

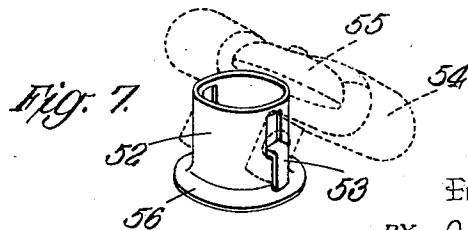
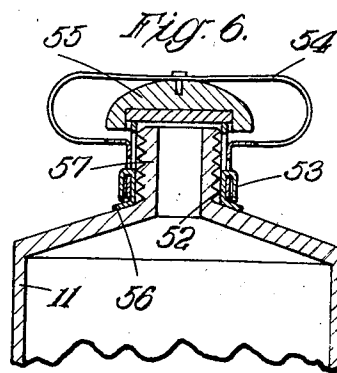
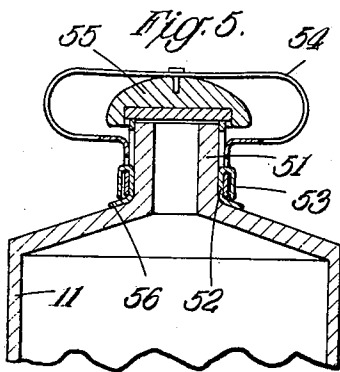
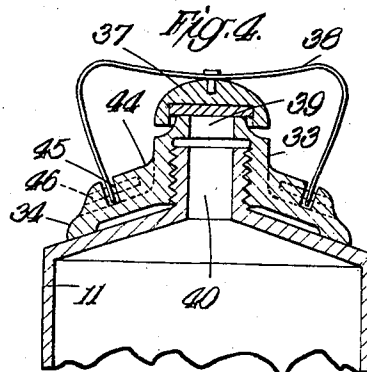
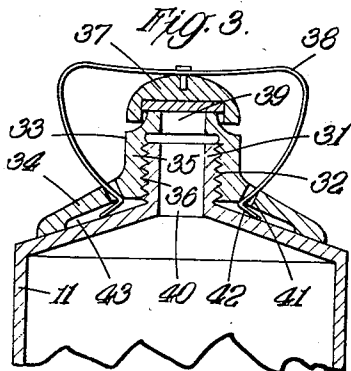
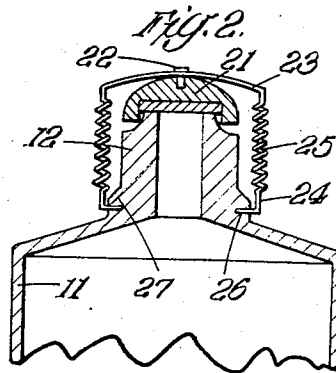
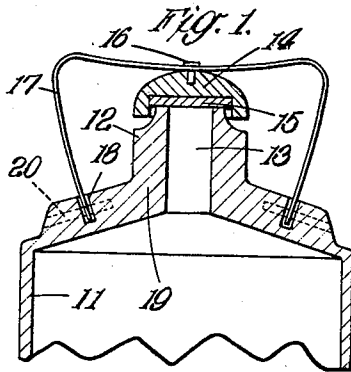
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E. B. FERNBERG

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CLOSURE DEVICE FOR COLLAPSIBLE TUBES AND OTHER CONTAINERS

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INVENTOR.
ERIC BIRGER FERNBERG
BY *John P. Farley*
ATTORNEY

UNITED STATES PATENT OFFICE

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CLOSURE DEVICE FOR COLLAPSIBLE TUBES
AND OTHER CONTAINERS

Eric Birger Fernberg, Pinner, England

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3 Claims. (Cl. 221-60)

This invention relates to a closure device, stopper or cap, for containers and is adapted particularly to containers of the kind known as collapsible tubes employed for tooth paste, shaving cream and other creams, but is also applicable to bottles, tins and so forth. The object of the invention is to provide such a closure member or stopper which is cheap, secure and readily detachable.

According to the present invention a closure member, for containers of the kind described comprises a closure member proper, stopper or cap secured to, or co-operating with, a spring member arranged to hold the closure member firmly in place when in closed position and to be actuated to permit the ready removal of, or itself to remove and replace the closure member, stopper or cap.

The spring member is preferably attached permanently to the closure member and is so formed as to hold it under pressure when in closed position.

In cases where the collapsible tube is manufactured particularly to be fitted with the stopper or closure device of this invention, the spring member may be of flat spring steel or of wire coiled into a coiled spring along portions of its length, and bowed to embrace the container neck or nozzle, being preferably pivoted at its ends to the container and in closed position looping around the container neck or nozzle. If the spring member is in the form of a wire as described above, it may be attached firmly to the container and forced against the tension of its coiled spring portions to remove the closure member from its closed position.

The spring member is formed in a bow so that pressure on its limbs lifts the closure member proper from its closed position whereupon it may be moved, by swinging the spring member about its pivots to one side or the other of the container to expose the outlet or nozzle so that the contents may be extracted.

If desired, the closure member may be in the form of a screw cap pivotally mounted on the spring member which then serves as a retainer for the cap. The stopper or cap may be provided with a known type of cork or like washer.

The method of mounting the spring member on the container may comprise the formation of lugs on the container during its production, said lugs being recessed to receive intumed ends of the spring member, the tension of the spring member being such that said intumed ends tend constantly to be urged into said recesses.

Another method of mounting the spring mem-

ber may comprise the formation of similarly formed but slotted lugs on the container, pins or rivets passing through the free ends of the springs into the said slots and being retained therein by forcing or squeezing the metal of the container over the slots to grip firmly said pins or rivets.

In cases where the closure device or stopper is to be used with collapsible tubes of standard type i. e. those which have screw threaded nozzles for a screw-on cap, the closure device of this invention may be modified to suit the different construction.

For example, a tube may be closed by the usual screw cap when it is manufactured or sold originally, and when the tube is ready for retail sale, the original screw cap may be discarded and a screwed member formed as a unit with the spring and closure cap proper may be fitted in place of the discarded cap. The spring member for holding the closure device in position in a similar manner to that described above may be attached to the screwed member by insertion of the legs thereof in holes formed in enlarged portions at the base of the screwed member, the ends of the legs being turned over to hold the spring and to serve as an axis for rotation of the spring and closure device or cap.

Another method of securing the legs of the spring may be to pass them into grooves cut in the enlarged base of the screw cap and to anchor them therein pivotally by pins passing through the cap at right angles to the legs of the spring.

In a further modification, adaptable for use with a tube having a screwed or plain nozzle or neck, a cylindrical sleeve is forced over the neck to fit it snugly and tightly, the sleeve being formed with a flared bottom bearing against the shaped upper portion of the tube and serving as a stop for the spring when it is pushed downwards. Tongues are punched out of the sleeve, diametrically opposite each other, and turned over to serve as pivots for the legs of the spring, which carries the closure device or cap as described above. The spring in this case, which is preferably of flat strips, will be formed with an aperture through which the turned down tongues pass, to permit of free rotation of the spring and cap.

The sleeve may, if desired, be staked to the neck of the tube.

The invention is illustrated by way of example, in the accompanying drawing, of which Figures 1 to 6 are cross-sections through the neck portion of a collapsible tube (shown broken away) of several modifications and Figure 7 is a per-

spective view of the sleeve shown in Figures 5 and 6.

The collapsible tube is designated throughout all the figures by the numeral 11.

5 In Figure 1 the collapsible tube 11 is formed with a plain neck portion 12, the nozzle 13 being closed by a cap 14 carrying a cork or like washer 15. The cap 14 is riveted at 16 to the bowed spring 17, in the form of flat strip spring steel, the ends of which pass into arcuate slots 18 cut into the enlarged portion 19 of the tube, and are retained in said slots by means of pins 20, driven through the portion 19, or passing through holes formed therein, at right angles to the slots 18.

15 According to Figure 2, the cap 21 is riveted at 22 to the wire spring 23, formed along each leg 24, with coils 25 providing the required resiliency, the ends of the spring 23 being turned inwardly at 26 to engage and pivot in the enlarged portion 27 of the neck 12.

20 In Figure 3 is shown a modification, in which the tube is arranged to be sold with the normal screw-cap (not shown) the neck portion 31 of the tube 11 being screwed as at 32. The normal screw cap is replaced by the screw cap 33 of this invention, it includes an enlarged portion 34 arranged to seat on the upper end of the tube 11, a neck portion 35, screwed internally as at 36. The cap 37, riveted to the bowed spring 38, seats on the upper surface of the auxiliary cap 33 to close the nozzle 39 in alignment with the nozzle 40 of the tube. The ends of the bowed spring 38 pass through slots 41 in the enlarged portion 34 of the auxiliary cap, and are formed with out-turned feet 42, engaging in the cutaway portions 43 of the cap, to permit a swinging movement of the spring and cap to disclose the nozzle 39.

40 Figure 4 is a modification of Figure 3 showing another method of attaching the bowed spring 38 to the enlarged portion 34 of the auxiliary cap 33. The cap is formed with two raised portions 44, slotted at 45 for the reception of the ends of the spring 38 and formed with holes for the reception of pins 46 passing through the ends of the spring at right angles to the slots 45 to retain said spring.

50 In Figure 5 is shown a tube 11 having a plain neck 51, over which is fitted tightly a sleeve 52 (shown also in Figure 7). Diametrically opposed lugs 53 are punched out from the sleeve to serve as pivots and retaining means for the ends of the bowed spring 54 carrying the cap 55

as in previous figures. The bottom of the sleeve 52 is flared, as at 56 to seat on the upper sloped surface of the tube 11. Likewise in Figure 6, which shows a similar arrangement to that of Figure 5, but in this case the tube 11 is provided with the normal type of screwed neck 57.

It should be understood that, although the foregoing description deals particularly with collapsible tubes, such for example as tooth-paste and shaving cream tubes, the invention is not limited thereto.

By means of the foregoing it will be clear that a simple and cheap closure member, stopper or cap, is provided for containers of the collapsible tube type and the like, whilst the invention is also applicable to containers generally. The closure member is removed and replaced with great ease without the possibility of losing the stopper or cap and when in closed position the tube or the like is sealed securely whilst the arrangement described does not increase the costs of manufacture.

I claim:

1. A closure device for containers of the kind described comprising a member adapted to be screwed to the neck portion of the container and formed with a flared base to bear against the container, lugs on said member, a cap and retaining means to which the cap is secured, said retaining means being anchored pivotally to the lugs on said member.

2. A closure device for collapsible tubes formed with shoulder and neck portions comprising a member adapted to be screwed to said neck portion and having an undercut flared base adapted to abut against the shoulder of the tube, and a cap riveted to retaining means such as a bowed spring, the ends of said bowed spring passing through arcuate slots former in the flared base and provided with outwardly directed feet engaging in the undercut recess of said base.

3. A closure device for collapsible tubes formed with shoulder and neck portions comprising a member adapted to be screwed to the neck portion and having a flared base adapted to abut against the shoulder of the tube, said base being formed with diametrically opposed upstanding lugs, a cap and retaining means therefor in the form of a bowed spring to which said cap is riveted, the ends of said bowed spring being secured pivotally to the lugs of the flared base.

ERIC BIRGER FERNBERG.