

[54] **DISPENSING CLOSURE FOR A CONTAINER**

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Dec. 7, 1971 Brazil 008103

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[51] Int. Cl. A47j 41/00

[58] Field of Search 215/13 R, 13 A, 12 A; 251/215; 222/519, 520, 522, 523, 152, 549

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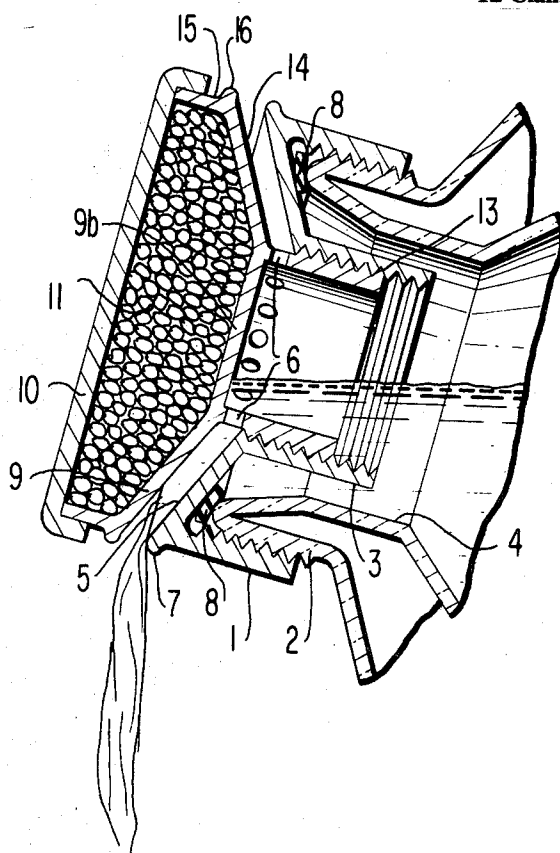
Attorney—Francis C. Browne et al.

[57]

ABSTRACT

For a container such as a vacuum or THERMOS bottle, a dispensing closure including a mouthpiece secured such as by threads onto the neck of the bottle and having an inverted conical surface for receiving a complementary shaped conical surface on a stopper for closing the container. Depending from the inverted conical surface of the mouthpiece and extending into the neck of the bottle is a cylindrical skirt having internal threads for receiving a threaded sleeve projecting from the stopper whereby the stopper may be axially moved relative to the mouthpiece to seat and unseat said conical surfaces for opening and closing the bottle. In one embodiment, the contents of the bottle are conveyed to the annular space defined by said conical surfaces when unseated, by a series of annularly arranged holes in the inverted conical surface of the mouthpiece. In another embodiment, the contents of the container are conveyed to said annular space through holes formed in the sleeve of the stopper, the latter being hollow. In both embodiments, an annular gasket is inserted between the top annular edge of the neck of the bottle and the overlying portion of the mouthpiece; and the stopper is formed in two pieces with a hollow interior filled with a thermic insulating material.

12 Claims, 6 Drawing Figures



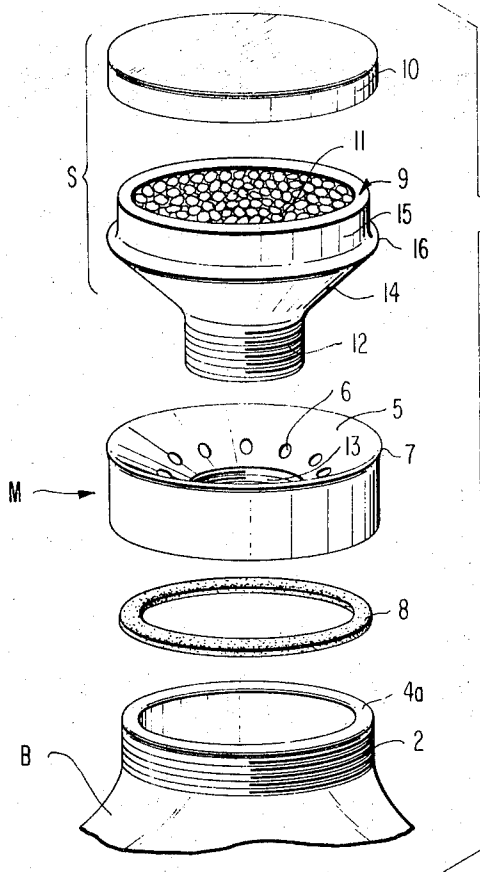


FIG. 1

FIG. 2

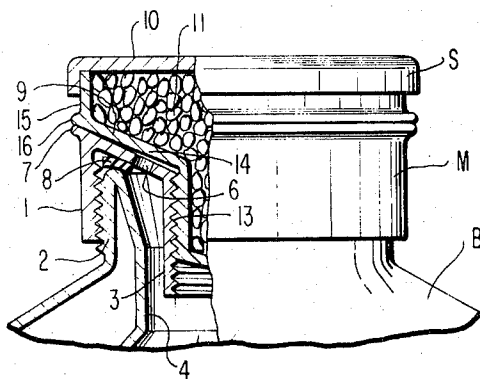
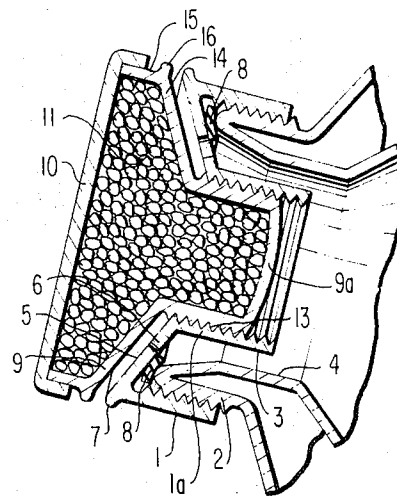


FIG. 3

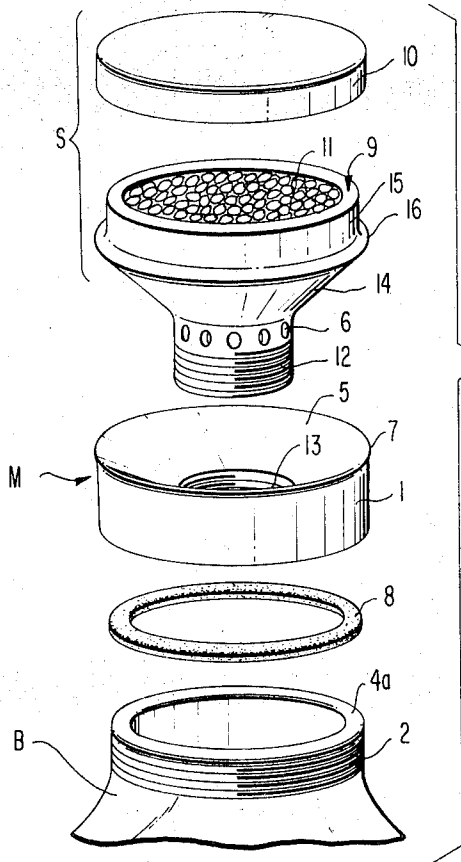


FIG. 4

FIG. 5

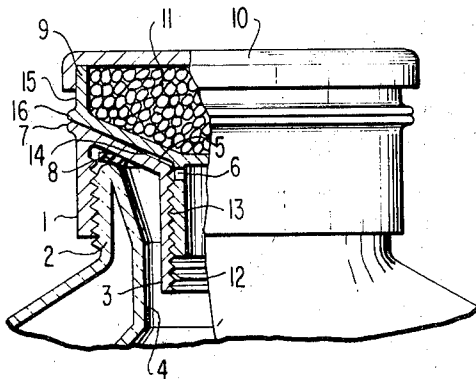
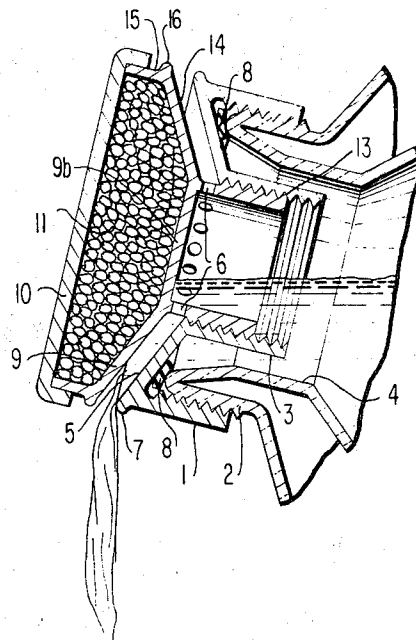


FIG. 6

DISPENSING CLOSURE FOR A CONTAINER

OBJECTS OF INVENTION

The present invention generally relates to closures for containers and more particularly to a novel and improved closure for a container such as a vacuum or THERMOS bottle. The closure of the present invention need not be limited to use with vacuum or THERMOS bottles.

One of the objects of the present invention is to provide a novel and improved closure for a container. Included herein is such a closure which may be adjusted relative to the associated container to form a spout for dispensing the contents of the container.

A further object of the present invention is to provide such a closure which will effectively seal a container and yet may be quickly and easily adjusted to provide a spout for dispensing the contents of the container, thereby avoiding the necessity of removing the closure from the container in order to dispense the contents of the container.

A further object of the present invention is to provide such a closure which may be easily applied and removed relative to an associated container.

A still further object of the present invention is to provide such a closure which will be effective to thermally insulate the contents of the container, thereby making it suitable particularly in connection with vacuum or THERMOS bottles or containers.

A still further object of the present invention is to provide such a closure which will achieve the above objects and yet may be economically manufactured with standard techniques and materials for application to conventional or new containers where it will effectively function over long periods of repeated use.

SUMMARY OF INVENTION

The above and other objects are achieved in a closure comprised of two basic parts, one being a mouthpiece adapted to be secured on the mouth or neck of an associated container; and the other part being a stopper adapted to be received in the mouthpiece to open and close the interior of the container.

The mouthpiece includes an outer cylindrical skirt or sleeve having internal threads to receive complementary threads formed on the exterior of the neck or mouth of an associated container to secure the mouthpiece relative to the container against movement. Concentric with the outer skirt is an inner skirt extending axially in the neck of the associated container and being separated from the outer skirt by an inverted conical portion. To seal the mouthpiece relative to the neck of the associated container, an annular seal, gasket or packing ring which may be made from conventional flexible material, is placed between the upper edge of the neck of the container and the overlying conical portion of the mouthpiece so that upon application of the mouthpiece to the container neck, the annular gasket will be compressed to establish a continuous annular seal between the container neck and the mouthpiece.

The stopper is formed in two pieces including a hollow body, and a cap closing the body with suitable thermal insulating material received in the body. The stopper body includes a cylindrical sleeve having external threads engaged in threads formed in the inner skirt of the mouthpiece whereby the stopper may be raised and

lowered relative to the mouthpiece. Projecting outwardly and upwardly from the top of the stopper sleeve is a conical portion complementary to the conical portion of the mouthpiece whereby upon movement of the stopper in one direction into the mouthpiece the conical portions may be seated or engaged to close the interior of the container and upon movement of the stopper out of the mouthpiece, the conical portions may be separated or unseated to form an annular dispensing spout therebetween for dispensing the contents of the container.

In one embodiment of the invention the contents of the container are conveyed to the annular dispensing spout formed by said conical portions by means of a series of spaced apertures formed through the conical portion of the mouthpiece so as to communicate with the interior of the container neck between the walls of the container neck and the inner skirt of the mouthpiece. In this particular embodiment, the stopper sleeve is closed at its extremity and the thermic insulating material extends throughout the space enclosed by the stopper sleeve.

In another embodiment of the invention, the contents of the container are conveyed to the annular spout through a series of circumferentially apertures formed radially in the sleeve of the stopper so as to register with the annular spout when the stopper is slightly moved out of the mouthpiece. In this particular embodiment, the spout sleeve is open at its extremity to permit the contents of the container to pass therein and then through the apertures in the sleeve so that upon unseating of the conical surfaces, the contents may be dispensed through the annular spout.

In both of the above-described embodiments, the mouthpiece and the stopper are formed with annular lips which project dispensing of the container contents.

Drawings

The above and other objects will become more apparent from the following detailed description, taken in conjunction with the attached drawings in which:

FIG. 1 is an exploded perspective view of a dispensing closure constituting one embodiment of the present invention, and also showing the neck portion of a container to which the closure is applied;

FIG. 2 is a cross-sectional view of the closure of FIG. 1 shown applied to an associated container and being in a position for permitting dispensing of the contents of the container;

FIG. 3 is a view generally similar to FIG. 2 but with the closure in a closed position closing the interior of the container;

FIG. 4 is a view similar to FIG. 1 but illustrating another embodiment of the present invention; and

FIGS. 5 and 6 are views similar to FIGS. 2 and 3 respectively but illustrating the embodiment of FIG. 4.

DETAILED DESCRIPTION

Referring now the drawings in detail, there is shown for illustrative purposes only in FIG. 1 a first embodiment of a dispensing closure in accordance with the present invention for use on a container such as a double wall vacuum or THERMOS bottle generally designated B, the latter typically having a double wall construction including an outer wall 2 and an inner wall 4 with threads formed on the exterior of outer wall 2 at the neck thereof. The closure is comprised of two basic

parts, one may be termed a mouthpiece generally designated M and the other a stopper generally designated S.

Mouthpiece M includes an outer cylindrical sleeve or skirt 1 and an inner cylindrical sleeve or skirt 1a concentric with outer skirt 1 and being separated therefrom by an inverted conical portion 5. Mouthpiece M is adapted to be secured to the associated bottle B by means of threads formed on the internal surface of outer wall 1 as shown in the drawings; the threads being complementary to threads 2 formed on the external surface of the neck 2 of the bottle as shown in the drawing. When mouthpiece M is secured on the bottle B as shown in FIGS. 2 and 3, internal skirt 3 of mouthpiece M extends axially in the neck of the bottle and is spaced from inner wall 4 of the bottle to define an annular space through which the contents of the bottle may pass for dispensing when the bottle is moved into an inclined position, for example, as shown in FIG. 2.

In order to permit the contents of the bottle to be dispensed from the bottle, a series of apertures 6 are formed at circumferentially spaced locations through the conical portion 5 as shown in FIG. 1; the apertures 6 communicating with the interior neck portion of the bottle as shown in FIG. 2. In order to seal the mouthpiece on the bottle B, an annular seal 8 which may be formed from any suitable flexible material, is inserted between the upper edge 4a of the neck portion of the bottle and the overlying conical portion 5 as shown in FIGS. 2 and 3. The mouthpiece, when secured on the bottle B, is sufficiently advanced onto the neck of the bottle B to sufficiently compress seal 8 to form a tight seal, as shown in FIGS. 2 and 3. Although threads have been shown and described for securing mouthpiece M to bottle B, it will be understood that any other suitable securement means may be employed.

Stopper S is employed to close or open apertures 6 of the mouthpiece to prevent or permit dispensing of the container contents. Stopper S is also employed to form, together with the conical surface portion of the mouthpiece, an annular dispensing spout facilitating dispensing of the container contents.

In the embodiment shown in FIGS. 1 to 3, stopper S includes two basic parts, namely, a hollow body 9 and a cap 10 secured on body 9 to enclose the space therein which is filled with a suitable thermal insulating material 11. Stopper body 9 includes a cylindrical sleeve 12 having external threads received in threads 13 formed on the internal surface of inner skirt 1a of mouthpiece M. The lower or terminal end of stopper sleeve 12 is closed by a wall 9a shown in FIG. 2.

Projecting outwardly from the opposite end of stopper sleeve 12 is a conical portion 14 generally complementary in shape to conical portion 5 of mouthpiece M so as to be capable of seating on the latter to close apertures 6 in mouthpiece M as shown in FIG. 3. Projecting upwardly from the outer edge portion of conical portion 14 of stopper S is a short cylindrical wall 15 which receives cap 10 to close the interior of the stopper. Any suitable securing means such as friction detents may be employed to secure cap 10 on the stopper body.

It will be seen that upon sufficient advancement of stopper sleeve 12 into internal skirt 1a of mouthpiece M, conical portions 5 and 14 will engage as shown in FIG. 2 to prevent dispensing of the container contents. When stopper sleeve 12 is unscrewed or unthreaded relative to mouthpiece M, to space conical portions 5

and 14 from each other as shown in FIG. 2, an annular discharge spout will be formed by and between conical portions 5 and 14 through which the contents of the container may be dispensed upon moving the container into an inclined position as shown in FIG. 2. It will be apparent that in the latter position of the container, the container contents will flow through the neck portion between internal skirt 1a of the mouthpiece M and the inner wall 4 of the bottle B, then through apertures 6 and then into the annular spout. In this latter regard, it is preferred that the peripheries of the conical portions 5 and 14 be formed with annular lips 7 and 16 respectively which project outwardly to facilitate dispensing of the container contents. The annular lips 7 and 16 will also tend to prevent flow of the container contents along the external surfaces of the mouthpiece and the stopper. It will also be apparent that when the stopper S is moved to uncover apertures 6 and bottle B is moved to an inclined position as shown in FIG. 2, a group of the apertures 6 will serve to transmit the container contents to the spout for dispensing while the remaining group of apertures will function to permit air to flow into the container to facilitate dispensing.

Referring now to FIGS. 4, 5 and 6 there is shown another embodiment of the present invention which is basically similar to that described above. However in the presently described embodiment, the conical portion 6 of mouthpiece M is not apertured but rather is closed and the apertures 6 are formed instead in sleeve 12 of the stopper S as shown. Further in the embodiment of FIGS. 4, 5 and 6, the terminal end portion of stopper sleeve 12 is open as shown in FIG. 5 to permit the bottle contents to flow into the interior of stopper sleeve 12 and then through apertures 6 and then between conical portions 5 and 14 when the stopper is raised to an open position relative to the mouthpiece as shown in FIG. 5. Furthermore, in the embodiment of FIGS. 4, 5 and 6, the upper end of stopper sleeve 12 is closed by a wall 9b and the insulating material 11 is placed only in the space enclosed by cap 10, wall 9b, and conical portion 14 as shown in FIG. 5. In all other respects, the embodiment of FIGS. 4, 5 and 6 may be the same as the embodiment of FIGS. 1, 2 and 3.

In both embodiments of the invention described and shown, it is preferred that the threads between stopper S and internal skirt 1a of mouthpiece M be made such that only a slight turn, such as a quarter turn, of the stopper is necessary relative to the mouthpiece in order to open or close the dispensing apertures. On the other hand the stopper may be completely removed from the mouthpiece in order to permit the interior of the bottle to be cleaned.

I claim:

1. In combination with a container such as a vacuum or THERMOS bottle having an open mouth for receiving a dispensing closure, a dispensing closure including a mouthpiece having means for securement to the mouth of the container, said mouthpiece having an interior sleeve received in the mouth of the container and being spaced from the wall of the container defining the mouth thereof, said sleeve having projecting outwardly therefrom a dispensing surface overlying the mouth of the container, an annular resilient seal in sealing engagement between said dispensing surface and the outer annular edge of the mouth of the container, a stopper having a sleeve mounted in said internal sleeve of said mouthpiece for movement relative

thereto, said stopper having a dispensing surface complementary to the dispensing surface of said mouthpiece and overlying the same, said dispensing surfaces when spaced from each other forming an annular spout for dispensing contents from an associated container, said dispensing surfaces adapted to engage each other to prevent dispensing of the contents from the container when the stopper is in a lowermost position, and apertures formed through one of said dispensing surfaces and said sleeve of said mouthpiece for communicating the interior of the container with the annular spout formed by said dispensing surfaces for dispensing the contents of the container when the stopper is raised relative to the mouthpiece.

2. The combination defined in claim 1 wherein the external surface of the mouth of the container has threads and wherein said means on the mouthpiece securing the mouthpiece to the container includes threads received on the threads of the mouth, and wherein threads are provided between the sleeve of said stopper and the sleeve of said mouthpiece for movably mounting said stopper in said mouthpiece.

3. A dispensing closure for a container or the like, the closure comprising in combination, a mouthpiece having means for securement to the neck of a container, said mouthpiece having an interior sleeve received in the neck of the associated container when the mouthpiece is secured on the latter, said sleeve having projecting outwardly therefrom an inverted conical surface adapted to overlie the neck of the container when the mouthpiece is secured thereon, a stopper having a sleeve mounted in said internal sleeve of said mouthpiece for movement relative thereto, said stopper having a conical surface complementary to said conical surface of said mouthpiece and overlying the same, said conical surfaces when spaced from each other forming an annular spot for dispensing contents from an associated container, said conical surfaces adapted to engage each other to prevent dispensing of the contents from an associated container, and apertures formed through one of said conical surfaces of said mouthpiece and said sleeve of said stopper for communicating the interior of the associated container with said annular spout for dispensing the contents of the associated container, and wherein said apertures are formed through said conical surface of said mouthpiece, and wherein said internal sleeve of said mouthpiece is spaced from the wall of the associated container when the mouthpiece is secured on the container to provide an annular space through which the contents of the container may pass to said apertures.

4. The dispensing closure defined in claim 3 wherein said mouthpiece and said stopper have annular lips projecting outwardly from the peripheries of said conical surfaces to facilitate dispensing therebetween.

5. The dispensing closure defined in claim 3 wherein said sleeve of said stopper is closed at its terminal end.

6. The dispensing closure defined in claim 3 wherein said means for securing said mouthpiece on the associated container includes threads and wherein there is provided threads between the sleeve of said stopper and the internal sleeve of said mouthpiece for movably

mounting said stopper in said mouthpiece.

7. The closure defined in claim 3 further including an annular seal adapted to be placed between the open edge of the neck of an associated container and the conical surface of said mouthpiece.

8. The closure defined in claim 3 wherein said apertures are annularly arranged.

9. The dispensing closure defined in claim 3 wherein said stopper has a hollow interior filled with thermal insulating material.

10. The dispensing closure defined in claim 9 wherein said stopper is made in two pieces including a body which includes said conical surface portion and said stopper sleeve, and a cap secured on said body.

11. A dispensing closure for a container or the like, the closure comprising in combination, a mouthpiece having means for securement to the neck of a container, said mouthpiece having an interior sleeve received in the neck of the associated container when the mouthpiece is secured on the latter, said sleeve having projecting outwardly therefrom an inverted conical surface adapted to overlie the neck of the container when the mouthpiece is secured thereon, a stopper having a sleeve mounted in said internal sleeve of said mouthpiece for movement relative thereto, said stopper having a conical surface complementary to said conical surface of said mouthpiece and overlying the same, said conical surfaces when spaced from each other forming an annular spout for dispensing contents from an associated container, said conical surfaces adapted to engage each other to prevent dispensing of the contents from an associated container, apertures formed through one of said conical surfaces of said mouthpiece and said sleeve of said stopper for communicating the interior of the associated container with said annular spout for dispensing contents of the associated container, said internal sleeve of said mouthpiece being spaced from the wall of the associated container when the mouthpiece is secured on the container to provide an annular space between the internal sleeve of the mouthpiece and the wall of the container at the neck of the container, an annular seal adapted to be placed between the open edge of the neck of the container and the conical surface of the mouthpiece, said apertures being formed radially through said sleeve of said stopper and being located at a top portion of the sleeve adjacent the conical surface of said stopper, said apertures also being spaced annularly about the sleeve, and wherein the terminal end of said sleeve of said stopper is open permitting the contents of the associated container to move into the interior of the stopper sleeve and through said apertures and into said spot formed by said conical portions when said stopper is initially moved away from said mouthpiece.

12. The closure defined in claim 11 wherein said means for securing said mouthpiece on the associated container includes threads and wherein there is provided threads between the sleeve of said stopper and the internal sleeve of said mouthpiece for movably mounting said stopper in said mouthpiece.

* * * * *

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,776,433 Dated December 4, 1973

Inventor(s) Elias Martins De Freitas

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the cover page, make the following corrections to the misspellings in the names of the Inventor and Assignee -

Inventor: Elias Martins De Freitas

Assignee: Industria Termica Brasileira S/A

Signed and sealed this 16th day of April 1974.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents