Dec. 15, 1931. E. K. McNEAL 1,836,811

CAP CONNECTER FOR CONTAINERS

Filed Sept. 17, 1928

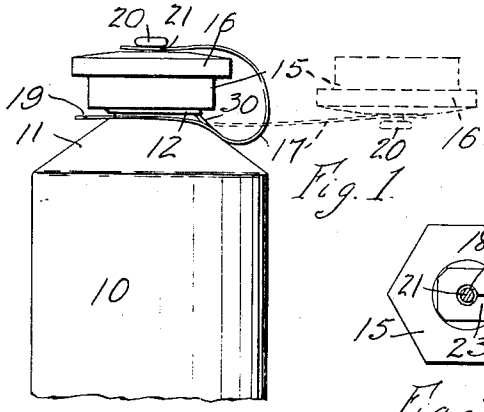
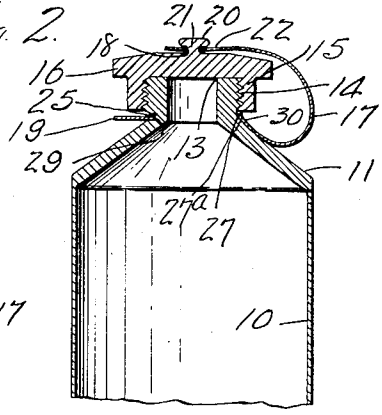


Fig. 1.

Fig. 3.

Fig. 2.



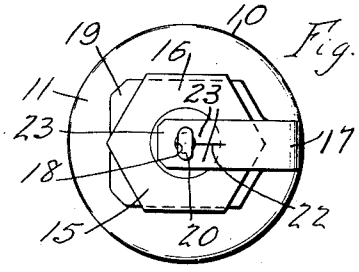


Fig. 4.

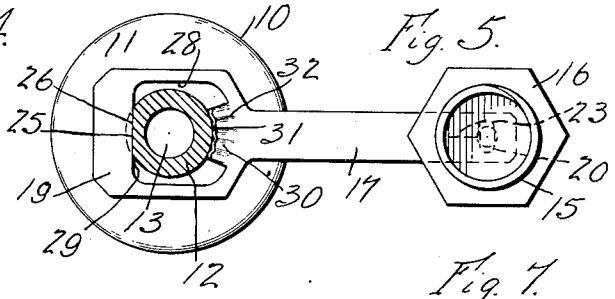


Fig. 5.

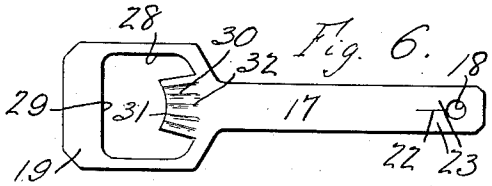


Fig. 6.

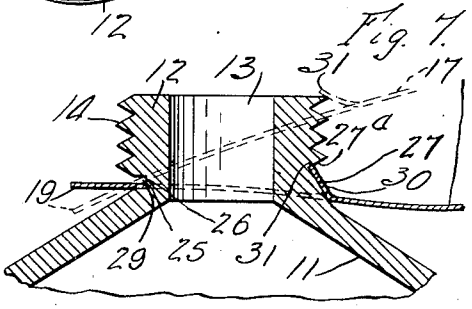


Fig. 7.

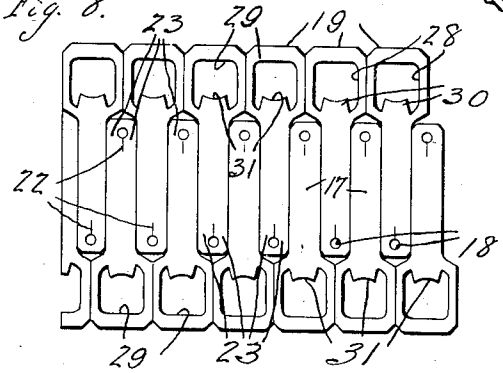


Fig. 8.

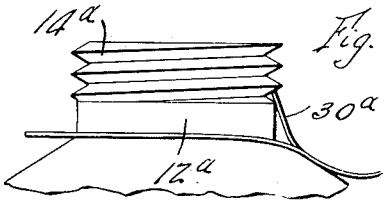


Fig. 9.

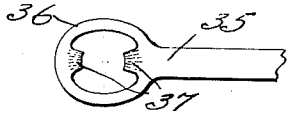


Fig. 10.

INVENTOR.
Edward K. McNeal
by Parker & Prochnow
ATTORNEYS.

Patented Dec. 15, 1931

1,836,811

UNITED STATES PATENT OFFICE

EDWARD K. McNEAL, OF FORESTVILLE, NEW YORK

CAP CONNECTER FOR CONTAINERS

Application filed September 17, 1928. Serial No. 306,500.

This invention relates to connecters or retaining devices for caps or closing members of containers, which serve to prevent the losing or misplacing of the caps when they are removed from the containers.

The improved retainer is particularly adapted for holding caps which are used for closing collapsible tubes, for the purpose of preventing the loss or misplacement of a cap when disconnected from its tube. The device can, however, be applied to other forms of containers having closures of the character stated.

Some objects of the invention are to provide an improved connecter for the purpose stated, which is so formed that it can readily be attached to the container and its cap either by the individual who purchases a container or by the seller of the container, so that a filled container may be sold with the connecter separate from the container and cap, if desired; also to provide a connecter of this kind which is of simple, practical and inexpensive construction and can be readily secured to the cap and container; also to provide a connecter of this sort which can be made entirely of a single piece of sheet material; and also to provide a connecter of this kind which is so formed that a number of said connecters can be struck at one time from a sheet of material in a single stamping operation with a minimum waste of material.

Other objects are to construct a connecter of the character set forth which is formed of resilient sheet material and is provided with an apertured part which may be sprung over a projection on the detachable cap in a manner to hold the cap connected therewith while nevertheless permitting free rotation of the cap for detachment from and attachment to the tube or container; also to provide an improved attachment of the retainer or connecter to the container.

Other objects and advantages will be apparent from the following description of an embodiment of the invention, the novel features of which will be set forth in the appended claims and illustrated in the accompanying drawings in which

Fig. 1 is a side elevation of the upper portion of a collapsible tube or container with its cap or closure member and one of the improved connecters attached thereto.

Fig. 2 is a sectional elevation thereof.

Fig. 3 is a plan view, partly in section, of the cap or closure and the adjacent attached portion of the connecter.

Fig. 4 is a plan view of the container and connecter in the same relation as that shown in Fig. 1.

Fig. 5 is a plan view thereof with the neck portion of the container in section, showing the cap removed from the neck and connected to the container by the improved connecter.

Fig. 6 is a plan view of the connecter.

Fig. 7 is an enlarged fragmentary, vertical section of the neck portion of the container showing a connection between the container and the connecter.

Fig. 8 is a diagrammatic plan view of a plurality of connecters as stamped from a sheet of material.

Fig. 9 is a side elevation of the upper portion of a container having a neck of standard form, with the improved connecter applied thereto.

Fig. 10 is a plan view of a connecter of slightly modified form.

The container illustrated comprises the usual cylindrical body portion 10 closed in any suitable way at its lower ends, not shown, and having a conical or tapering upper end wall 11 terminating in a neck 12 which is provided with the usual discharge orifice 13. The neck 12 may be exteriorly threaded as shown at 14, for the reception of an interiorly threaded screw cap 15 having a transverse top wall or portion 16. The container and cap, so far as described do not constitute a part of the invention and are illustrated merely to show how my invention may be applied to a container and cap.

The improved connecter, see Fig. 6 is formed of a single piece of thin, resilient sheet material and includes a relatively narrow and straight ribbon-like body portion 17 having at one end an aperture 18 by which it is connected to the cap 15, and at its opposite end an enlarged apertured portion

19 for connection to the neck of the container.

In accordance with the particular construction illustrated, the cap 15 is provided with a relatively small, transversely elongated knob 20 which is preferably disposed centrally on the cap and is connected to the top face of said cap by a reduced cylindrical shank 21.

The aforementioned aperture 18 of the connecter is preferably round and of slightly larger diameter than the shank 21 and is adapted to surround the same when applied to the cap in a manner to permit the cap to turn freely relatively to said connecter. In order to permit the connecter to be applied over the knob 20, a slit or cut-out portion 22 terminating in the aperture 18 is formed in the body portion 17 of the connecter, thus providing one or more free or resilient tabs or parts 23 adjacent to the aperture 18. To apply the connecter over the knob 20, the aperture 18 is passed over one end of the knob with the slit 22 extending lengthwise over the knob, and then by depressing the connecter, the tabs 23 are deflected so that the slit portion 22 can be passed downwardly over the knob 20. When the aperture 18 and its connecting slit portion 22 have passed below the knob 20, the resilient tabs or portions 22 of the material adjacent the slit will spring back into their original positions, and thereby form an obstruction to the accidental disconnection of the connecter from the cap, while nevertheless permitting free relative movements therebetween.

If desired the enlargement 20 of the projection 21 may be formed by the usual beading or flattening operation after the projection has been inserted through the aperture 18, in which case the slit 22 may be omitted.

The connecter may be secured to the container in any suitable or desired manner, preferably in such a way that the connecter is merely forced over the end or neck of the container and is held in place thereon and preferably also against turning. In the particular embodiment of this invention illustrated in Figs. 2, 5 and 7, that portion of the neck 12 of the container immediately adjacent the top wall 11 thereof and below the threads 14 is specially formed for the reception of the connecter. For this purpose, the neck 12 (see Fig. 5) is undercut at one side to form a recess or notch 25 having a transverse vertical bottom or inner wall 26 and diametrically opposite this recess 25 the neck is formed with an oblique, inwardly and upwardly directed shoulder or depressed flat face 27, the top edge of which terminates inwardly beneath one of the lower threads 14 of the neck, which forms therewith an undercut stop shoulder 27*a*.

The enlarged end portion 19 of the connecter in the particular form shown, is formed with an aperture 28 adapted to pass over and surround the neck of the container. This aperture, at the outer end of the enlargement, is provided with a transverse edge 29 and, opposite thereto, with an inwardly directed tongue or projection 30 terminating in a transverse edge 31. The aperture 28 and the tongue 30 are so proportioned that by inclining the connecter as shown in Fig. 7, with a portion of the neck of the container projecting obliquely therethrough, the edge 29 may be engaged in the recess 25 in the neck. If the body portion of the connecter 17 is now moved downwardly, the resilient tongue 30 will snap over the threads 14 and will come to rest lying substantially flat against the oblique recessed face 27, with its free edge 31 engaging beneath the stop shoulder 27*a*, or thread on said neck so that threads on the cap do not engage the tongue 30.

In this way the connecter is attached to the neck of the container in a manner to prevent its free rotation thereon and is maintained in such relation thereto that it is prevented from interfering with the turning movement of the cap 15 when manipulated to apply it to or disconnect it from the container, as the spring tongue will act to draw the edge 29, into the recess 25 and hold it firmly against the face 26. The connecter described may, however, be attached to a container neck not having the special means described for holding the connecter against turning, as shown for example, in Fig. 9. This figure illustrates the upper portion of a container having a neck 12*a* of standard or unmodified form provided with the usual threads 14*a*. The connecter hereinbefore described can be applied to the container of Fig. 9 by passing its larger end down over the threads 14*a*, until it surrounds the neck portion 12*a* and the tongue 30*a* engages beneath one of the threads near the base of the neck.

When the cap is disconnected from the container the resiliency of the connecter will cause the cap to be moved away from the neck of the container as shown in dotted lines, Fig. 1, so as to permit free access to the contents of the container.

Preferably, to stiffen the tongue 30 and prevent its deformation, it is corrugated lengthwise, as shown at 32.

The form of the connecter illustrated is such that a number of them can be struck at one time by a single stamping operation from a sheet of material, as indicated in Fig. 8, the enlarged ends of alternate connecters being disposed at opposite edges of the sheet and the narrow body portions disposed side by side along the intermediate portions of said sheet. In this manner the connecters are produced with a minimum waste of material. Any other manner of stamping out the connecters may be provided, if desired.

By means of the construction described, it is possible for the seller of the container to merely supply an unattached connecter with each container, which connecter can then be readily attached to the container and cap by the user. If he desires, or if the seller prefers, the connecters can be attached either to the container or cap, or to both, before the containers are sold.

Since the connecters are attached merely by inserting the neck of the container through one aperture of the connecter and by inserting the knob of the cap through the other aperture, no special machine or apparatus is necessary to attach the connecters, thus greatly reducing the cost of applying the connecters to the containers and caps. The connecters can be produced at a very low cost by means of punching or stamping operations and the construction illustrated makes it possible to form the connecters of a variety of different materials, such, for example, as metal, celluloid, rubber or other materials.

If the connecter is made of a resilient material, the connecter will normally tend to either partially or entirely straighten itself when the cap is released from the container, so that the cap will then be held away from the discharge opening in the neck of the container and will thus be out of the path of material discharged from the container.

A connecter 35 of slightly modified form is shown in Fig. 10. In the connecter 35 the loop 36 thereof is provided with a plurality of spaced, radially disposed tongues or projections 37, two being shown. This connecter can be easily pushed down over the neck, and as there is no undercut or specially formed portion on the latter, no precaution need be taken to place the parts of the connecter and container in a particular relation to the neck of the tube or container. The edges of the projecting portions may be made sharp as shown to engage the metal of the neck and prevent the connecter from turning relatively to the neck.

I claim:

1. A connecter for a container having a neck portion and a cap adapted to be secured to said neck, said connecter including a loop at one end thereof adapted to extend around said neck and having a tongue adapted to engage said neck to retain said connecter in its operative position, and means at the other end of said connecter for securing the same to said cap.

2. The combination of a container having a discharge neck, a cap engageable on said neck to close said container, said cap having a transversely elongated projection connected thereto by a reduced cylindrical shank and a flexible connecter, having a part at one end formed for attachment to said container and a part at its other end formed with an aperture adapted to loosely surround said shank on said cap to permit said cap to turn relatively to said connecter, said connecter also having an elongated opening terminating in said aperture and defining a part which, when pressed downwardly on said elongated projection in said aperture, will yield to permit said apertured end of said connecter to be passed over said projection, said yielding part resuming its original form when reaching said shank.

3. The combination with a container having a discharge neck and a cap engageable on said neck to close said container, of a connecter having one end formed to be loosely attached to said cap, and its other end being formed with an aperture through which said neck may extend, a yielding offset tongue extending into said aperture, and a stop shoulder on said neck against which said tongue engages to retain said connecter in operative relation to said container.

4. The combination with a container having a discharge neck and a cap engagable on said neck to close said container, of a connecter having one end formed to be loosely attached to said cap, and its other end being formed with an aperture through which said neck may extend, a tongue extending into said aperture, and a downwardly facing stop shoulder on said neck against which the free end of said tongue engages to retain said connecter in operative relation to said container.

5. The combination with a container having a discharge neck and a cap engageable on said neck to close said container, of a connecter having one end formed to be loosely attached to said cap, and its other end being formed with an aperture through which said neck may extend, said last mentioned end of said connector having a transverse edge defining one side of said aperture and said neck having a transverse face formed at one side thereof, against which said transverse edge engages when said apertured end of said connecter is passed over said neck, and a tongue at the opposite side of said aperture adapted to engage a shoulder on said neck to hold said edge against said transverse face and to prevent said connecter from turning on said neck.

6. A connecter of thin resilient sheet material formed for attachment to a neck and a cap of a container, said connecter having one end apertured for receiving a part on said cap to rotatably hold the latter, and its other end apertured to be passed over said neck, a straight transverse edge at one side of said aperture, a tongue at the opposite side and extending into said aperture, and said tongue being formed with lengthwise corrugations to stiffen the same.

7. A connecter of thin resilient sheet material formed for attachment to a neck and a cap of a container, said connecter having one end apertured for receiving a part on said

cap to rotatably hold the latter, and having at its other end an aperture formed to be passed over said neck, and a tongue at one side of and extending into said aperture, said tongue being formed to engage the neck of a container to retain the connecter in operative relation to the container.

8. The combination with a container having a discharge neck and a cap engageable on said neck to close said container, of a connecter having one end formed to be loosely attached to said cap, and its other end being formed with an aperture through which said neck may extend, a yielding offset tongue extending into said aperture to engage said neck and retain said connecter in operative relation to said container.

EDWARD K. McNEAL.