

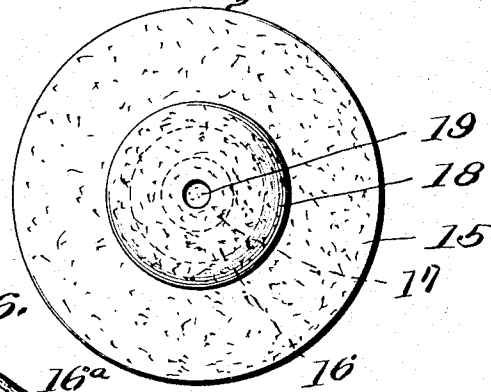
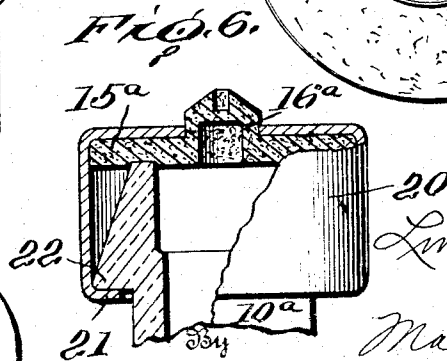
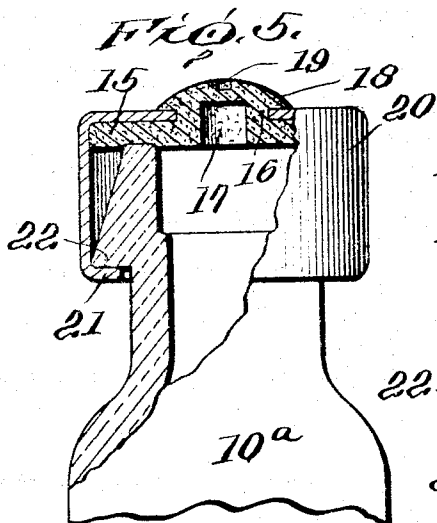
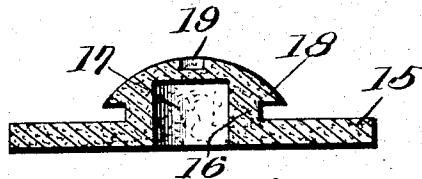
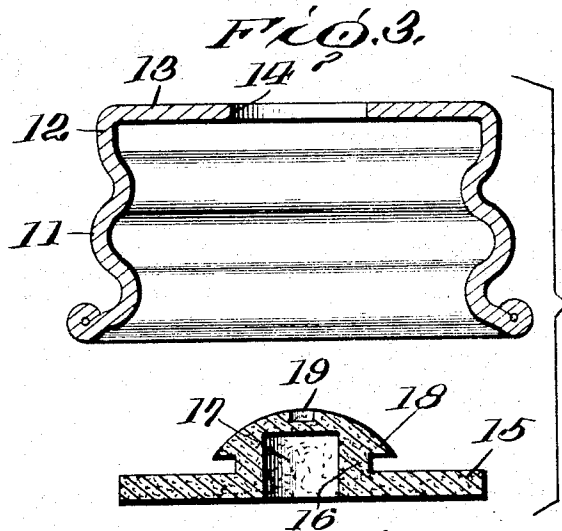
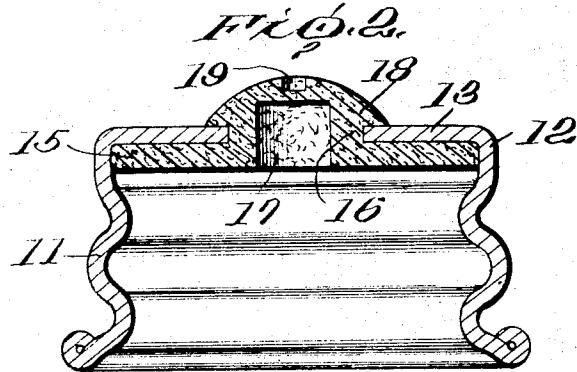
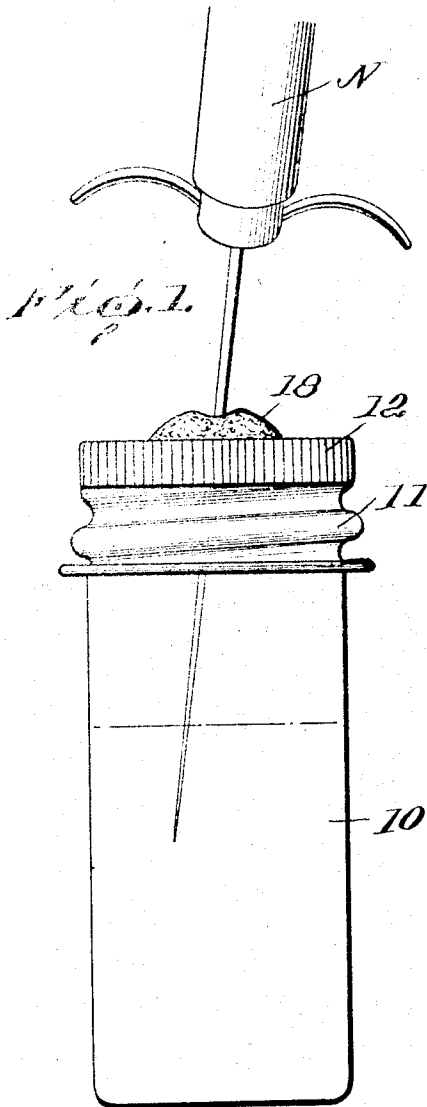
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CLOSURE FOR CONTAINERS

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CLOSURE FOR CONTAINERS

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3 Claims. (Cl. 215—38)

The present invention relates to new and useful improvements in closures for containers and more particularly to improvements in a closure for bottles or other containers used for holding hypodermic solutions such as vaccine, serum or the like which must be kept pure and free from contamination.

Containers of this type are generally provided with closures which permit the points of hypodermic needles or similar instruments to be passed therethrough into the solution, so that a portion thereof may be withdrawn. Extreme care must be taken to maintain the needles and also the closure in an antiseptic condition. The closure includes a soft rubber portion through which the needle is passed and which acts as a valve when the needle is withdrawn to reseal the container.

An object of the invention is to provide a closure of the above type wherein a relatively small part of the soft rubber closure extends through the container cap so that it may be easily sterilized and so that it is readily accessible for the needle to be passed therethrough.

A further object of the invention is to provide a closure of the above type wherein the soft rubber portion of the closure extending through the container cap is prevented from being forced inwardly when the needle is passed therethrough so as to prevent the space between the cap and the closure from being contaminated.

A still further object of the invention is to provide a closure of the above type wherein the soft rubber closure and the cap may be attached to the container as a unit.

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

In the accompanying drawing:

Figure 1 is a side elevation showing a container with the end of a hypodermic needle extending through the closure therefor.

Figure 2 is an enlarged side view, in section, showing the assembled cap and closure.

Figure 3 is a side view, in section, of both the cap and the closure before they have been assembled.

Figure 4 is a top plan view of the rubberlike closure.

Figure 5 is a fragmentary side view, partly in section, showing the rubberlike closure used with a modified form of cap.

Figure 6 is a view similar to Fig. 5, showing a slightly modified form of closure.

Referring more in detail to the accompanying

drawing, and particularly to Figs. 1 through 4, the container 10 may be in the form of a jar, bottle or other suitable container for holding a hypodermic solution. The container is threaded at the open end thereof to receive a threaded skirt portion 11 of a cap 12. The horizontal top portion 13 of the cap is provided with a central opening 14 which is adapted to be closed by a closure member 15. The closure member 15 is of a rubberlike composition, and preferably of soft rubber. The closure 15 is disposed under the top 13 of the cap 12, and serves as a gasket or liner against which the open end of the container is pressed to seal the interior thereof. The center portion of the closure 15 is extended upwardly, as at 16, to provide a projection or button which passes through the opening 14 in the top of the cap 12. The upwardly projecting portion 16 is recessed as at 17 and is provided with an annular shoulder portion 18 disposed above the top 13 of the cap 12. Centrally above the recess 17, the upwardly projecting portion 16 is provided with a small indentation 19 which serves as a means for locating the pointed end of the hypodermic needle.

In assembling the cap 12 and closure 15, the projection or button 16 is pressed through the opening 14 in the top of the cap so that the annular shoulder 18 overlies the upper surface of the top of the cap. The body portion of the closure member extends over the under face of the top of the cap and, as indicated above, serves as a gasket against which the open end of the container is pressed.

After the container 10 has been filled with the medicinal preparation, the assembled cap and closure are secured thereto. When it is desired to withdraw a portion of the contents, the point of the hypodermic needle is placed in the small indentation 19 and then passed therethrough into the solution, a portion of which may be withdrawn. When the needle is passed through the upwardly extending portion 16, the annular shoulder 18 abutting against the outer face of the top 13 of the cap prevents the closure from being depressed inwardly of the container. Thus, contamination of any space between the closure 15 and the top 13 of the cap is prevented. When the needle is withdrawn from the closure, the soft rubber composition of the closure 15 is sufficiently resilient to immediately and automatically reseal the container.

As shown in Fig. 5, the rubberlike closure 15 is employed with a different form of container cap 20. In this instance, the cap is tamperproof and

is provided with a cylindrical body portion, the lower edge 21 of which is spun under the shoulder of flange 22 on the bottle or container 10a.

A slightly modified form of closure 15a is shown in Fig. 6. In this instance, the annular shoulder 19 is omitted from the upstanding portion 16 which extends through the opening 14 in the cap.

From the foregoing description, it will be readily seen that the upwardly extending portion 16 of the closure 15 extends through the opening 14 in the cap and is disposed above the top of the cap so that it may be readily sterilized each time the needle is to be passed therethrough for withdrawing a portion of the contents of the container. It will be further seen that in the form shown in Figs. 2 and 5, the annular shoulder 18 on the closure 15 serves to prevent the upstanding portion 16 from being depressed inwardly of the container. In this manner, any impurities are prevented from gaining access between the inner surface of the top of the cap and the closure.

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 spirit of the invention as set forth in the appended claims.

I claim:

1. A closure device for containers, comprising a cap having an opening therethrough, a soft rubber closure member having a body portion serving as a gasket disposed between the top of said cap and the open end of the container and having a portion thereof extending outwardly through the opening in said cap and adapted to be pierced by a hypodermic needle for withdrawing a portion of the contents, means for preventing the closure member from being forced inwardly of the container when the hypodermic needle is passed therethrough, and an external recess in the outwardly extending portion of said closure member for locating the pointed end of the hypodermic needle.

2. A closure device for containers comprising a cap having an opening therethrough, a closure

member having a body portion disposed between the top of said cap and the open end of a container and serving as a sealing gasket, said closure member including a soft rubber portion extending through the opening in said cap, said soft rubber portion having the outer end thereof terminating immediately above the outer surface of said cap and being of reduced thickness immediately adjacent said cap in the region of the opening therethrough for facilitating the passing therethrough of a hypodermic needle for withdrawing a portion of the contents of the container, and an annular shoulder formed immediately adjacent the outer end of said soft rubber portion, said annular shoulder overlying and abutting against the outer surface of said cap for preventing the reduced outer end of said soft rubber portion from being forced inwardly of the container when a hypodermic needle is passed therethrough.

3. A closure device for containers comprising a cap having an opening therethrough, a closure member having a body portion disposed between the top of said cap and the open end of a container and serving as a sealing gasket, said closure member including a soft rubber portion extending through the opening in said cap, said soft rubber portion having the outer end thereof terminating immediately above the outer surface of said cap and adapted to be pierced by a hypodermic needle for withdrawing a portion of the contents of the container, said soft rubber portion having an internal recess opening downwardly and extending to a point substantially in line with the upper surface of said cap for reducing the thickness of the material through which the hypodermic needle is passed, and an annular shoulder formed immediately adjacent the outer end of said soft rubber portion, said annular shoulder overlying and abutting against the outer surface of said cap for preventing the outer end of said soft rubber portion from being forced inwardly of the container when a hypodermic needle is passed therethrough.

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