part of tongue-like form, extending into the notch of the powder container to prevent relative rotary movement of the closure structure and the powder container, the closure structure having a passageway extending therethrough for the discharge of powder from the container, the closure structure when supported on said container having the inlet end of its powder discharge passageway in communication with the interior of said powder container, a wall of said powder container having a depressible part which, upon depression, effects the discharge of air from said air chamber to the inlet end of said powder discharge passageway, the interlocking of the closure structure with the powder container enabling the powder discharge passageway of the closure structure to be located and maintained in a predetermined circumferential position relative to the powder container.

12. A dispensing closure structure for a powder container, said closure structure comprising a closure member having a hollow central dome providing an air chamber and also having an outwardly extending annular flange surrounding said dome, a pair of telescopically related ring members having upper and lower inturned flanges between which the closure member flange is clamped and having outturned superposed flanges adapted to overlie and be secured to a powder container, the dome of said closure member being provided at one side of its air chamber with a passageway extending therethrough for the discharge of powder from said container, the closure structure when secured to the powder container having the inlet end of its powder discharge passageway in communication with the interior of the powder container, the closure member dome having a depressible part which, upon depression, effects the discharge of air from the air chamber, and means supported on the lower inturned flange of the telescopically related ring members for providing a direct passageway for air from said chamber to the inlet end of said powder discharge passageway.

13. A dispensing closure structure for a powder container, said closure structure comprising a closure member having a hollow dome providing an air chamber and also having an outwardly extending annular flange surrounding said dome, a ring member having an inturned annular flange for the support of the closure member flange and an outturned annular flange adapted to seat upon and be supported by a powder container, a second ring member telescopically related to said first ring member and having an inturned annular flange overlying the closure member flange and retaining it on the inturned flange of the first ring member, said second ring member also having an outturned annular flange overlying the outturned flange of the first ring member and adapted to have its marginal edge bent down over the outer surface of the closure member flange to thereby clamp the two ring

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members to the powder container, the dome of said closure member being provided at one side of its air chamber with a passageway extending therethrough for the discharge of powder from said container, the closure structure when secured to the powder container having its air chamber and the inlet end of its powder discharge passageway in communication with the interior of the powder container, the closure member dome having a depressible part which, upon depression effects the discharge of air from the air chamber, and flexible means supported on the lower intumed flange of the telescopically related ring members and providing a direct passageway for air from the air chamber through to the closure structure's discharge passageway.

14. A dispensing closure structure for a powder container, said closure structure comprising a closure member having a hollow dome providing an air chamber and also having an outwardly extending annular flange surrounding said dome, a ring member having an intumed annular flange for the support of the closure member flange and an outturned annular flange adapted to seat upon and be supported by a powder container, said outturned flange having a part partially severed therefrom and turned down for interlocking engagement with the powder container, a second ring member telescopically related to and frictionally retained in assembly with said first ring member and having an intumed annular flange overlying the closure member flange and retaining it on the intumed flange of the first ring member, said second ring member also having an outturned annular flange overlying the outturned flange of the first ring member and adapted to have its marginal edge bent down over the outer surface of the closure member flange to thereby clamp the two ring members to the powder container, the dome of said closure member being provided at one side of its air chamber with a passageway extending there-
through for the discharge of powder from said container, the closure structure when secured to the powder container having the inlet end of its powder discharge passageway in communication with the interior of the powder container, the closure member dome having a depressible part, which, upon depression, effects the discharge of air from the air chamber to the inlet end of the closure structure's discharge passageway.

15. A dispensing closure structure for a powder container, said closure structure comprising

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a closure member having a hollow dome providing an air chamber and also having an outwardly extending annular flange surrounding said dome, a ring member having an intumed annular flange for the support of the closure member flange and an outturned annular flange adapted to seat upon and be supported by a powder container, said outturned flange having a part partially severed therefrom and turned down for interlocking engagement with the powder container, a second ring member telescopically related to and frictionally retained in assembly with said first ring member and having an intumed annular flange overlying the closure member flange and retaining it on the intumed flange of the first ring member, said second ring member also having an outturned annular flange overlying the outturned flange of the first ring member and adapted to have its marginal edge bent down over the outer surface of the closure member flange to thereby clamp the two ring members to the powder container, the dome of said closure member being provided at one side of its air chamber with a passageway extending there-
through for the discharge of powder from said container, the closure structure when secured to the powder container having its air chamber and the inlet end of its powder discharge passageway in communication with the interior of the powder container, the closure member dome having a depressible part which, upon depression, effects the discharge of air from the air chamber, and a flexible foraminous element supported on the lower intumed flange of the telescopically related ring members and through which element passes some of the air discharged from the air chamber into the powder container, said element also providing there-
above a direct passageway from said air chamber to the inlet end of the closure structure's discharge passageway.

LEO R. KUNTZ,
ARTHUR J. FREY, JR.

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