

[54] CONTAINER AND SAFETY CLOSURE THEREFOR

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[51] Int. Cl. B65d 55/02

[58] Field of Search D9/260, 261, 265, 266, D9/280, 281, 285; 215/9, 43, 82, 84, 98, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225; 220/39

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Primary Examiner—William I. Price

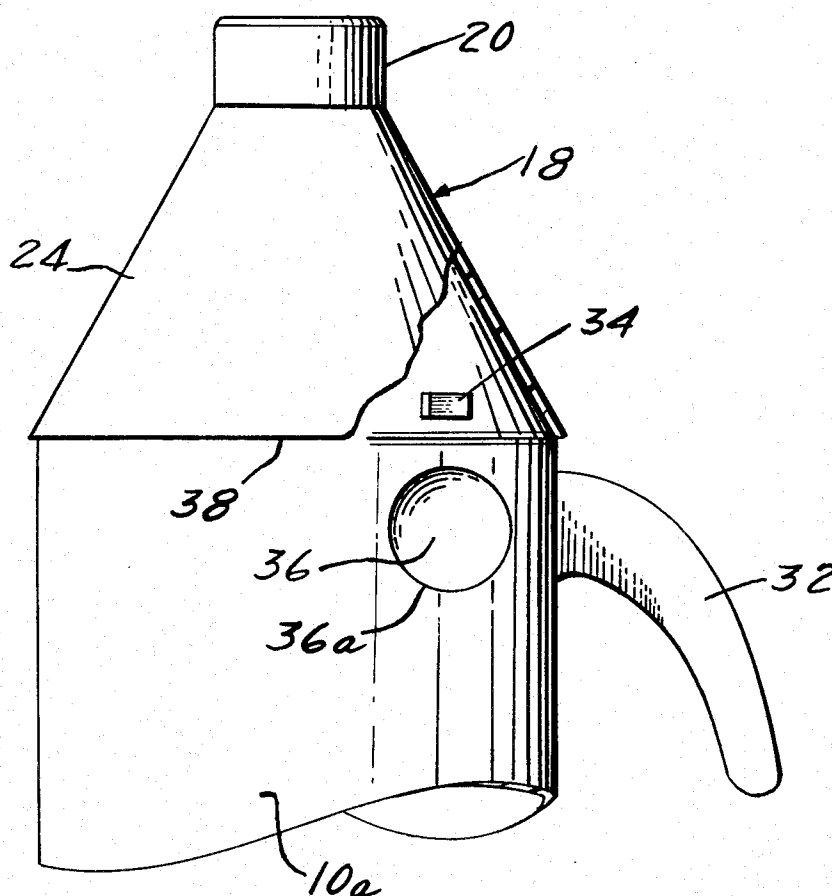
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[57] ABSTRACT

A combination container and safety locking closure for chemicals that are dangerous such as bleaches and the like. The closure has a closure portion that is screwed onto the externally threaded neck of a container and fits snugly on the upper part of the container. There is a skirt which flares from the closure part, said skirt having oppositely arranged inwardly opening recesses adapted to be received in lugs provided therefor on the container. The material of the container is flexible and resilient, such as a plastic (Polyethylene) when the lugs are in the recesses, the closure device is locked on the container. In order to release the closure, the sides of the container below the lugs and below the free edge of the skirt are squeezed or pressed inwardly so that the lugs are forced out of the recesses of the skirt, where upon, the closure device may be unscrewed. With the closure device removed, it may be turned with the open end of the skirt turned upwardly and used as a measuring cup.

12 Claims, 8 Drawing Figures



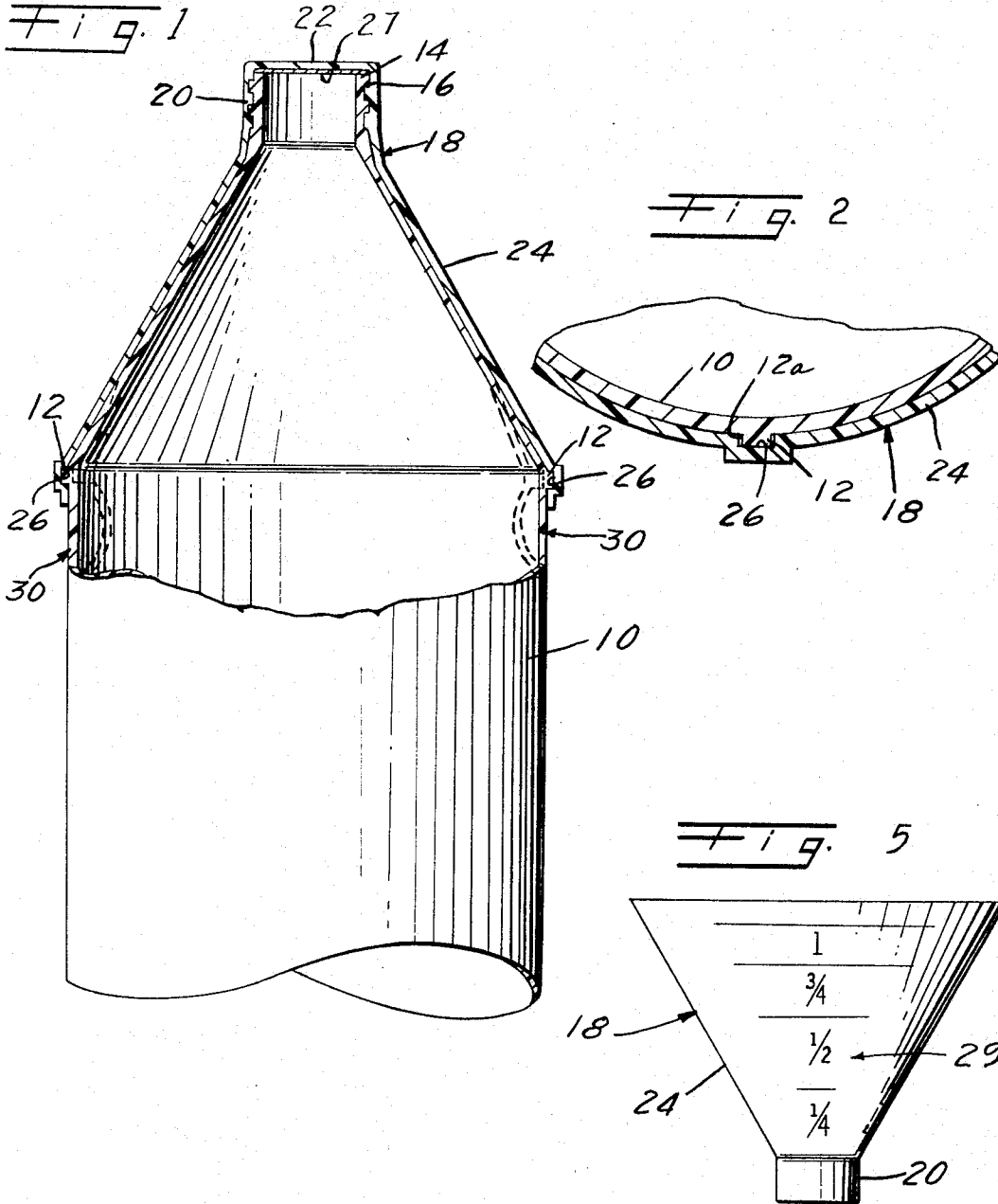


Fig. 3

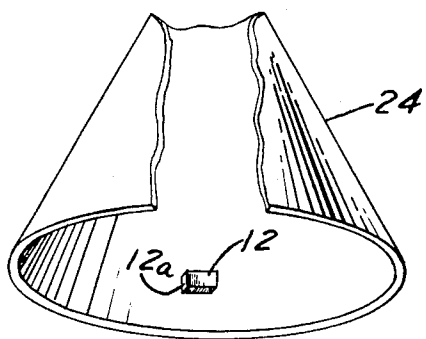


Fig. 4

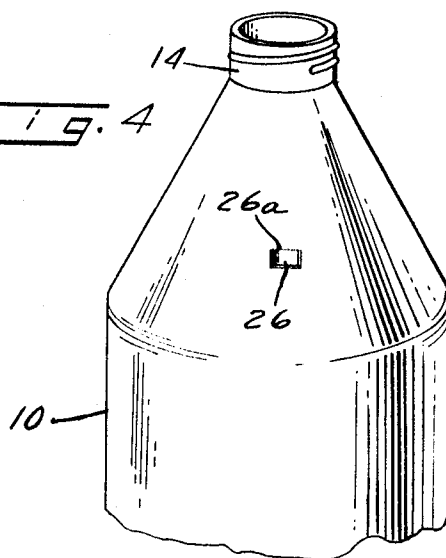


Fig. 6

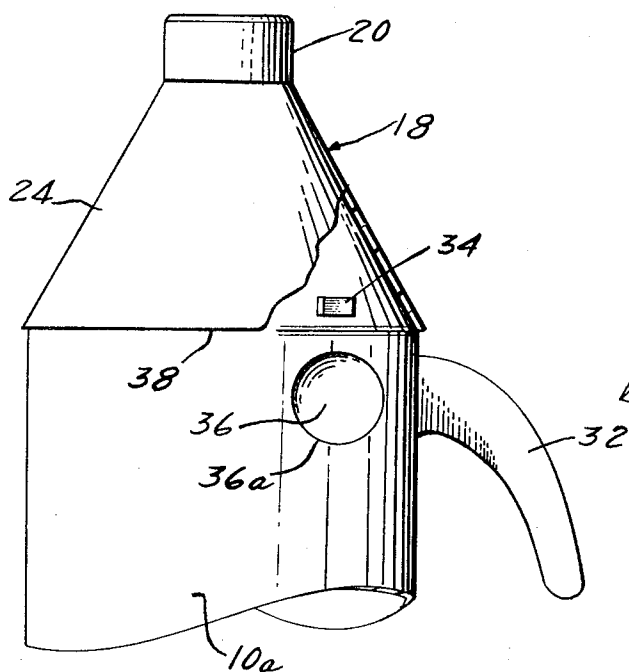


Fig. 7

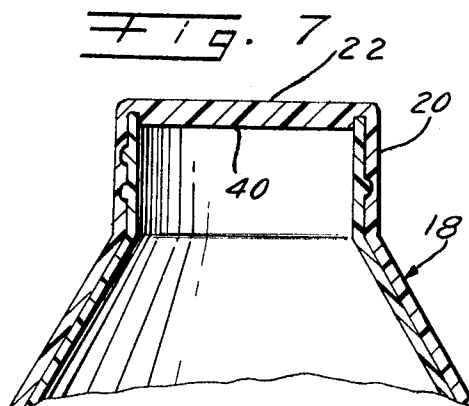
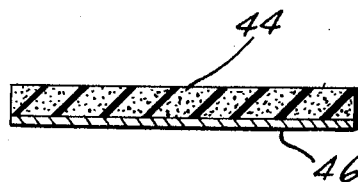


Fig. 8

CONTAINER AND SAFETY CLOSURE THEREFOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to containers for dangerous chemicals such as bleaches and the like and relates more particularly to a container and locking closure for attachment onto said container and releasably locked thereon.

2. Description of the Prior Art

Various types of closures for dangerous liquids have been proposed but these generally have several parts and are complicated in construction. Some even require a special accessory to operate.

SUMMARY OF THE INVENTION

The present invention comprises a container and safety locking closure therefor. The container is of resilient material such as a suitable plastic and is of bottle-type or jug type and in both types, there is an upper part that tapers upwardly to an externally threaded neck.

On the exterior of the container and on the tapered part there is at least one external lug; there being two diametrically opposite lugs on the smaller bottle type.

The safety locking closure device has a closure part that is closed at one end and open at the other end, the interior of the closure part being threaded for threadable attachment to the container neck. There is a frusto conical skirt that flares from the open end of the closure part. When desired, the device may be used as a cup and a scale may be provided on the skirt to indicate various amounts of liquid therein.

Adjacent the open end of the skirt, there are oppositely arranged recesses for reception of outwardly providing lugs on the container.

When closing the container, the closure part is screwed onto the neck of the container and the rim portion of the open end of the skirt passes over the lugs, pressing the wall of the container inwardly, said wall resiliently returning to its normal shape when the recesses become aligned with the lugs which then move into the recesses. It is to be noted that the closure is then locked on the container and that there is a close fit between the skirt and the part of the container covered by the skirt. The lugs are square in cross section and the recesses are of corresponding shape so that when the lugs are in the recesses, there will be positive resistance to unscrewing of the closure. In order to remove the closure, the sides of the container just below the open end of the closure part and below the lugs are pressed inwardly with a thumb and finger a sufficient amount to move the lugs out of the recesses so that the closure may be unscrewed. The diameter of the container, where it is pressed inwardly to release the cap, is sufficient so that the hands of small children cannot encircle this part of the container sufficiently for effective pressing the container walls inwardly to release the closure. Even on smaller containers, children would have a very difficult time locating the pressure points and unlocking the closure. Large containers may have but one lug and recess locking arrangement but will nevertheless, be very difficult for small children to open.

OBJECT AND ADVANTAGES OF THE INVENTION

It is an object of the present invention to provide a

container and safety locking closure for liquids and chemicals that are dangerous.

It is another object of the invention to provide a device of this character that may be readily screwed on to the threaded neck of a resilient container and automatically locked thereon when screwed entirely on to said container.

It is still another object of the invention to provide a device of this character that is extremely difficult if not impossible for small children to release.

It is a further object of the invention to provide a device of this character that is released by inward flexing of the sides of flexible containers.

Another object of the invention is to provide a safety locking closure that has a closure portion with a skirt thereon to provide a measuring cup in combination with the closure portion.

Still another object of the invention is to provide a device of this character that is simple in construction and relatively inexpensive to manufacture.

The characteristics and advantages of the invention are further sufficiently referred to in connection with the following detailed description of the accompanying drawings, which represent one embodiment. After considering this example, skilled persons will understand that many variations may be made without departing from the principles disclosed and I contemplate the employment of any structures, arrangements or modes of operation that are properly within the scope of the appended claims.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a longitudinal sectional view of the portion of a container with the locking closure thereon and in the locked position;

FIG. 2 is a sectional view taken on line 2—2 of FIG. 1;

FIG. 3 is a fragmentary perspective view of a portion of the container showing one of the lugs thereon;

FIG. 4 is a fragmentary perspective view of the interior of the skirt of the closure showing one of the recesses therein;

FIG. 5 is a side elevational view of the closure showing the scale on the skirt portion thereof;

FIG. 6 is a side elevational view of an alternative arrangement with portion broken away;

FIG. 7 is a fragmentary sectional view of an alternative closure portion; and

FIG. 8 is a sectional view of an alternative seal.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, there is shown a container, indicated generally at 10, which is bottle-like and of flexible resilient material such as a poly plastic for example. More specifically the material of the bottle may be of polyethylene or polypropylene. The material of the container must be something that will not corrode and will not be adversely affected by the contents thereof. As shown in FIGS. 1, 2 and 3, there are outwardly projecting lugs 12 formed integrally with the container and as shown in FIG. 1, said lugs are diametrically opposite each other. While two releasable interlocking locking means are shown, it is to be understood that one may be used.

The container is provided with a neck 14 that is externally threaded, as at 16.

The closure is indicated generally at 18 and comprises an internally threaded closure portion or cap 20 that is adapted to be screwed on to the neck 14 of the container and unscrewed therefrom.

Closure portion 20 includes an end wall 22 adapted to fit on the free end of the neck 14 of the container when the device is screwed thereon. From the open end of the closure portion, there is a frusto-conical skirt 24 that flares outwardly. The interior of the skirt corresponding in shape to the upper end of the container 10 and fits snugly thereon when the closure is attached and in locked position. When the closure portion 20 and the skirt is disclosed on the container and the closure is in the closed position, the skirt extends below the lugs 12 of the container and said skirt has recesses 26 in which said lugs 12 are received. There is a sealing means or disc 27 in the closure portion against the inner side of the end wall 22 for sealing the open end of the neck of the container when the closure device is in the closed and locked position.

Lugs 12 and recesses 26 form interlocking complementary or companion parts of the container and skirt respectively and provide releasable locking means which normally prevents the safety closure from being removed from the container. While the closure may be of any suitable material, it has been found that it may be of the same material as the container. It must, of course, be of a material that will not be adversely affected by fluids or other materials placed in the container.

The sides 12a of the lugs and the sides 26a of the recesses that engage each other when the closure is locked on the container are substantially in a radial plane relative the container at the location of the lugs. This increases the effectiveness of the locking function. However, the locking parts may be of other shape and still function effectively.

It is to be understood that the threads of the neck 14 of the container and the threads in the closure portion complement each other and are so correlated that when the closure portion is screwed into sealing position, the interlocking parts 12 and 26 will lock together—that is—the lugs are operably received in the recesses 26.

In order to release the closure, inward pressure is exerted with a thumb and finger on the pressure areas 30 of the container. This pressure forces the interlocking part of the container to a position whereat it disengages the complementary part of the skirt. The entire device, closure portion and skirt, may then be screwed from the container and the device then used as a measuring cup to measure a desired quantity of liquid or the like. For use as a measuring cup, the skirt has a graduated scale 29 thereon. This may be put on by any suitable means such as silk screening, molding on or in the skirt or the like. Once the device has been removed, the resilience of the material of the container, causes the pressure areas of the container to return to the normal shape.

When replacing the closure, the lower part of the skirt will force the lugs 12 inwardly due to the resilience of the container so that the closure may be moved to the locking position whereat the lugs re-enter the recesses 26 as described above.

It is to be noted that the recesses are of sufficient arcuate length so as to insure the lugs entering therein. However, the recesses are only of sufficient length for

this purpose and not so long as to allow for undue play between the interlocking parts.

Smaller containers are generally of such diameter that a child could not exert effective unlocking pressure because the span of the child's hand is insufficient to effectively reach and exert sufficient unlocking pressure on the pressure areas.

Referring to FIG. 6, a larger jug-type container is shown and said container is indicated at 10a. There is a handle 32 for the container and a lug 34 is positioned adjacent the upper end of the hand with a pressure area 36 adjacent to the lug and somewhat below same so as to be below the lower edge or rim 38 of the skirt 24. The skirt has a recess, not shown, for the lug 34. When it is desired to remove the closure 18, the handle 32 is grasped and inward pressure exerted with the thumb on the pressure area 36 to effect disengagement of the locking parts. When the closure 18 is removed, and pressure on the pressure area 36 is released, the container in this region will return to its normal position due to the resilient character of the material thereof. The pressure area is indicated by a mark or by a circle 36a. Such an indication is also provided for the pressure areas on the container shown in FIG. 1. In the arrangement of FIG. 1, the walls defining the recesses in the skirt may form bulges so the operator will know that releasing pressure should be applied to the container below the bulges.

It is to be understood, of course, that while the lugs have been shown as being on the container and the recesses in the wall of the skirt, this arrangement may be reversed so that the recesses are in the container wall and open outwardly and the skirt has the lugs which project inwardly. Also, it is obvious that one or two of the locking means will satisfactorily function as herein above described.

In FIG. 7, there is shown an alternative sealing means within the closure portion, this sealing means comprises a downwardly extending disc part 40 that fits snugly within the neck 16 of the container and functions as a stopper.

FIG. 8, there is an alternative seal which has substantial thickness and is resilient, comprising a sheet or disc 44 of foam material such as sponge, plastics or the like and a thin layer or disc 46 of smooth surfaced impermeforate plastic adhesively attached to the layer 44. The smooth impermeforate layer 46 is at the bottom when the seal is operatively disposed in the closure portion 20 so as to engage the adjacent free end of the container neck 14.

The invention and its attendant advantages will be understood from the foregoing description and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit or scope thereof or sacrificing its material advantages, the arrangement hereinbefore described being merely by way of example and I do not wish to be restricted to the specific form shown or uses mentioned except as defined in the accompanying claims.

I claim:

1. The combination of:

a container of resilient material, said container having a tapered upper portion terminating in a pouring neck, said container having at least one locking part on said tapered portion;

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and a closure device for said container, said closure device comprising:

a hollow closure portion for attachment to the neck of the container, said closure portion being closed by a wall at one end and is open at the other end;

a frusto-conical skirt flaring from the open end of the closure portion, said skirt being open at its free end which is opposite said closure portion;

at least one complementary locking part for the skirt adjacent the free end thereof, said locking part of the skirt being for releasable interlocking engagement with the locking part of the container when the closure device is in sealing position on the neck of the container, said locking parts being released by inward pressure on a place on the container adjacent the locking parts.

2. The invention defined by claim 1, wherein the skirt is non-resilient.

3. The invention defined by claim 1, wherein there is a handle on the container adjacent the locking part of the container.

4. The invention defined by claim 3, including a mark adjacent the handle for indicating the pressure point for releasing the closure.

5. The invention defined by claim 1, wherein the neck of the container is externally threaded and the closure portion is internally threaded for threadable reception on the neck of said container.

6. The invention defined by claim 5, wherein the internal threads of the closure portion, are so correlated relative to external threads on the neck of the container that when the closure portion is screwed on to the neck of the container, the locking part of the skirt will interlock with a locking part on the container.

7. The invention defined by claim 5, wherein the locking parts comprise a lug and a recess for reception of the lug.

8. The invention defined by claim 7, wherein the sides of the lug and recess that engage each other when the closure device is locked on the container, are substantially in a radial plane relative to the container and closure device.

9. The invention defined by claim 7, wherein the lug is on the interior of the skirt and the recess is in the wall of the container.

10. The invention defined by claim 7, including a sealing disc in the closure portion, said sealing disc providing a seal for the free end of the neck of the container when the closure device is secured on the container.

11. The invention defined by claim 7, wherein the lug is on the container and the recess is in the skirt.

12. The invention defined by claim 11, wherein there are two diametrically arranged lugs on the container and two diametrically arranged recesses in the skirt for reception of said lugs.

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