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E. G. PROTHE

3,232,471

CONTAINER CLOSURE

Filed July 21, 1964

FIG. 1

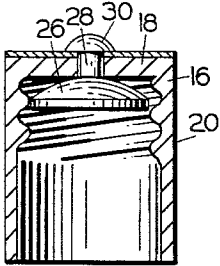


FIG. 2

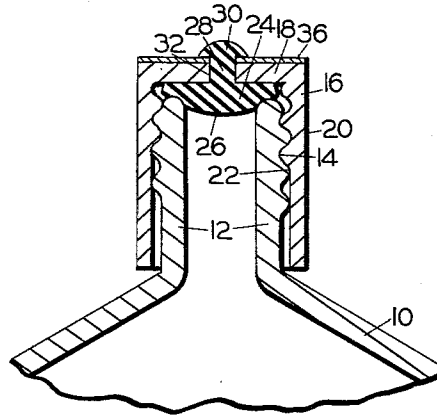


FIG. 4

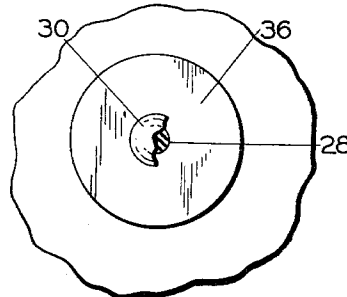
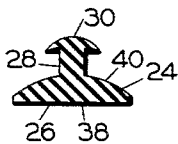


FIG. 3

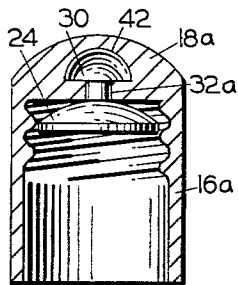


FIG. 5

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3,232,471

CONTAINER CLOSURE

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1 Claim. (Cl. 215—43)

This invention relates to new and useful improvements in container closures.

Container closures for toothpaste tubes, shaving lotions, and other types of containers comprise a threaded cap on the container and a resilient sealing member or gasket which provides a seal between the cap and the container. The sealing member generally is seated interiorly of the cap and frequently falls therefrom or sticks to the top of the container when the cap is removed. It is either necessary to repeatedly handle this sealing member or to apply the cap without it with the result that a positive seal is not thereafter established between the cap and the container. It is therefore a primary objective of the present invention to provide a container cap having an inner sealing member which is securely attached to the cap.

Another object of the present invention is to provide a container cap which has a novel structural shape serving to form a positive seal between the cap and a container.

Another object is to provide a sealing member of the type described which serves to hold an advertising plate in place on top of the closure.

Briefly stated, the invention comprises a rigid or semi-rigid cap to which is attached a resilient sealing member whereby when the cap is removed from the container the said sealing member will always remain with the cap to prevent the inconvenience of keeping said sealing member therewith. In a preferred construction, the sealing member is rotatably connected to the cap whereby relative rotation between the cap and the sealing member may exist to accomplish an efficient sealing connection of the cap on a container. With one form of connection as just mentioned, the present sealing member can be utilized to hold an advertising plate on an outer surface of the cap.

The invention will be better understood and additional objects will become apparent from the following specification and claims, considered together with the accompanying drawings, wherein the numerals of reference indicate like parts and wherein:

In the drawings:

FIGURE 1 is a vertical, central sectional view taken through one embodiment of the present container cap, the cap being shown apart from a container;

FIGURE 2 is a view similar to FIGURE 1 except that it shows the cap secured on a container;

FIGURE 3 is a top plan view of the cap of FIGURE 1;

FIGURE 4 is a central sectional view through a sealing member which forms a part of the present invention; and

FIGURE 5 is a central sectional view of a modified form of cap.

Referring first to FIGURE 2, the present cap is adapted for use with a container 10 having a neck portion 12 provided with external screw threads 14. Such is the usual spout portion for containers of toothpaste, shaving creams, cosmetics, etc.

The preferred embodiment of the present cap, designated generally by the numeral 16 and illustrated in FIGURES 1-4, comprises a molded body having a head portion 18 and a side wall portion 20 projecting from the periphery of the head portion. Side wall portion 20 has internal screw threads 22. Adapted for securement to the cap 16 is a sealing member 24 having a body portion 26, a neck or projection 28, and a top enlargement 30 on said neck. Enlargement 30 preferably is rounded on its upper end but its lower end has flat edges projecting outwardly at substantially right angles to the neck.

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The head 18 of the cap 16 has an aperture 32 in which the neck 28 of the sealing member 24 is adapted to be mounted. More particularly, the sealing member 24 is of resilient material, such as rubber or plastic, and is attached to the cap by forcing the neck portion of the sealing member upwardly through aperture 32. When the enlargement 30 is disposed on the upper or outer side of the head portion 18, it serves to lock the sealing member in the cap, the neck 28 being of a selected length such that the projection 30 will firmly grip the outer side of the cap and urge the body portion 24 firmly into engagement with the inner side of the head.

It may be desired to secure a thin advertising plate 36, FIGURE 1, on the top surface of the closure 16. In this case the neck 28 merely needs to be slightly longer to space the enlargement a sufficient distance above the top surface of head 18 to accommodate said plate. The plate may include any desired advertising indicia on its upper surface.

The body 26 of sealing member 24 has a normally flat bottom surface 38 and a normally rounded top surface 40, the body portion having a greater thickness at its central portion. The sealing member 24 is shown apart from the cap in FIGURE 4. FIGURE 2 illustrates the sealing position and shape of the member 24 when the closure 16 is threaded tightly on the neck 12 of a container. Before the closure is threaded onto the container, the sealing member 24 assumes its normal shape as shown in FIGURES 1 and 4. As the cap is threaded onto the container, the bottom surface 38 of the sealing member is first brought into engagement with the top edge of the neck 12 of the container. Thus, a sealing function is accomplished immediately. Upon additional rotation of the closure the sealing member 24 is distorted to the shape of FIGURE 2 wherein its upper rounded surface 40 is pressed up flush against the bottom surface of the head 18 into a flat condition and the top edge of the container neck is embedded somewhat into the lower surface 38. Said lower surface also assumes a generally rounded contour when the cap is fully mounted on the container.

In a preferred construction the neck 28 of the sealing member has a rotatable association with the aperture 32 so that once the sealing member has firmly engaged the top edge of the container it will remain stationary as the cap is further rotated. Thus, the sealing member will be compressed forcefully on top of the neck 12 and will conform to any irregularities in the top edge of said neck and form a positive seal.

FIGURE 5 illustrates a modification of the present invention. The sealing member 24 is of identical construction to that of FIGURE 1. The cap 16a, however, has a thickened head portion 18a provided with an aperture 32a leading inwardly from its internal surface. Aperture 32a terminates in an enlarged internal cavity and the sealing member 24 is mounted on the cap by forcing the enlargement 30 through the aperture 32a so that it will be contained in cavity 42 for securing the sealing member to the closure.

In accordance with the present invention a cap or closure is provided which has a sealing member not capable of becoming displaced at least without considerable deliberate effort. Therefore, when the cap is unthreaded from the neck of the container, the sealing member will be lifted from the top of the neck without sticking thereon or becoming lost when the cap is removed. Furthermore, the sealing member which forms a part of the cap serves efficiently to seal the cap on a container.

It is to be understood that the forms of my invention herein shown and described are to be taken as preferred examples of the same and that various changes in the shape, size and arrangement of parts may be resorted to

without departing from the spirit of my invention or the scope of the subjoined claim.

Having thus described my invention, I claim:

A container closure comprising a head portion having an inner surface, peripheral side walls on said head portion having internal screw threads arranged to engage external screw threads on a container for tightening said closure on the container, means in said head portion defining an aperture, a resilient sealing member disposed interiorly of said closure member adjacent the inner surface of said head portion, a projection on said sealing member received in said aperture and having an enlargement thereon engageable with said head portion for connecting said sealing member to said head portion, the connection of said projection and enlargement to said head portion comprising a rotatable connection, said sealing member having a rounded upper surface and a flat bottom surface and being arranged to remain stationary on the top edge of a container as said closure is threadedly tightened on the

container, said rounded upper surface being arranged to flatten out against the inner surface of said head portion of said closure when said closure is threaded on a container and said bottom surface being arranged to grip the top edge of the container, whereby to provide a positive seal between said closure and the container.

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