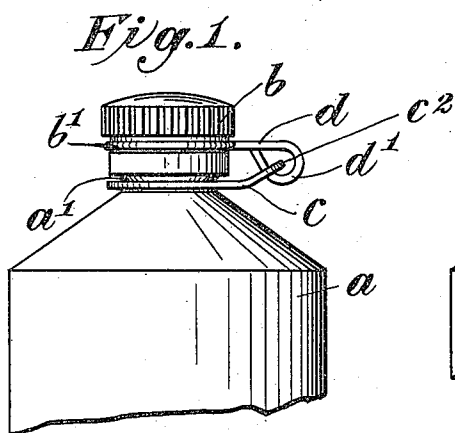
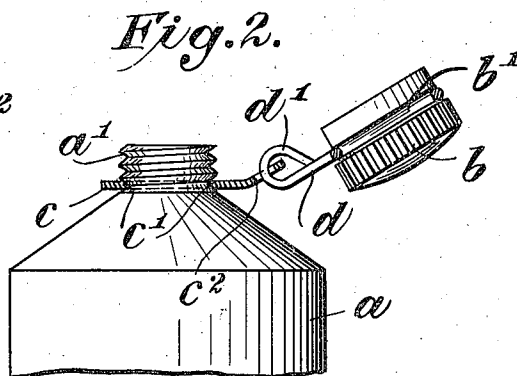
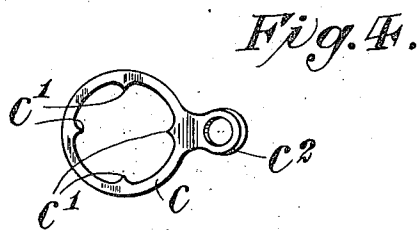
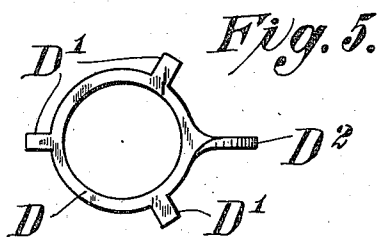
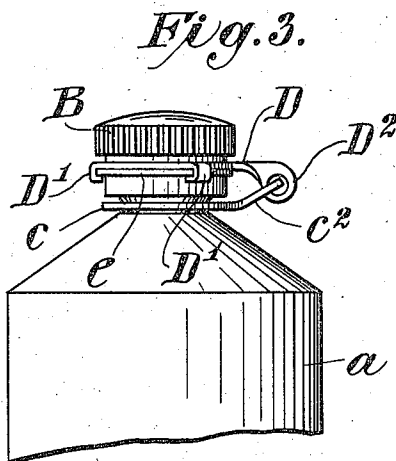


C. CLARK.
CAP RETAINER FOR DEFORMABLE TUBES.
APPLICATION FILED SEPT. 14, 1915.

1,201,254.

Patented Oct. 17, 1916.



WITNESS
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CHARLES CLARK, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO CAP-HOLD, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CAP-RETAINER FOR DEFORMABLE TUBES.

1,201,254.

Specification of Letters Patent.

Patented Oct. 17, 1916.

Application filed September 14, 1915. Serial No. 50,560.

To all whom it may concern:

Be it known that I, CHARLES CLARK, a citizen of the United States, residing in the borough of Manhattan of the city of New York, in the county of New York, in the State of New York, have invented certain new and useful Improvements in Cap-Retainers for Deformable Tubes, &c., of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

In a co-pending application filed by the present applicant on August 27, 1915, Serial No. 47,586, there is shown and described a retainer for the caps of collapsible tubes or the like comprising, broadly, two links loosely interconnected, one of which is affixed to the cap and the other of which is loosely engaged with the threads of the neck of the tube.

The present invention relates to retainers of the same general character but seeks to provide retainers which may be more satisfactory under some conditions of use.

The objects of the invention are essentially those stated in the co-pending case but, in addition, the present application seeks to cover a retainer composed, broadly, of two links loosely interconnected, one of which is affixed to the container and the other of which is loosely engaged with the cap whereby the cap may rotate freely with respect to it. These devices like those in the co-pending case may be embodied in many different forms although for the purposes of this application it has been deemed sufficient to illustrate only two such forms.

In the drawings Figure 1 is a view in side elevation of a fragment of a container on which is threaded a cap of usual construction and to which is applied the improved retainer. Fig. 2 is a view showing the cap and container illustrated in Fig. 1 but with the cap removed and the retaining links illustrated in section. Fig. 3 shows a modified construction of retainer. Fig. 4 is a detail view of the link about the neck of the container shown in Figs. 1-3. Fig. 5 is a detail view of the link about the cap shown in Fig. 3 prior to the upsetting of the lugs thereon. Fig. 6 is a detail view of the retaining ring shown on the cap in Fig. 3.

In the drawings, the usual collapsible container *a* is formed with a threaded neck *a'* on which may be secured a cap *b* to close

the tube when the latter is not in use. Difficulty has always been experienced heretofore in preventing the loss of loose caps through misplacement during use of the collapsible container and this invention as well as that set forth in the co-pending case seeks primarily to eliminate this objection to threaded closures of this kind by providing a suitable retainer by means of which the cap is always connected to the tube. The improved retaining device comprises a suitable link *c* secured fixedly to the container *a* and a second link *d* loosely connected with the first link and with the cap *b* whereby free rotative movement of the cap on the threaded neck is permitted, as during removal and replacement.

The precise means by which one of the links *c* is engaged permanently with the container *a* or with the threaded neck *a'* thereof, and by which the other link *d* is so connected with the cap *b* as to permit free rotative movement thereof, may take widely different forms, the invention not being limited to the precise method which the individual mechanic adopts. In the drawings there are illustrated two ways of realizing the desired results. In the first instance, a ring *c* is stamped from a piece of sheet metal and with barbs *c'* on its inner periphery and with an eye *c²* on its outer periphery, thereby forming a link. The ring has an inner mean diameter corresponding approximately to the diameter of the screw threads of the neck *a'* so that the link *c* may be threaded to the base of the threads on the neck and then have pressure applied to the barbs for the purpose of embedding them permanently in the soft metal of the neck. The other link *d* may be formed from a piece of wire which is passed around the cap *b* and disposed loosely within a circumferential groove *b'* formed thereon, this wire, of course, being of sufficient stiffness to retain its form and to resist any ordinary strains imposed thereon and which tend to withdraw it from the groove *b'*. This wire has formed at its free end an eye *d'* which is passed through the eye *c²* of the other link *c*, thereby forming a loose connection between the two links and permitting the cap *b* when removed from the neck *a'* to swing back from the mouth of the neck to a position away from the contents to be discharged. In this connection, it is to be noted that the links *c* and *d* are both

of sufficient length to permit the cap b to be held well away from the mouth of the neck. The wire d being disposed loosely within the groove b' permits free rotative movement of the cap b along the threaded neck a' for purposes of removal or replacement while the link c being permanently fixed in position on the tube holds the link d against rotative movement. This construction, broadly, is just the reverse of the construction illustrated in the co-pending case in which the link on the cap rotated therewith while the link on the threaded neck rotated with respect thereto.

15 In the modified construction suggested in Fig. 3 a link c similar in all respects to that described hereinbefore may be affixed to the neck of the tube a while the other link D on the cap is held thereon in a slightly different way. In this construction, it is unnecessary to provide the cap B with a circumferential groove. The link D as shown in Fig. 5 is stamped from sheet metal and formed with a ring which has an inner diameter slightly greater than the outer diameter of the cap B so that the link may be slipped loosely on to the cap. This link has lugs or ears D' stamped integral therewith about the outer periphery of the ring portion. After the link D has been placed loosely in position on the cap a plain ring e is forced on to the cap with a driving fit so that it is held by the cap and rotates therewith. The ears D' on the link D are then bent over to engage the guard ring e loosely so that while the link D cannot be removed from the cap B it permits relative rotation of the cap with re-

spect to it, as during the removal or replacement of the cap. The link D has an eye D² which engages the eye c^2 of the other link c as explained hereinbefore.

Modifications within the scope of the claims hereunto appended may be made without departing from the spirit of this invention, the general purview whereof has been indicated in this specification and while reference is made to the affixing of the link c to the container it is evident that the link may rotate with respect thereto.

What I claim is:—

1. In combination with a vessel having a threaded neck and a threaded cap therefor, a retainer for the cap comprising a band encircling the cap loosely, whereby the cap may rotate with respect to the band and another band encircling the neck of the vessel and disposed within the threads, and means carried by said last named band to engage the metal of the neck fixedly to hold the band against rotation, and said bands being pivotally engaged with one another.

2. A retainer for the threaded cap of a vessel, comprising a ring encircling the cap loosely and having lugs formed thereon and an eye, a second ring affixed to the cap with a driving fit and engaged loosely by the lugs on the first ring, and a band encircling the neck of the vessel fixedly and having an eye engaged loosely with the eye of the first named ring.

This specification signed this 11th day of September A D., 1915.

CHARLES CLARK.