Sept. 10, 1940. G. A. BENSON 2,214,399

CLOSURE FOR CONTAINERS

Filed Nov. 7, 1938

FIG. 1.

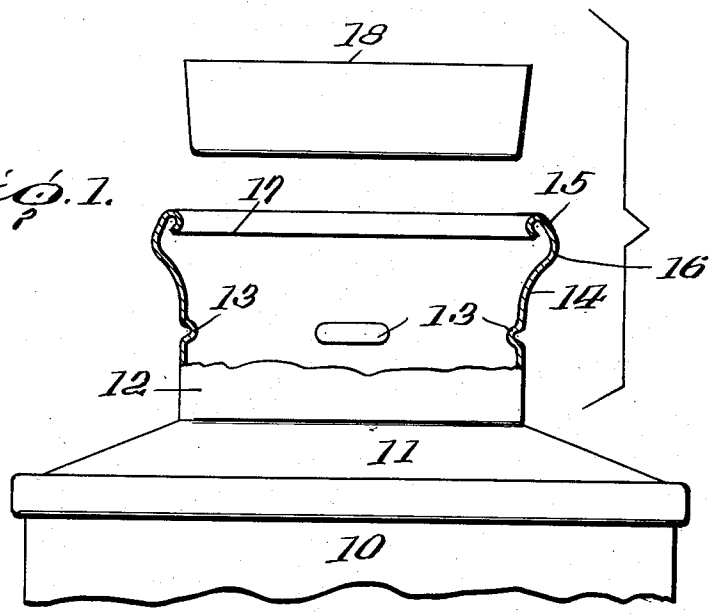


FIG. 2.

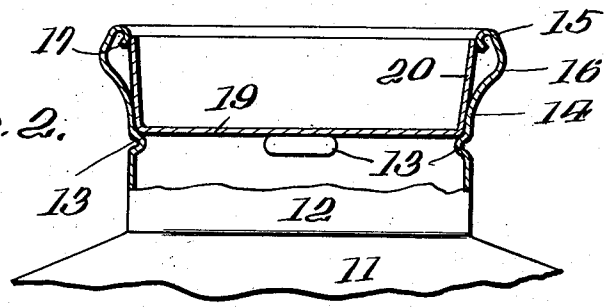
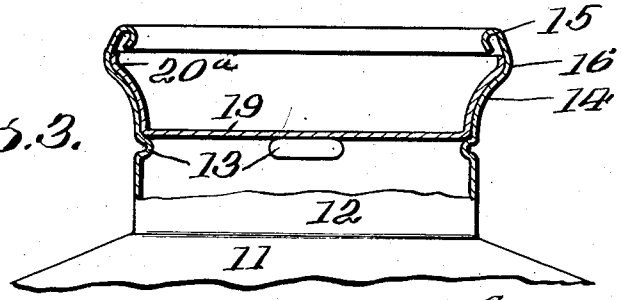


FIG. 3.



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CLOSURE FOR CONTAINERS

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1 Claim. (Cl. 220—27)

The present invention relates to new and useful improvements in containers, and more particularly to improvements in a closure for a container having a nozzle or neck portion.

An object of the present invention is to provide a closure which is positioned within the neck portion of a container in such a manner as to prevent opening of the container without destruction or deformation of the closure, thus guarding against unauthorized tampering with the contents of the container.

A further object of the invention is to provide a closure of the above type, which is expanded within the neck portion of the container so as to provide a tight fit.

A still further object of the invention is to provide a closure of the above type which is limited in its inward movement relative to the neck portion of the container and wherein the neck portion is provided around the open end thereof with an inwardly extended portion beneath which the closure is expanded to afford a tight fit and to prevent removal thereof without destruction or deformation.

The invention still further aims to provide a closure of the above type which is of simple construction and which may be readily positioned and expanded within the neck portion of the container.

The above and other objects of the invention will in part be obvious and will be hereinafter more fully pointed out.

In the accompanying drawing:

Figure 1 is a fragmentary side elevation of the container with the neck portion shown partly in section and showing the closure before the positioning thereof in the neck portion.

Figure 2 is a similar side elevation, showing the neck portion and closure in section with the closure positioned at the limit of its inward movement relative to the neck portion.

Figure 3 is a similar side elevation, with the neck portion and closure in section, showing the closure expanded into tight contact with the neck portion for sealing the contents of the container.

In the use of containers having neck portions which are adapted to be closed by removable closure members, it is desirable to provide a closure which will seal the contents of the container in such a manner that it cannot be removed without being destroyed or showing evidence of deformation. Such a construction is desirable in order to prevent unauthorized tampering with or changing the content of the container. To this end, the present invention provides a container having a neck portion which is closed by an inner sealing or closure member. The closure member is fitted within the neck portion of the container and is limited in its inward movement relative thereto. The neck portion is provided with an inwardly directed bead or shoulder beneath which a portion of the closure member is expanded into contact with the neck portion so as to prevent removal of the closure member without deformation thereof.

Referring more in detail to the accompanying drawing, the container includes a body portion 10 which may be of any suitable construction and which includes an end portion 11. The end portion 11 is provided with an upstanding cylindrical neck portion 12. The neck portion or nozzle 12 is preferably soldered or otherwise suitably secured to the end portion 11, although it may be formed as an integral part of the end portion. The neck portion is provided intermediate its ends thereof with a suitable form of inward projection to limit inward movement of the closure member in a manner to be hereinafter pointed out. As shown, the neck portion is provided with spaced inwardly extending projections 13, although these spaced projections may be in the form of a continuous inwardly extending collar, if desired. Above the inward projections 13, there is a short substantially cylindrical seating surface and then the neck portion is outwardly flared, as at 14 to form a conical seating surface, and is then inwardly flared, as at 15. The outwardly and inwardly flared portions 14, 15, respectively, thus define an outward bead 16 therebetween. The free edge around the open end of the neck portion 12 is curled inwardly, as at 17, to provide an inward bead. The inner edge of this bead 17 is of a diameter slightly greater than the normal diameter of the neck portion 12.

The closure or sealing member 18 is preferably made of relatively soft or thin metal. This closure member includes a bottom or cylindrical wall portion 19 and an upstanding peripheral wall portion 20. The peripheral upstanding wall portion 20 of the closure member is inclined outwardly, as shown in Figures 1 and 2, before it is sealed with respect to the neck portion. The diameter of the bottom wall portion 19 is of substantially the same diameter as the inner surface of the neck portion 12 directly above the projections 13. The diameter of the free edge of the peripheral wall portion 20 is of substantially the

same diameter as the diameter of the inner surface of the bead 17.

After the container is filled with its contents, the closure member 18 may be forced inwardly of the neck portion to the position shown in Figure 2. In this position, the bottom closing wall 19 is in contact with the inward projections 13 which limit further inward movement of the closure member. Contact is thus afforded between the lower part of the peripheral wall portion 20 of the closure member and the inner surface of the neck portion immediately above the projections 13 that is, in the region of the seating surface. When the closure member has been thus positioned, the peripheral wall portion 20 thereof is expanded outwardly to the position shown at 20a in Figure 3. In this position of the closure member, the upper peripheral wall thereof cooperates with bead 16 to lock the closure in place, the free edge of the peripheral wall portion 20 is disposed beneath the bead 17 on the neck portion, and the entire outer surface of the peripheral wall portion is in tight contact with the inner surface of the outwardly flared portion 14 on the neck portion 12. There is thus provided an inner seal for the container, and the peripheral wall portion of the closure member can be expanded by a suitable tool having rolls mounted on a downwardly moving spindle, these rolls being adapted to expand the wall portion of the closure into contact with the adjacent inner surface of the neck portion.

From the foregoing description, it will be seen that the present invention provides a highly efficient and relatively simple inner seal for a container. The inner seal is one which is expanded into tight contact with the inner surface of the neck portion, which in turn, is provided with an inwardly extending bead beneath which the free edge of the seal is disposed after the expanding operation. Thus, the inward bead on the neck portion prevents removal of the seal or closure member unless it is deformed or broken. The closure thus guards against tampering or unlawful changing of the contents of the container.

While one form of the invention has been shown for purposes of illustration, it is to be clearly understood that various changes in the details of construction and arrangement of parts may be made without departing from the scope of the invention as set forth in the appended claim.

I claim:

A metal container comprising a body portion having a nozzle, said nozzle having its inner wall defining a substantially cylindrical seating surface in the intermediate portion thereof, said wall flaring upwardly and outwardly from said seating surface and forming an additional conical seating surface, said wall further being directed inwardly at the upper portion of said conical surface and terminating in a beaded portion, a hollow closure member including a bottom closing wall and an upstanding peripheral wall adapted to pass within the beaded portion of the nozzle, the lower portion of said peripheral wall frictionally engaging the cylindrical seating surface on said nozzle, the upper portion of said peripheral wall being expanded outwardly into sealing contact with the conical seating surface and the inwardly directed portion of the wall of the nozzle thereby locking the closure in position, and the upper edge of said peripheral wall lying beneath the beaded portion of the nozzle whereby to prevent access to the closure member for opening the container without destruction or deformation thereof.

GEORGE A. BENSON.