

April 19, 1938.

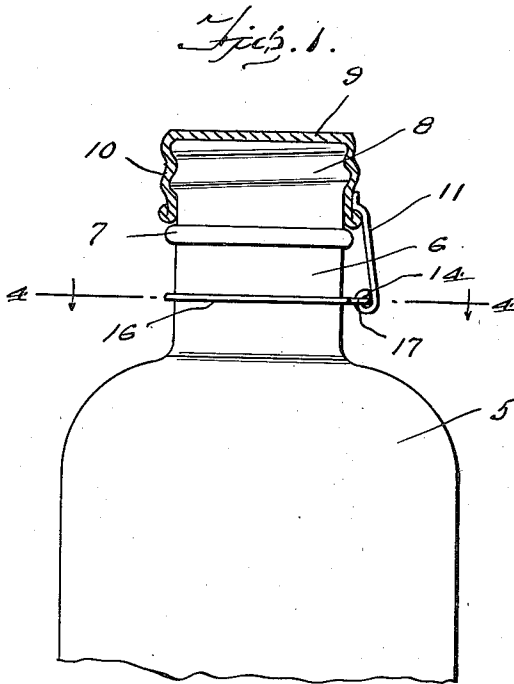
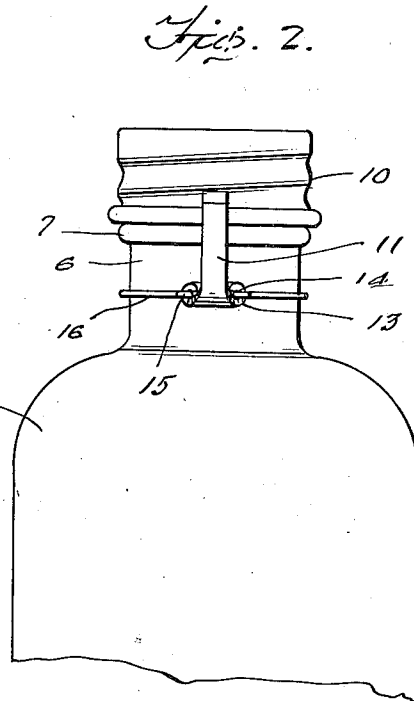
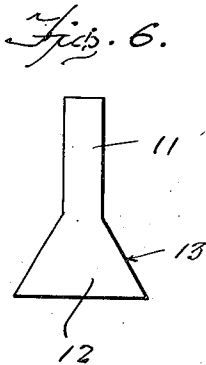
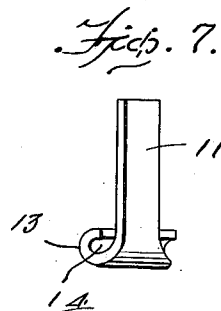
M. KANESHIGE

2,114,925

BOTTLE CAP

Filed June 28, 1937

3 Sheets-Sheet 1



Inventor

M. Kaneshige

By

Clarence A. O'Brien
Hyman Berman

Attorneys

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3 Sheets-Sheet 2

Fig. 3.

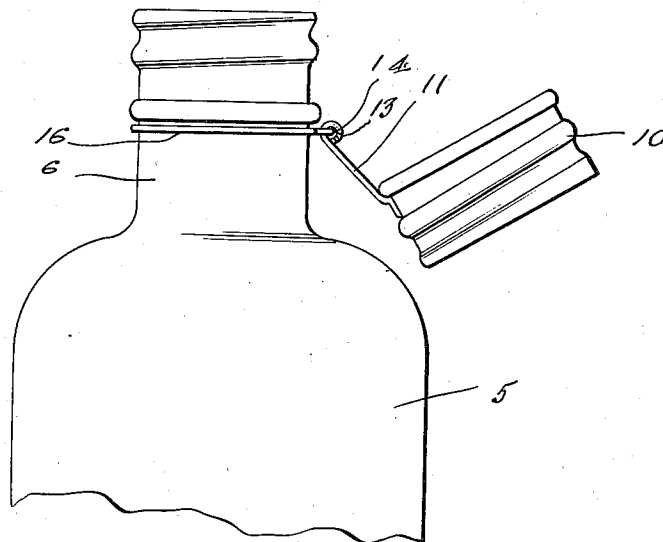


Fig. 4.

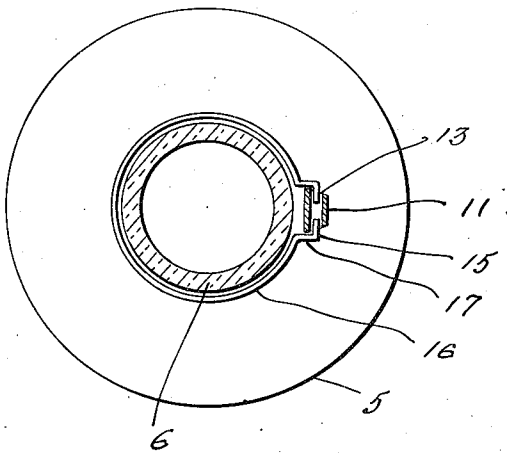
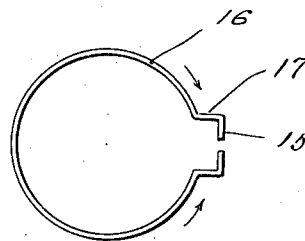


Fig. 5.



Inventor

M. Kaneshige

By

Clarence A. O'Brien
Hyman Berman

Attorneys

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3 Sheets-Sheet 3

Fig. 8.

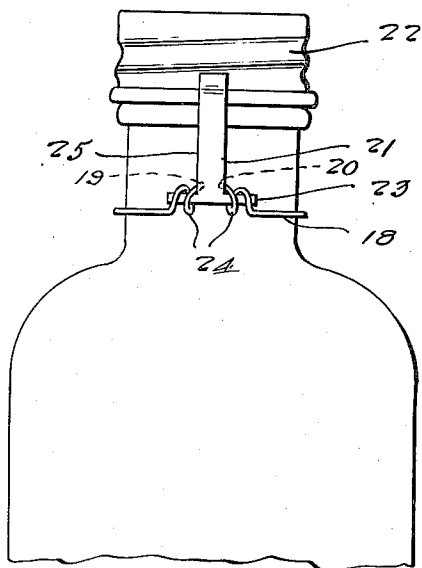


Fig. 9.

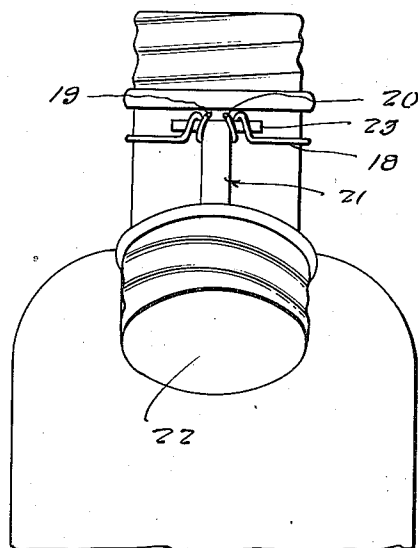
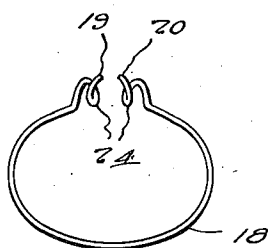
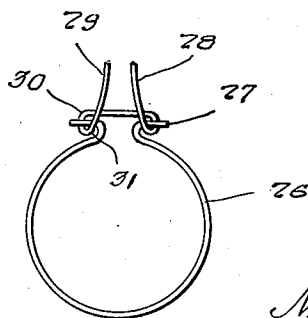


Fig. 10.

Fig. 11.



Inventor

M. Kaneshige

By *Clarence A. O'Brien*
Hyman Berman

Attorneys

UNITED STATES PATENT OFFICE

2,114,925

BOTTLE CAP

Masao Kaneshige, Kahului, Territory of Hawaii

Application June 28, 1937, Serial No. 150,870

5 Claims. (Cl. 215—99)

The present invention relates to bottle caps and has for its principal object to provide means connecting the cap with the neck of the bottle to prevent loss or separation of the cap from the bottle and further to provide a connector of this character adapted to automatically swing the cap outwardly at one side of the neck after the same has been removed from engagement therewith.

A still further object is to provide a screw threaded cap together with a ring member connecting the cap to the neck of the bottle, said ring member normally being free for circular and vertical movement during the threading and unthreading movement of the cap and to automatically grip the neck of the bottle after the cap has been removed and swung automatically, or not automatically in which latter case the cap is pushed down by hand to one side of the neck whereby to return the cap to the same position relative to the neck that it occupied when being removed therefrom.

Another object is to provide a device of this character of simple and practical construction, efficient and reliable in operation, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout and in which:

Figure 1 is a fragmentary side elevational view of a bottle showing the cap in section and mounted in position on the neck of the bottle.

Figure 2 is a side elevational view of a bottle with the connecting means for the cap also shown in front elevation.

Figure 3 is a similar view showing the cap removed from the neck of the bottle.

Figure 4 is a sectional view taken substantially on the line 4—4 of Fig. 1.

Figure 5 is a plan view of one form of ring.

Figure 6 is a plan view of the blank from which the form of connector shown in Figs. 1 to 4 inclusive is formed.

Figure 7 is a perspective view of the completed connector.

Figure 8 is a side elevational view of a bottle showing a modified form of the invention with the cap in position on the neck of the bottle.

Figure 9 is a similar view showing the cap removed therefrom.

Figure 10 is a plan view of the ring used with the modified form of invention illustrated in Figs. 8 and 9.

Figure 11 shows a plan view of a further modification of the ring and connector.

Referring now to the drawings in detail, and with particular reference to the form of invention illustrated in Figs. 1 to 7 inclusive, the reference numeral 5 designates a bottle having a neck 6 provided with a bead 7 and threaded extremity 8. A cap 9 is provided for threaded engagement with the threaded end of the neck of the bottle, said cap including the threaded skirted portion 10 to the outer wall of which is attached the upper end of a connector 11, as by soldering, welding or the like, or by frictional attachment, the lower end of said connector being formed with an enlargement 12 having flared or inclined side edges 13 as will be apparent from an inspection of Figs. 6 and 7 of the drawings.

The enlarged end 12 of the connector is bent inwardly and upwardly to form an eye 14 within opposite sides of which the laterally offset and inturned ends 15 of a wire ring member 16 are inserted, said ring member being mounted on the neck of the bottle 6 below the bead 7.

The flared or inclined edges 13 of the connector constitute cam surfaces which engage the radially projecting portions 17 of the ring member when the connector is positioned vertically with the cap in position for mounting on the neck of the bottle whereby the ring 16 will be expanded to permit the free sliding movement of the ring along and around the neck of the bottle during the threading or unthreading action of the cap on the neck. However upon the unthreading of the cap from the neck of the bottle the expanded tension of the spring 16 acting upon the cam surfaces 13 of the connector will cause the connector and cap to swing outwardly toward one side of the bottle into a position as shown in Fig. 3 of the drawings and the resulting contraction of the ring member will cause a friction gripping engagement thereof with the neck of the bottle to maintain the ring in its upwardly raised position as shown in Fig. 3 whereby to enable the cap to be returned to the same position that it occupied upon being threadedly disengaged from the neck of the bottle and thus facilitate the reengagement of the cap therewith.

In the form of the invention illustrated in Figs. 8, 9 and 10, the ring member 18 has its ends extending radially and provided with spiral coils 19 terminating in inwardly turned extremities 20 for engaging behind a substantially T-shaped con-

necter 21 which has its upper end secured to the outer surface of the cap 22 and which is inverted with the arms 23 of the T inserted in the respective coils 19 of the ring member. In this form of the invention it will be apparent that the portions of the coil immediately outwardly of the extremity 20 will constitute cam surfaces 24 which engage the side edges 25 of the stem portion of the T-shaped connector to produce the expanding and contracting action of the springs whereas the inturned extremities of the coils being disposed rearwardly of the connector will cause the cap to swing outwardly from the neck of the bottle when disengaged therefrom.

In the further modification shown in Fig. 11 of the drawings the spring wire ring member 26 has its ends 27 bent oppositely and the connector 28 is formed of a single strand of wire of substantially U-shaped formation with the bight portion of the U-shaped member flattened and the ends of the connector 29 bent upwardly to form eyes 30 within which the ends 27 of the rings are inserted. The end portions 29 are inclined toward each other upwardly for attaching to the cap as will be apparent, and the eyes at the corners of the bight portion being positioned at an inclined angle to form the cam surfaces 31 cooperating with the ends 27 of the ring member to contract the ring in a manner to grip the neck of the bottle when the cap is pushed down by hand.

It is believed the details of construction and operation of the invention will be readily understood from the foregoing without further detailed explanation.

What is claimed is:—

1. In combination with a bottle having a neck of a resilient split ring embracing the neck of the bottle, a cap adapted to close the neck, a connector having one end fixedly secured to the cap and interengaging means between the other end of the connector and the ends of the ring providing a pivotal connection therebetween and cooperating to swing the fixed end of the connector and cap outwardly from the neck when the cap is disengaged, said interconnecting means further causing an expanding action of the ring when the cap is in neck engaging position and swinging to release the ring into a normally contracted position for friction gripping engagement with the neck when the cap is moved away from the neck.

2. In combination with a bottle having a neck of a resilient split ring normally contracted about the neck in friction gripping engagement there-

with, a cap adapted to close the neck, a connector having one end fixedly secured to the cap and camming interengaging means between the other end of the connector and the ends of the ring providing a pivotal connection therebetween and operating to expand the ring when the cap is in neck closing position and relieving the ring from the expanding pressure when the cap is moved away from the neck to permit return of the ring to its normal position.

3. In combination with a bottle having a neck of a resilient split ring normally contracted about the neck in friction gripping engagement therewith, a cap adapted to close the neck and a connector fixedly connected at one end to the cap and pivotally connected at its opposite end to the ends of the ring, said last named end of the connector being flared to form cam edges cooperating with the ends of the ring to expand the ring upon a predetermined movement of the connector, a contracting movement of the ring operating upon the cam edges to swing the cap toward one side of the neck.

4. In combination with a bottle having a neck of a resilient split ring normally contracted about the neck in friction gripping engagement therewith, said ring having spiral coils at its end portions with the extremities of the coils inclined toward each other, a cap adapted to close the neck of the bottle and a T-shaped connector invertedly arranged and having its upper end fixedly secured to the cap and its arm portions inserted in the respective coils to provide a pivotal connection therewith, said inclined ends of the coil constituting cam elements cooperating with the connector to expand the ring upon a predetermined movement of the connector, a contracting movement of the ring operating upon the cam elements to swing the cap toward one side of the neck.

5. In combination with a bottle having a neck of a resilient split ring normally expanded about the neck, said ring having oppositely extended ends, a cap adapted to close the neck of the bottle, and a wire substantially U-shaped connector having its ends fixedly attached to the cap and having its bight portion flattened, eyes in the corners of the connector for receiving the end of the ring to provide a pivotal connection therewith, said eyes including cam edges cooperating with the ends of the ring to contract the ring around the neck when the cap is disengaged from neck of bottle, and pushed downwardly.

MASAO KANESHIGE.