Dec. 28, 1943. C. E. McMANUS ET AL 2,337,616

CONTAINER

Filed March 7, 1940

Fig. 1.

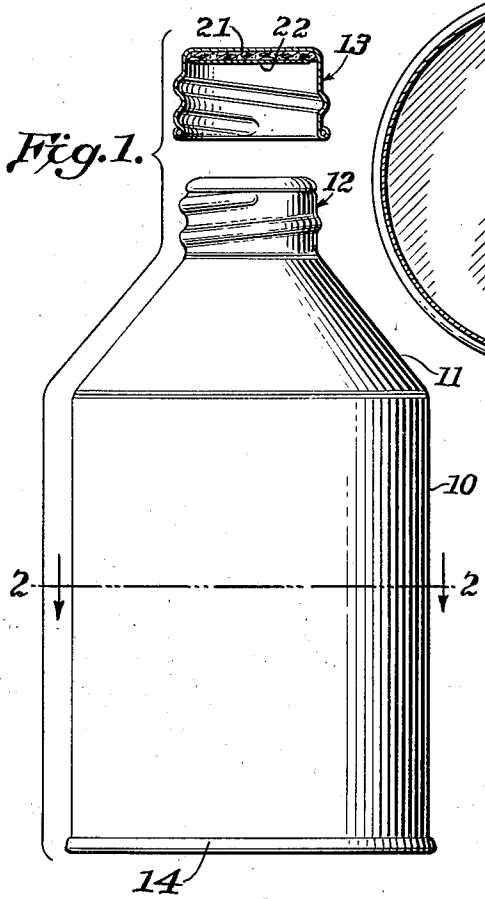


Fig. 2.

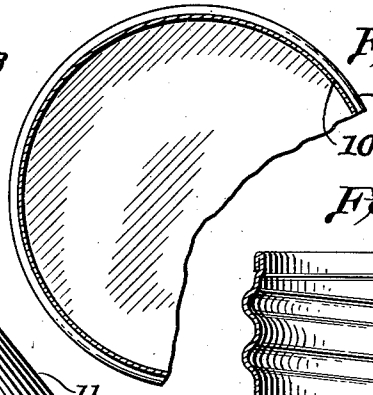


Fig. 6.

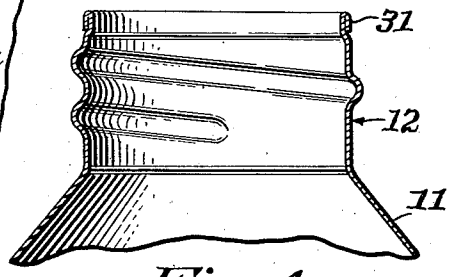


Fig. 4.

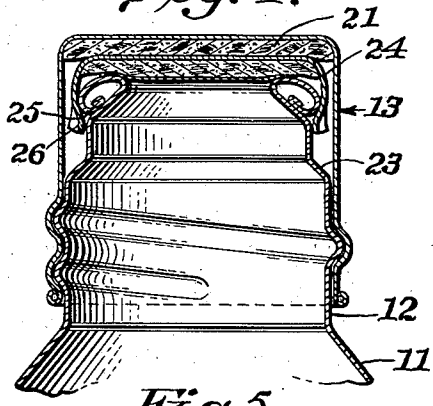


Fig. 3.

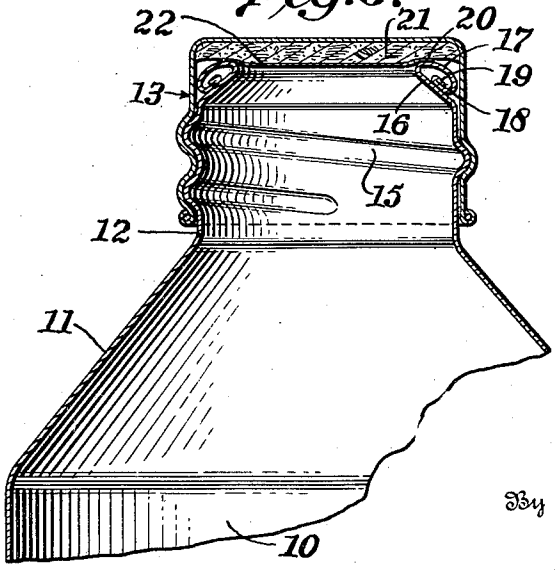
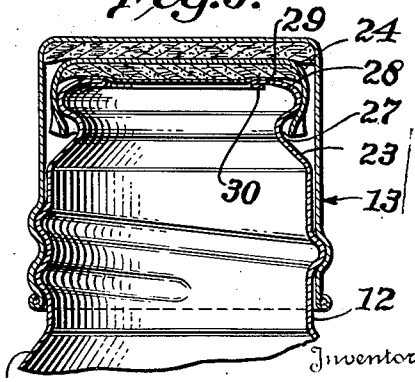


Fig. 5.



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2,337,616

CONTAINER

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Application March 7, 1940, Serial No. 322,808

2 Claims. (Cl. 220—29)

This invention relates to containers of the seamless type as described in the copending application of McManus, Calleson, and Calleson, Serial No. 58,746, filed January 11, 1936.

One object of the invention is to produce a seamless container having a threaded neck for receiving a conventional screw cap of metal or composition material, such as synthetic resin.

Also, it is an object of the invention to produce a seamless container of this character provided with a lip or finish for receiving an auxiliary cap, such as one of the crimped or crown type and over which the threaded cap is applied.

Another object of the invention is to produce a seamless container having a threaded neck which is so rigidified that a cap may be applied thereto, and removed and replaced as exigencies of use may require without distortion, such as would interfere with the proper sealing of the container.

An additional object of the invention is to provide the threaded neck of the container with means to withstand the pressures incident to applying a crimped or crown cap and prying off the same, whereby the neck is not distorted to interfere with the seal of the crimped cap or with the application and removal of the threaded cap.

A further object of the invention is to provide a finish which will form a satisfactory seal with either a crimped type of cap or a threaded type of cap so that when the former is removed, the threaded closure will provide an adequate seal.

Of equal importance, it is an object of the invention to construct the neck so that when a crimped type of cap or other closure is applied to seal the mouth thereof, a threaded closure cap may be readily applied and removed without interference from the auxiliary cap which it encloses.

The containers of the present invention are useful for beverages, foods, medicines and chemicals, as well as other products in solid and liquid form.

For a more complete understanding of the invention, reference is had to the accompanying drawing wherein:

Figure 1 is a side elevation of the container provided with a threaded neck and showing in section detached from the container a threaded closure cap adapted to be threaded on said neck;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is an enlarged sectional view of the container of Figure 1 showing the cap applied to the neck;

Figure 4 is a modification of the construction shown in Figure 3 in which the neck is reduced above the threaded portion to receive a crimped or crown cap and in which the threaded cap overlies the same and is threaded upon the enlarged portion of the neck;

Figure 5 is a view similar to Figure 4, except that the neck is provided with a modified form of cap receiving finish, and

Figure 6 is a sectional view showing a further form of the invention in which the marginal edge of the neck above the threads is bent upon itself. In the present instance, the marginal edge is shown as being bent outwardly, but in some cases this edge is folded inwardly.

The container includes a body 10, terminating in a conical top 11 which in turn terminates in a substantially cylindrical neck 12. The body, top and neck are integral and are seamless, being formed from a blank or cup of metal by drawing to the form shown. We have found that in such a container, the neck 12 may be suitably threaded to receive a threaded type of closure indicated at 13 and form a very effective package.

The container 10 is provided with a bottom 14 which may be secured to the body by the usual seam or by welding and, in fact, in any conventional manner.

Referring to Figure 3, the threads 15 on the neck 12 are of a construction to receive a standard type of threaded closure. The threads 15 are formed intermediate the neck, and it will be observed that the marginal area of the neck above the threads is inclined inwardly as shown at 16, and the metal of the free edge above this tapered portion is curled outwardly as shown at 17 and then inwardly and upwardly as shown at 18 to form a hollow bead. The free edge is bent upon itself as shown at 19 to form a hem. The bead as shown is disposed above and overlies the outer surface of the frusto-conical or inclined portion 16. In Figure 3 the inwardly and upwardly curled portion 18 preferably rests upon the outer surface of the inclined portion. The upper or sealing contact surface 20 of the bead is appreciably flattened so as to engage the cushion liner 21 of the cap 13 or the spot 22 which is sometimes associated with the cushion liner. The bead shown in Figure 3 very substantially reinforces the neck against the twisting strains incident to the application and removal of a threaded closure, and as explained, forms a very satisfactory seal.

In Figure 4, the neck is shown provided with an inclined or inwardly bent portion 23, and above this inclined portion the neck is reduced

in diameter and provided with a finish similar to that shown in Figure 3. This construction is useful where it is desired to have two closures. For example, an auxiliary cap of the crimped or crown type 24 is applied to the sealing bead in the usual manner, the bead forming a shoulder 25 with which the inwardly directed shoulders 26 of the crimps of the skirt of the cap 24 interlock. The threaded closure 13 is applied over the closure 24 and has threaded engagement with the neck as above described. It will be noted that the reduced diameter of the neck enables the cap 24 to be applied without interfering with the application or removal of the threaded closure 13. Moreover, the finish permits the crimped cap to be applied by the usual automatic machinery without distorting the neck so that there is no difficulty in applying and removing the threaded closure. With such a construction, when the cap 24 has been removed, the closure 13 may be used as a reseal by simply threading the same down upon the neck, the neck being sufficiently long to permit the cushion liner 21 or spot 22 to be used to form an effective seal with the bead as shown in Figure 3. It will be noted upon reference to Figure 4 that initially, the cushion liner 21 engages the top of the cap 24.

The construction shown in Figure 5 includes the inbent portion 23, and above this shoulder the metal of the neck is reduced in diameter and is formed with a groove 27, and then extended outwardly into a bead 28 overlying the shoulder 23 and having its marginal edge portion 29 flattened and extending inwardly to engage a cushion liner or spot. The free edge of the inwardly directed portion 29 is bent upon itself as shown at 30, and while we have shown the turned-over portion as being folded inwardly in the form of a hem, in some cases it is folded outwardly to lie in contact with the top surface of the inwardly directed portion 29 to thereby form an external hem. With this construction also, the bead is sufficiently rigid to permit a crown or a crimped cap to be applied by machinery and to be pried off without distorting the neck. Likewise, the reduced diameter of the neck allows the screw cap to be readily applied and removed.

Referring to Figure 6, the portion of the neck above the threads is bent outwardly upon itself to form a hem 31 and, as in the case of the hem 30, the metal may be folded to lie upon the opposite side of the neck and form an internal hem if desired. This construction provides for rigidifying the neck and forms a finish or bead which will likewise make sealing contact with the closure 13.

In each of the constructions shown, the neck is constituted by the portion of the container which has been subjected to the least amount of drawing. Consequently, it may be readily rolled to form the threads and drawn and curled to produce the several neck structures shown. Of equal importance, the neck resists deformation and will readily withstand the strains of applying closures by means of machinery. Moreover, the position of the threads and the construction of the cap receiving finish in each case affords a rigid structure. It will be noted that the reduced diameter of the neck in which is positioned the cap receiving portion, so that it lies within the confines of the threads, allows an auxiliary cap to be applied and an enclosing threaded cap to be threaded on the neck and removed without interference.

We claim:

1. A container having a body, a conical top integral therewith, a cylindrical neck integral with said top, said body, top and neck being drawn from a single blank of metal and being seamless, screw threads formed in said neck intermediate its length, the neck above said threads being reduced in diameter, a cap receiving lip at the open or reduced end of the neck adapted to make sealing contact with a closure cap, the diameter of said lip being substantially less than that of the threads whereby a closure cap may be applied to said lip and a threaded cap may be threaded on said neck to enclose the first-mentioned cap, said lip being formed by an inwardly extending shoulder from which the metal is bent outwardly, downwardly, and then upwardly and inwardly with the free edge substantially resting on the outer surface of said shoulder, the threaded neck being of a length to permit the threaded cap to be threaded down on said neck and make sealing contact with said lip when the first-mentioned cap has been removed, said lip being adapted to receive a crown cap, and a bottom secured to said body.

2. A container having a body, a conical top integral therewith, a cylindrical neck integral with said top, said body, top and neck being drawn from a single blank of metal and being seamless, screw threads formed in said neck intermediate its length, the neck above said threads being reduced in diameter, a cap receiving lip at the open or reduced end of the neck adapted to make sealing contact with a closure cap, the diameter of said lip being less than that of the threads whereby a non-threaded cap may be applied to said lip and a threaded cap may be threaded on said neck to enclose and seal the lip when the non-threaded cap is removed, said lip being formed by an inwardly extending shoulder from which the metal is bent outwardly, downwardly, and then upwardly and inwardly with the free edge substantially resting on the outer surface of said shoulder, the threaded neck being of a length to permit the threaded cap to be threaded down on said neck and make sealing contact with said lip when the first-mentioned cap has been removed, and a bottom secured to said body.

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