

May 22, 1951

C. H. KOEPEL

2,554,444

TWO-WALLED CAP FOR CONTAINER OF GRANULAR MATERIAL WITH SIFTER CLOSURE MOUNTED BETWEEN SAID TWO WALLS FOR ROTATION ABOUT LONGITUDINAL CONTAINER AXIS

Filed March 6, 1947

Fig. 1.

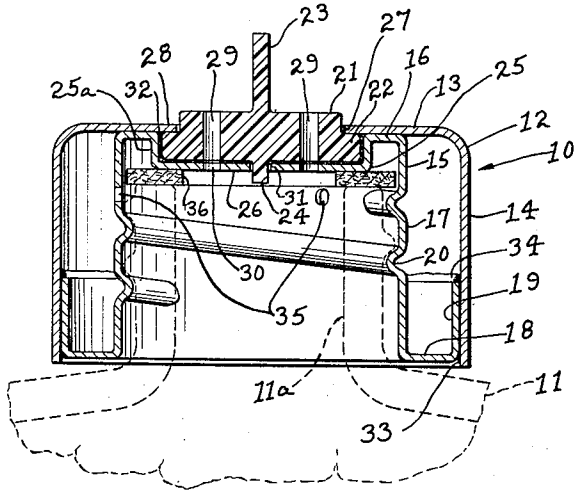


Fig. 2.

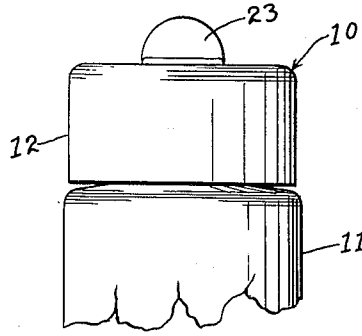


Fig. 3.

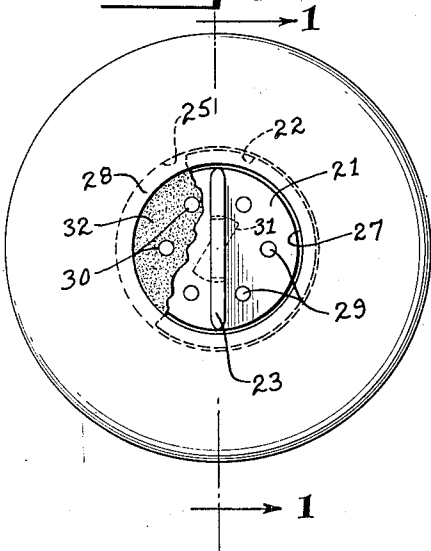
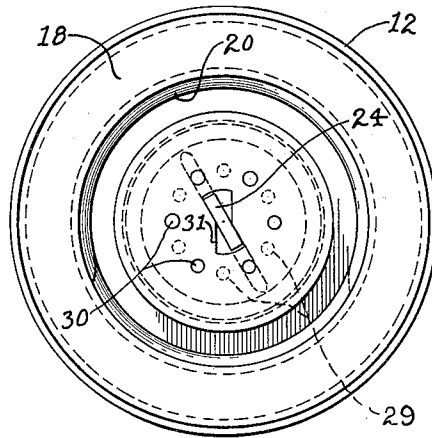


Fig. 4.



INVENTOR.
Charles H. Koepfel.

BY

H. F. Johnston

UNITED STATES PATENT OFFICE

2,554,444

TWO-WALLED CAP FOR CONTAINER OF GRANULAR MATERIAL WITH SIFTER CLOSURE MOUNTED BETWEEN SAID TWO WALLS FOR ROTATION ABOUT LONGITUDINAL CONTAINER AXIS

Charles H. Koeppel, North Woodbury, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut

Application March 6, 1947, Serial No. 732,743

5 Claims. (Cl. 222-545)

1

This invention relates to sifter tops for containers such as used for pulverulent material of the character of talcum powder or the like.

One of the objects of this invention is to produce a sifter top container of highly ornamental appearance in which the various parts are assembled together without resorting to mechanical formations or distortion of any character such as would detract from the ornamental appearance of the outside cap, and at the same time devising a cap of the above character having features for making the device substantially leak-proof.

A further object is to provide a sifter top of the above character in which the main body part of the device is composed of two interfitted sheet metal shells and an axially rotatable closure member that may be made of a plastic material, and wherein the closure member is tensioned by cooperating parts of the shells as to afford a leak-proof seal between the movable surfaces of the closure member relative to the shells.

Another object is to design the shell parts of the device in such a manner that they may be adequately held together by a cementitious material rather than by a mechanically formed holding structure, and which material is preferably one of the air cured synthetic rubber cements.

Another object is to effect a leak-proof seal for the rotatable closure element by spraying a flock material upon one of the surfaces against which said closure element makes contact.

With these objects in view and others not specifically referred to, the invention consists of certain novel parts, arrangements and combinations which will be described in connection with the accompanying drawing and the novel features pointed out in the claims hereunto annexed.

In the drawings:

Fig. 1 is an enlarged vertical sectional view of the device taken along the line I—I of Fig. 3.

Fig. 2 is a side elevational view of the dispensing sifter top shown in association with a container.

Fig. 3 is a top plan view of the same on the same scale as Fig. 1 with part broken away to show the interior construction, and

Fig. 4 is a bottom plan view, but showing the closure element rotated to closed position.

Referring now to the drawing in which like reference numerals denote corresponding parts throughout the several views, the numeral 10

2

refers generally to the combination closure device and sifter top that may be detachably secured to the neck 11a of a container 11 in a manner to be described later. The closure device, as best shown in Fig. 2, has the general appearance of a smooth cylindrical cap and entirely concealing the structural elements that are employed for making detachable connection with the container neck, and also devoid of all mechanical formations in the exposed portions of said cap that are conventionally employed as a holding means for the interior parts.

As best shown in Fig. 1 the closure device 10 comprises two interfitted sheet metal cupped shells, an outside cup shaped cap shell 12 having a closed end 13 and a cylindrical skirt wall 14, and an interior attaching shell 15 having a closed end 16 that is abutted against the closed end 13 of cap 12, and a cylindrical wall 17. The lower end of wall 17 is formed with an outward radial flange 18 that is integrally connected at its outer periphery to an upstanding wall or annulus 19 of a size adapted to have slidable telescopic engagement into the interior of the skirt wall 14 from the open end of the cap shell 12. The flange 18, it is to be noted, is disposed relatively close to the open end of the cap shell 12 to further enhance the general ornamental appearance of the closure cap 10, and also measurably add to the general strength of the entire closure device 10.

The cylindrical wall 17 is formed with an inwardly rolled thread 20 by means of which the cap 10 has detachable engagement with the exterior threaded neck 11a of the container 11.

In designing the sifter top feature of the cap 10, provision is made of a relatively thick rotatable disc 21 with a lower peripheral flange 22. An operating handle 23 projects upwardly from the center of the disc 21, and a projection 24 depends from the lower face of said disc 21 as a means of controlling the "off" and "on" positions of said disc as will more fully appear later.

The central area of the closed end 16 of the inside shell 15 is depressed as at 25 and provides for a base wall 26 removed a predetermined distance from the closed end 13 of the outside cap 12. A large central opening 27 is provided in the closed end 13 of cap 12 through which the disc 21 projects. The opening 27 is of a diameter less than the central depression 25 as defined by the depending wall 25a, and thus provides for an inwardly projecting or overhanging flange 28 formed as an integral part of the closed end 13.

The rotatable disc 21 is provided with a series of uniformly spaced axial discharge apertures 29 that are adapted to align with a like number of piercings 30 provided in the base wall 26 of the central depression 25 when the operating disc 21 is located in open position. The control projection 24 projects downwardly through a wing shaped opening 31 pierced axially in the base 26 of the central depression 25 and when the disc 21 is rotated so that the control projection 24 is engaged against one set of diametrically opposite edges of the wing shaped opening 31, the disc 21 will be stopped in a positive closed or "off" position such as shown in Fig. 4 with the discharge openings 29 of the disc 21 located substantially half way between the piercings 30 in the base wall 26. By turning the disc 21 in a clockwise direction as viewed in Fig. 4 the control projection 24 will engage the other diametrical opposite edges of the wing shaped opening 31 in aligning the discharge openings 29 with the piercings 30 for open operating "on" position.

In order to provide for a leak-proof seal of a character to control the pulverulent material of the container 11 as between the engaging surface of the disc 21 and the central depression 25 of the inside shell 15, this is accomplished by first coating the upper and inner surfaces of the base wall 26 and depending wall 25a respectively with a suitable adhesive and then spraying a flock material thereupon to build up to a felt-like surface 32 is clearly shown by the interposed material in Fig. 1.

In the assembly of the device after the flock surface 32 is built up as explained above, the operating disc 21 is nested within the central depression 25 of the inside shell 15. Just prior to the assembly of the inside shell 15 into the outside cap 12, a coating of adhesive or cement material 33 is applied to the inner surface of the skirt wall 14 adjacent the open end thereof. The two shells 12 and 15 are then aligned and telescoped together with the upstanding wall 19 snugly fitting within the skirt wall 14 with the adhesive material interposed therebetween as a bonding agent. In the choice of a suitable bonding material preference is given to one of the air cured synthetic rubber agents. In the telescopic engagement of the two shells 12 and 15 a certain amount of the bonding material 33 will perforce be scraped off and accumulated against the innermost free edge of the upstanding wall 19 to provide for a fillet of bonding material 34 as an additional binding agent.

In the use of an air cured bonding material 33, in order to accelerate the curing of the fillet 34 and interposed film of cement 33, there are provided one or more vent openings 35 in the wall 17 of the inside shell and thus allow for a free circulation of air into the hollow space defined between the shells 12 and 15 that would otherwise be a dead air space.

Another feature of this invention is to provide an adequate tensional factor upon the operating disc 21 so that it will not be easily and accidentally opened after once manually moved to closed position. This is accomplished by controlling the depth of the central depression 25 such that the distance between the base wall 26 and the overhanging flange 23 is slightly less than the thickness of the disc peripheral flange 22 and making due allowance for the built-up flock surface 32. Further the fact that the closed end 13 of the outside cap 12 is not rigidly secured to the closed end 23 of the inside shell 15 allows the

overhanging flange 23 to resiliently give relative thereto and compensate for any irregularities or normal commercial tolerances that are permitted in the manufacture of articles of this character without creating any exceptional binding factor upon the operating disc 13 such as would make it difficult to operate.

The usual form of cork washer 36 is fitted within the inside shell 15 and seated against the base wall 26 of the depression 25 to effect a leak-proof seal with the end of the container neck 11a.

While the invention has been shown and described in its preferred form, it will be understood that various changes may be made in the particular shape and arrangement of parts without departing from the invention as defined in the appended claims.

I claim:

1. A sifter closure for detachable engagement with a container, said closure comprising an inner member and an outer shell member, both members having open ends and closed ends with their side walls spaced apart, said inner member having means for detachable connection with a container, means for permanently connecting the open ends of said members together, said closed ends of said members being normally abutted together, the closed end of said central member having a central recess with apertures in its base wall, the closed end of said outer shell member having a central opening of a size less than the diametrical size of said central recess to provide for an overhanging flange over said recess, a disc member fitted into said recess and having discharge openings adapted to be aligned with said apertures, handle means on said disc member projecting through said central opening, said overhanging flange serving to hold said disc within said recess, the closed end of said outer shell member with its overhanging flange being capable of moving away from the closed end of said inner member due to the inherent resiliency of the material of said outer shell member to preclude any abnormal binding of said disc in its recess, and means to control the rotation of said disc in predetermined open and closed positions.

2. A sifter closure as defined by claim 1 wherein the base surface and side wall of said inner member recess is coated with a flock material as a means of providing a powder seal between said disc and the adjacent surfaces of said recess.

3. A sifter closure for detachable engagement with a container, said closure comprising inner and outer shell members, both members having closed ends and open ends with their side walls spaced from each other and with their closed ends normally in abutted relationship, means for permanently connecting the open ends of said shell members together, the closed end of said inner shell member having a central depression the base of which is provided with one or more apertures, the closed end of said outer shell member having a central opening, a disc rotatably fitted into said central depression and having one or more discharge openings adapted to be aligned with said apertures, the size of the central opening of said outside shell member being less in size than the diametrical size of said central depression to provide for overhanging flange engaging said disc as a means for holding said disc in said central recess, said outer shell closed end and overhanging flange being free to move away from the closed end of said inner shell due to the inherent resiliency of the material of said outer shell to allow freedom of

5

action for said disc regardless of any binding action that said disc may be subjected to, and means for controlling the rotation of said disc in predetermined open and closed positions.

4. A sifter closure as defined by claim 3 wherein the inner shell member is provided with outwardly extended flange at its open end terminating in an upstanding cylindrical wall having telescopic engagement with said outer shell member as a means for holding said shell members together.

5. A sifter closure as defined by claim 4 wherein said upstanding wall is bonded to said outer shell member by an interposed film of synthetic rubber cement.

CHARLES H. KOEPPPEL.

6**REFERENCES CITED**

The following references are of record in the file of this patent:

UNITED STATES PATENTS

	Number	Name	Date
	525,937	Bartlett -----	Sept. 11, 1894
	1,346,137	Silverthorne -----	July 13, 1920
	1,668,658	Reutter -----	May 8, 1928
10	1,754,482	Nichols -----	Apr. 15, 1930
	2,016,307	Wiesner -----	Oct. 8, 1935
	2,041,403	Ferguson -----	May 19, 1936
	2,136,795	Hoffman -----	Nov. 15, 1938
	2,159,978	Parkin -----	May 30, 1939
15	2,170,955	Thorn -----	Aug. 29, 1939
	2,330,896	Keith -----	Oct. 5, 1943