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CLOSURE SYSTEM FOR CONTAINERS

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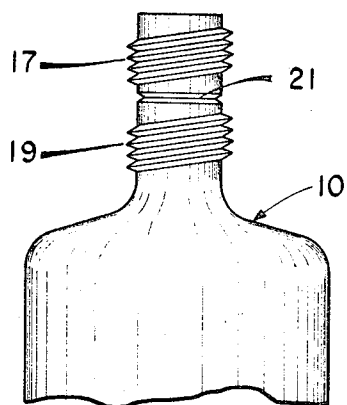


Fig. 1

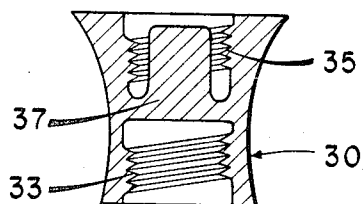


Fig. 2

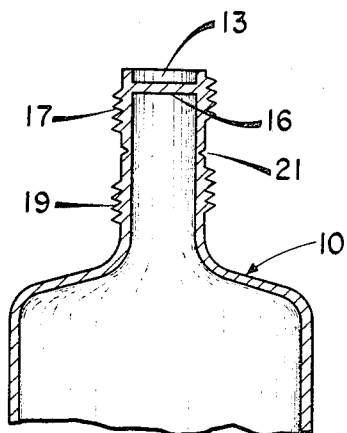


Fig. 3

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CLOSURE SYSTEM FOR CONTAINERS

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ABSTRACT OF THE DISCLOSURE

An improved closure system for dispensing containers is disclosed. The container is provided with a relatively long neck having on it a double set of threads. In the outer portion of the neck, there is a permanent hermetic seal and the neck is scored between the two sets of threads. When the container is to be opened, a first end of the double-ended cap provided by this system is screwed tightly onto the outer set of threads on the neck of the container thereby causing the neck to break along the score line. Reclosure of the container is accomplished by screwing the second end of the double-ended cap onto the lower set of threads on the neck.

Background of the invention

The present invention relates to the field of dispensing containers, and more particularly, to a novel closure system for dispensing containers, and the like, adapted for dispensing paints, pastes, sealants, creams, etc.

Dispensing containers which are hermetically sealed immediately after they are filled with a dispensable fill and remain sealed until opened by the ultimate user are well known. The purpose of such a sealed dispensing container is to insure the ultimate user that the container has reached him in the form of an air-tight original package, which is of special importance when the fill in the container is a composition from which air must be excluded, e.g., a sealant. Also, by accepting only a package having the seal intact, the ultimate user can be certain that he is obtaining the original contents of the container.

Two problems inherent in the use of such a hermetically sealed container are firstly, a convenient means for breaking the seal when the contents are to be used and secondly, a convenient and effective means for resealing the container when all of its contents are not to be used at one time. Many prior designs and variations of dispensing containers have been made in an effort to solve these two problems.

One such hermetically sealed dispensing container makes use of a double-ended screw cap equipped with a spur or piercing point for puncturing the hermetic seal and later plugging the dispensing orifice. However, this container, or any other seal puncturing system, does not readily lend itself to the dispensing of sealants, since the disk-like portion of the seal punched out by the spur remains in the dispensing orifice of the container and tends to become sealed in that orifice by the sealant remaining in the container. Accordingly, when the cap is subsequently removed, the orifice remains sealed and the contents of the container cannot be dispensed until the orifice is re-opened by means of some other piercing point or utensil which can be inserted into the container to the spot where the disk-like punch-out is.

Another prior art hermetically sealed container provides a head portion on a relatively slender integral neck which is severed or twisted to break the hermetic seal and expose the dispensing orifice. In containers of this kind, it is also usually possible to invert the neck and head after the integral connection has been broken, for purposes of reclosing the container. Those containers of this kind which

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can be twisted to break the neck and seal are unsatisfactory in that the head portion may be accidentally dislodged very easily. To the contrary, those containers of this kind which cannot be twisted, but must be cut or sliced apart are unsatisfactory in that they cannot be opened without the use of additional utensils.

Certain designs of this kind of severable or twisted neck and head closure systems have various combinations of internal and external threads in or on the neck or head which are adapted to receive or be received by each other for purposes of reclosing the container. When used as containers for sealants, these threads frequently become filled by the sealant, either prior to the use of the contents, or during its use. Thus, when the container is to be closed, the threads may not receive or be received by their mated threads if the sealant has cured. Worse still, these threads may be permanently sealed together when the sealant cures after they have been screwed together.

Summary of the invention

The primary object of the present invention, therefore, is to provide a dispensing container closure system which will be free from the aforementioned and other disadvantages of prior devices of this type.

More particularly, it is an object of the present invention to provide a dispensing container closure system which will allow the container to be hermetically sealed as soon as it is filled, but which will also allow the ultimate user a convenient means for breaking that seal without the use of utensils extraneous to the dispensing container.

Still another object is to provide a convenient and effective means for resealing the dispensing container when all of its contents are not to be used at one time.

In accordance with these and other objects, there is provided by the present invention a dispensing container having a body which can be either rigid or flexible. The container has a relatively long neck made of a suitable material, aluminum, for example, which has on it a double set of external threads. Between these two sets of threads the neck is scored to create an annular zone of weakness and divide the neck into inner and outer sections. Inside the neck and in its outer portion, there is a permanent hermetic seal. A double-ended screw cap, which may or may not be screwed onto the outer set of threads during shipping and storage, is designed to be screwed tightly onto the outer threads to break the neck along the score line, when it is desired to open the container. Consequently, the hermetic seal is broken and the outer section of the neck is embedded in one end of the double-ended cap.

Reclosure of the dispensing container can be accomplished when desired by screwing the end of the double-ended cap not previously used onto the lower, and now only, set of threads on the neck. This second end of the cap also has a projection in it designed to fit into the orifice of the neck to provide a still better seal upon reclosure.

Brief description of the drawing

Other objects and attendant advantages will become obvious to those skilled in the art by reading the following detailed description in connection with the accompanying drawings wherein:

FIG. 1 is a fragmentary elevational view showing the double sets of threads and the score line on the neck of a hermetically sealed dispensing container of the present invention;

FIG. 2 is a cross-sectional view of the double-ended cap of the present invention; and

FIG. 3 is a cross-sectional view of the device shown in FIG. 1.

Description of the preferred embodiment

Referring now to the drawings wherein like reference numerals designate like or corresponding parts throughout the figures thereof, there is shown in FIG. 1, a portion of a dispensing container, shown generally as 10. The container 10 may be of either the type generally known as flexible containers, or it may be rigid. Thus, it may be made of various metals, papers, plastics and combinations of each of these, such as are well known in the art of container manufacturing. As can best be seen in FIG. 3, the container 10 is a hollow body provided with a relatively long neck at one end. That hollow neck defines a dispensing orifice 13 through which the contents of the container may be discharged.

The dispensing orifice 13 is closed by a permanent hermetic seal 16. This seal may be made in the orifice either at the time the container is made or at the time the container is filled. That is, if the container is to be filled through its neck, the seal must be placed in the orifice after the container is filled. However, if the container is to be filled through the end opposite the neck and then merely crimped shut, the seal may be placed in the orifice at the time the container is made.

As can be seen in FIG. 1, the neck has a double set of external threads 17 and 19. Although in practice it may be simpler to have both sets of threads of the same size or gauge, each set may be of a different size or gauge if desired. Between the threads 17 and 19 the neck is scored as shown by the score line 21 to create an annular zone of weakness in the neck. This score line 21 also divides the neck into outer and inner sections.

A double-ended cap, preferably made of polyethylene and shown generally as 30 in FIG. 2, provides both a convenient means for breaking the hermetic seal of the container and a convenient and effective means for resealing the container in those instances when not all of its contents are to be used at one time. A first end of the cap has a set of internal threads 33 designed to receive the outer external threads 17 of the neck. The opposite or second end of the cap has a set of internal threads 35 designed to receive the inner external set of threads 19 of the neck. Between these two sets of internal threads 33 and 35, the cap 30 has a medial wall 37 which preferably has a projection extending into the space surrounded by the internal threads 35. This projection of the medial wall 37 is designed to fit snugly into the dispensing orifice 13 in the neck of the container. That is, the projection of the wall 37 has a diameter only slightly less than the diameter of the dispensing orifice 13.

When it is desired to open the container, the first end of the double-ended cap 30 having the internal threads 33 is threaded tightly onto the external threads 17 of the neck. The cap 30 may have been loosely threaded onto the threads 17 during shipping and storage, or it may have been kept separate from the container until this time. Threading the cap tightly onto the threads 17 causes sufficient rotational forces to be exerted on the neck to cause the neck to be severed or sheared at the score line or annular zone of weakness 21. Thus, the contents of the container are exposed for discharging without contaminating the material in the container or blocking the orifice, and the outer section of the neck, i.e., the section bearing the threads 17, is imbedded in the end of the cap having the internal threads 33.

When it is desired to reseal the container, the second end of the cap having the internal threads 35 and the projection of the medial wall 37 is screwed onto the previously inner threads 19, now the only threads remaining on the neck. The projection from the medial wall 37 is thereby inserted into the dispensing orifice 13 providing a convenient and effective means for resealing the container 10.

Other modifications and variations of the above-described embodiment of the present invention will also be obvious to those skilled in the art.

That which is claimed is:

1. A container comprising:

a hollow body having a neck portion at one end, said neck portion including:

a dispensing orifice for the discharge of the contents of the container,

a first set of threads on said neck portion near its outer end,

a second set of threads on said neck portion near its inner end,

a score line between said first and second set of threads causing an annular zone of weakness and dividing said neck into inner and outer sections, and

a permanent hermetic seal in said outer section of the neck closing said dispensing orifices; and

a cap having a first end threaded complementary to said first set of threads and adapted to cause said outer section of the neck to be detached from said container at said score line when said first end of the cap is fully threaded onto said first set of threads, thereby removing said seal from the neck.

2. A container as claimed in claim 1 wherein: said container is a flexible, collapsible tube.

3. A container as claimed in claim 1 wherein: said first and second set of threads are external threads on the neck and said first and second ends of the cap have internal threads.

4. A container as claimed in claim 1 wherein: said cap has a second end threaded complementary to said second set of threads on the neck, and

a medial wall in said cap separating said first and second ends.

5. A container as claimed in claim 4 wherein: said medial wall has a projection therefrom adapted to tightly reseal said container, when said second end of the cap is threaded onto said second set of threads.

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