Oct. 1, 1963 C. M. FRANCIS 3,105,621

LIQUID CONTAINER AND CLOSURE COVER THEREFOR

Filed April 26, 1962

Fig. 1

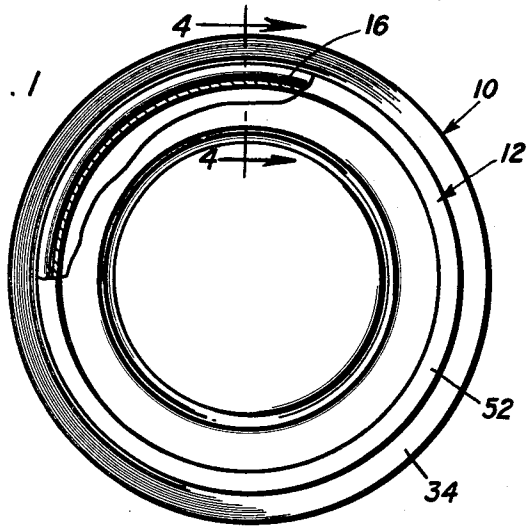



Fig. 3

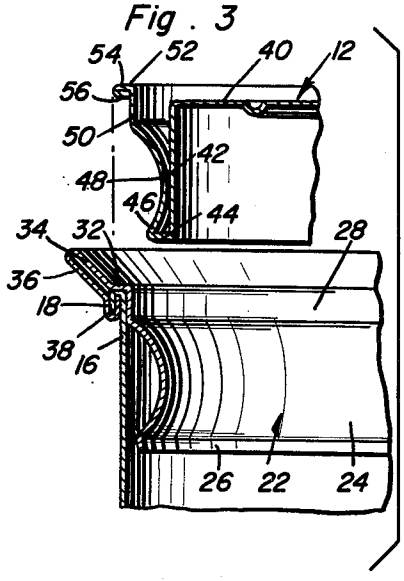



Fig. 2

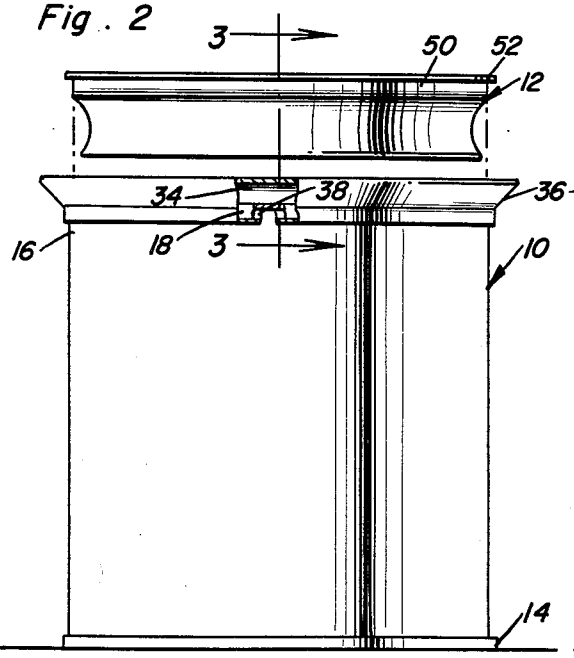



Fig. 4

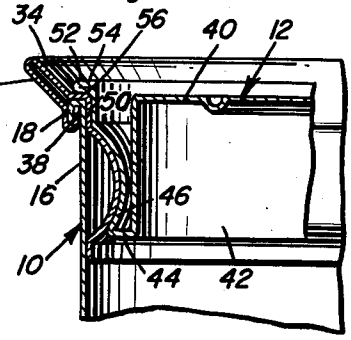
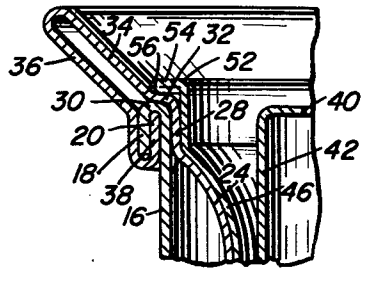



Fig. 5




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# 3,105,621
# LIQUID CONTAINER AND CLOSURE COVER THEREFOR

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This invention relates to a novel and useful liquid container and closure cover therefor.

While it is to be understood that the container and closure cover of the instant invention may also be used to great advantage in the storing and shipping of other fluent materials, the container and closure cover of the instant invention has been primarily designed for the purpose of providing a convenient means for storing and shipping liquids of heavy consistency such as paint, varnishes, lacquer and syrup, etc.

Liquids of heavy consistency are usually stored and shipped in metallic containers provided with removable covers and these containers are normally provided with an annular partial end wall having one or more annular and outwardly opening grooves formed therein. The closure covers for these containers are provided with mating annular projections about their periphery and in this manner the closure cover may be normally secured to the otherwise open end wall of the container by the frictional seating engagement of the annuular projections in the annular grooves. However, inasmuch as the portions of the annular partial end wall of the container and the closure cover which define these annular grooves and projections are substantially cylindrical, should a conventional container of this type be dropped, it is possible that partial collapsing of the container will cause a sufficient increase in pressure within the container to pop the removable closure cover from engagement with the container. This type of construction can of course result in considerable loss in the event such a container is dropped.

Another disadvantage of the conventional type of metallic container and closure cover utilized for storing and shipping paints and the like is that the outwardly opening grooves formed in the partial annular end wall of the container will collect paint if the paint is poured from the can or container and also if the container is being utilized as a container for the paint when painting. In the event a closure cover is again utilized to close the open end of a container in whose annular partial end wall grooves paint has been allowed to collect, the closure cover is extremely hard to remove at a later date.

Accordingly, it is the main object of this invention to provide a liquid container and closure cover therefor which may be opened in the conventional manner and yet which will be provided with interlocking cooperating retaining elements which will have a tendency to more securely fasten the closure cover to the container.

A further object of this invention, in accordance with the immediately preceding object, is to provide a liquid container and closure cover therefor that does not utilize interlocking projections and grooves such as those hereinbefore set forth but which utilizes interlocking surfaces which may be readily wiped clean of any residue of the liquid which may be clinging thereto before the closure cover is re-applied to the open end of the container.

Still another object of this invention, in accordance with the preceding objects, is to provide a liquid container and closure cover therefor which may be interlockingly engaged with each other in such a manner so as to form a fluid-tight seal therebetween.

A very important object of this invention is to provide a liquid container suitable for containing paints and the like and which will be provided with a drip lip about its



upper end to substantially entirely eliminate the dripping and running of paint down the side of the container.

A final object of this invention to be specifically enumerated herein is to provide a liquid container and closure cover therefor in accordance with the preceding objects which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a top plan view of the liquid container and closure cover of the instant invention with portions of the closure cover being broken away and shown in section;

FIGURE 2 is a side elevational view of the liquid container with the closure cover therefor positioned for engagement with the open end of the container and with portions of the container being broken away and shown in section;

FIGURE 3 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of FIGURE 2;

FIGURE 4 is an enlarged fragmentary vertical sectional view similar to that of FIGURE 3 but showing the closure cover seatingly engaged with the liquid container in order to close the open end of the latter; and

FIGURE 5 is a fragmentary sectional view similar to that of FIGURE 4 but on somewhat of a further enlarged scale more clearly illustrating the structural details of the container and closure cover.

With reference to FIGURES 3–5 of the drawings in particular, there will be seen a hollow container generally referred to by the reference numeral 10 and a closure cover for the container generally referred to by the reference numeral 12.

As can best be seen from FIGURES 2 and 3 of the drawings the container 10 is generally cylindrical and includes a bottom wall assembly 14 which may be of conventional construction. The upper end of the container 10 defines an open neck end 16 and it may be seen that the open neck end 16 terminates in a reversely bent flange assembly 18 which defines an annular pocket 20 extending about the neck end 16 that opens away from the neck end.

The container includes a generally cylindrical retaining rim member referred to in general by the reference numeral 22 and it will be noted that the rim member 22 has its innermost end portion disposed within the neck end 16 of the container 10. The retaining rim member 22 includes a first inwardly offset portion 24 which is smoothly curved longitudinally of the rim member 22 and terminates at its inner end in an annular and generally cylindrical abutment flange 26. The outermost end of the inwardly offset portion 24 terminates in a generally cylindrical flange 28 whose outer surfaces are disposed in frictional engagement with the inner surfaces of the outermost end of the neck end 16. If it is desired, the flange 28 may be secured to the inner surfaces of the neck end 16 in any convenient manner.

The reversely bent flange assembly 18 defines a generally radially outwardly extending abutment flange 30 and the outermost end of the cylindrical flange 28 terminates in a generally radially outwardly extending abutment flange 32 whose under surface is disposed in surface-to-surface abutting relation with the upper or outer surface of the abutment flange 30. The outer edges of the abutment flange 32 terminate in an outwardly flared pour-

ing or drip lip 34 which in turn terminates in a reversely bent portion 36. The free end of the reversely bent portion 36 in turn terminates in a further reversely bent portion 38 which is secured within the pocket 20 formed by the reversely bent flange assembly 18.

It will be noted from FIGURE 3 of the drawings that the abutment flange 26 is free of permanent connection with the neck end 16 in the container 10 and that it is normally resiliently urged toward a position radially inwardly spaced from the inner surfaces of the neck end 16.

The closure cover 12 includes a generally circular end wall 40 which terminates at its outer peripheral edge in a downturned retaining flange member 42 which is generally cylindrical. The lower end of the retaining flange member 42 terminates in a generally radially outwardly extending and annular joining flange 44 and the outer periphery of the joining flange 44 terminates in a reversely bent collar portion 46. A second inwardly offset portion is formed by the reversely bent collar portion 46 and is smoothly longitudinally curved to form an outwardly opening groove 48, see FIGURE 3, in which the inwardly offset portion 24 is seatingly receivable.

The outer end of the reversely bent collar 46 terminates in a generally cylindrical flange portion 50 which is snugly receivable within the cylindrical flange 28. The outer end of the flange portion 50 terminates in a laterally outwardly directed bead and abutment flange assembly 52 formed by a generally radially outwardly projecting first flange portion 54 which terminates at its outer end in a reversely bent flange portion 56.

In operation, the closure cover 12 may be engaged with the container 10 by movement of the closure cover axially of the container 10 as is conventional. As the juncture between the joining flange 44 and the reversely bent collar 46 engages the outermost portion of the inwardly offset portion 24, the latter, because of its inherent resiliency will be slightly straightened. In addition, because of the inherent resiliency of the material from which the closure cover 12 is constructed, the lowermost end of the retaining flange member 42 will be radially inwardly deflected. This will enable the intersection of the joining flange 44 and the reversely bent collar portion 46 to pass between the inner surfaces of the most radially inwardly disposed portions of the rim member 22. As further axial movement of the closure cover 12 relative to the container 10 toward bottom wall assembly 14 is effected, the inwardly offset portion 24 will be seatingly received within the groove 48 formed by the reversely bent collar 46. At the same time the inwardly offset portion 24 is seatingly received within the pocket, the under surface of the flange portion 56 will abut the upper surfaces of the abutment flange 32.

It can be most readily seen from FIGURE 3 of the drawings that the mating surfaces of the closure cover and container may be readily wiped to remove all residue of liquids which may be clinging thereto before the closure cover 12 is returned to engagement with the container 10 after the container has once been opened. In addition, it will be noted that substantially all of the liquids which contact the pouring or drip lip 34 when the closure cover 12 is removed will flow down into the interior of the container 10 and drop off the free edge of the abutment flange 26.

Accordingly, it may be seen that herein described is a new and useful liquid container and closure cover therefor which may be advantageously used for storing and shipping paints and the like that will enable the closure cover to be re-applied to the container after the container has once been opened in a manner minimizing the danger of liquid clinging to the mating surfaces of the container and closure cover rendering it difficult to again remove the



closure cover at a later date and also a container and closure cover therefor which may be interlockingly engaged with each other in a manner that will enable intended removal of the closure cover from the container but which will more greatly resist accidental removal of the closure cover from the container by a build-up of pressure within the closed container.

Upon viewing FIGURES 2 and 5 it will be noted that the pouring or drip lip 34 may be very useful in providing a means for assuring that a plurality of stacked containers 10 will be maintained in vertical alignment with each other during both shipping and storage of a plurality of the containers 10.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In combination, a hollow container having a generally cylindrical open neck end and a closure cover therefor, said neck end having a generally cylindrical retaining rim member therein, means securing an outer end portion of said rim member to an outer end portion of said neck end, said cylindrical retaining rim member including an inwardly bowed portion intermediate said outer end portion and the inner end portion thereof, said inner end portion being adapted to abut but normally spaced inwardly from the adjacent inner surfaces of said neck end and adapted to slidingly engage said inner surfaces, said closure cover including a first generally cylindrical laterally and inwardly directed retaining flange member extending circumferentially about the outer periphery of said closure cover and terminating at its free end in an annular generally radially extending joining flange which in turn terminates at its outer periphery in a generally cylindrical collar portion including an inwardly bowed portion intermediate its opposite ends defining an outwardly opening groove in which said rim member inwardly bowed portion is seatingly received, said members each being constructed of at least semi-rigid material having resilient properties and said closure cover inwardly bowed portion terminating at its free outer end in a generally radially extending annular flange portion engageable with the outer end portion of said neck end of said container when said cover bowed portion is seated in said groove to prevent further inward movement of said closure cover relative to said container.

2. The combination of claim 1 wherein the inner end of said rim member is free of permanent connection with said neck end of said container.

3. The combination of claim 2 wherein the free inner end of said rim member is normally resiliently urged toward a rest position slightly spaced from the adjacent inner surfaces of said neck end of said container.

4. The combination of claim 1 wherein the outer end portion of said rim member projects outwardly beyond the open end of said neck end of said container and is outwardly flared to form a pouring and drip lip.

5. The combination of claim 1 wherein said first and second bowed portions are smoothly curved longitudinally of said members.


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