

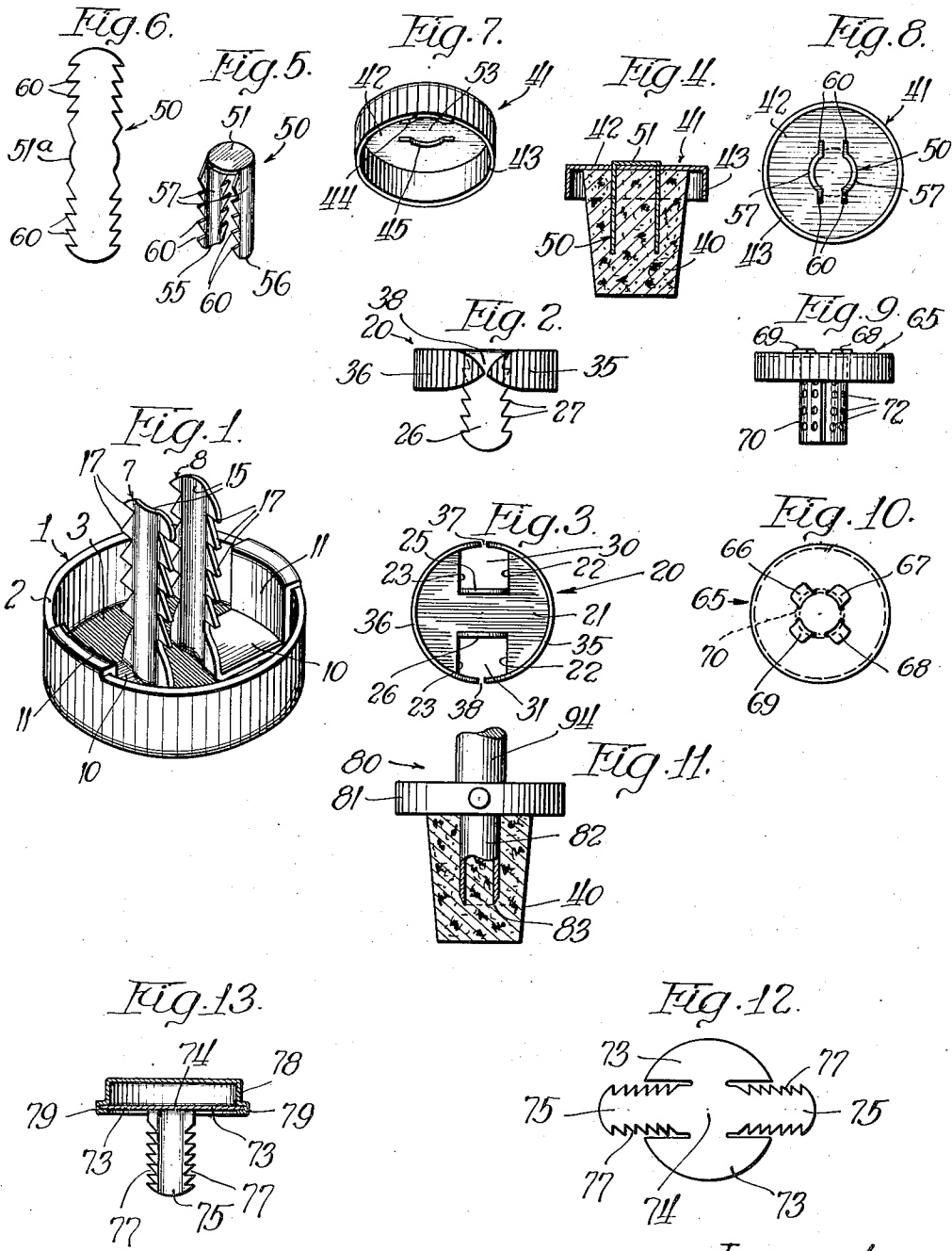
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CORK STOPPER

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CORK STOPPER

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The present invention relates generally to closures for bottles and like receptacles, and is particularly concerned with the provision of a new and improved form of flanged or headed stopper.

As ordinarily formed, stoppers of the type which my present invention is concerned are formed of cork or other compressible material. Where the flanged or headed portion is formed as an integral part of a cork stopper it has been necessary to start with a relatively large cork having a diameter at least as large as the head desired and to grind the cork down to the desired size below the headed portion. As a result, considerable of the body of the cork has been lost, and the grinding which must be done with a stone is slow.

To avoid these disadvantages, it has been proposed to attach to a cork of the desired size a flanged or head portion, usually of wood, and provided with a lug cemented in a socket in the body of the cork, but this has not been suitable because of the weakness of the connection between the flanged or headed part and the body of the cork. As a result, with the cork firmly in place in the neck of a bottle, grasping and manipulation of the headed portion for the purpose of removing the cork from the bottle has usually resulted in parting the headed portion from the body of the cork rather than removing the cork from the bottle.

My invention aims to provide a flanged or headed stopper which is less expensive than the corks or stoppers with integral flanged or headed portions of the same material as the body of the cork, and a flanged or headed stopper in which the flanged or headed portion is attached in a better and more secure manner than heretofore.

Another object is the provision of an improved head or flange forming cap and improved anchoring means for securing the same to the body of the cork.

Another object is to provide an improved method of securing the cap to the body of the stopper which contemplates, first, forming a suitable slit in the body of the stopper, and then securing the cap thereto by forcing the anchoring means into the body portion and into the slit cut therein.

Another and more specific object is to provide anchoring means in the form of a thin prong, or a plurality of thin prongs having curved central portions conforming to the curvature of the slit formed in the body of the cork and serrated edges of fish-hook form disposed out of the direction of curvature of the curved central portions so that the prong or prongs will readily enter the body

of the stopper, and at the same time be effectively and securely restrained against pulling out and against turning along the curvature of the slit in the manipulation of the stopper after the cork is applied.

The anchoring prong or prongs may, within the scope of the present invention, be formed integral with the flange or head forming cap or may be made separately and applied, as will hereinafter more fully appear.

Further features and advantages and a concrete understanding of the present invention will be more apparent from the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a perspective view showing a stopper cap piece provided with a pair of toothed anchoring studs or prongs, embodying my invention;

Figures 2 and 3 are side and end views, respectively, of a stopper cap piece having toothed anchoring prongs, illustrating a modified form of my invention;

Figure 4 is a section taken through a stopper provided with a cap piece and anchoring means, illustrating a second modified form of my invention;

Figure 5 illustrates the anchoring prongs which are used to secure the cap piece of Figure 4 to the stopper body portion;

Figure 6 shows the flat stock from which the anchoring prongs of Figure 4 are formed;

Figures 7 and 8 are a perspective view and an underneath view, respectively, of the cap piece or ferrule section provided with slits in the body portion thereof to receive the anchoring means shown in Figure 4;

Figures 9 and 10 are an elevation view and a plan view, respectively, of a cap piece illustrating a third modified form of my invention;

Figure 11 shows a tool in the operation thereof for cutting a circular slit in the central portion of the stopper body to receive the anchoring prongs of the cap piece;

Figure 12 is a plan view of a blank from which the anchoring means is formed, illustrating a fourth modified form of my invention; and

Figure 13 is a central vertical sectional view through the anchoring means of Figure 12 and a cap applied thereto.

Referring now more particularly to Figure 1, the cap piece, which is adapted to be mounted on a cork or stopper, is preferably formed of sheet metal or other suitable material, and comprises a ferrule section 1 having a flange 2 and a central section 3 adapted to go over the end of

a stopper, preferably one formed of a compressible material such as cork. In the form of the invention shown in Figure 1, the stock from which the flanged cap 1 is made is provided with extended sections, preferably integral with the portion of the stock from which the flange 2 is formed. These extensions, when formed, are provided with a pair of prongs 7 and 8 connected integrally with the flange 2 by angularly disposed sections 10 and 11 formed to lie against the central section 3 and the flange 2, as shown in Figure 1, the prongs being resilient.

The anchoring prongs 7 and 8 are of especial importance in the present invention. Each of these prongs is formed with a central arcuate and axially extending portion 15 having laterally directed teeth 17 on each side, slightly curved reversely to the curvature of portion 15. These teeth are preferably cut so that they are of generally fish-hook formation. That is to say, the ends thereof are directed laterally and also in a direction toward the cap piece 1. By virtue of this formation, whenever the cap piece 1 with the prongs 7 and 8 is applied to a cork and the prongs forced into the material of the body portion of the cork or stopper, the teeth 17 facilitate entry of the prongs and, at the same time, effectively bite into the body of the cork or stopper so as not only to prevent the withdrawal of the cap piece from the stopper but also to prevent the rotation of the cap piece relative to the stopper, the prongs twisting slightly so as to increase the grip of the teeth.

While I have shown two prongs 7 and 8, it will be apparent that the present invention could be embodied in a cap piece having only a single anchoring prong. And the prong or prongs may be integral with or separate from the cap part.

The cap piece and the attached anchoring prongs shown in Figures 2 and 3 are of a construction quite similar to that shown in Figure 1 with the exception that a smaller amount of stock is required and the anchoring prongs are flat and do not have any curved sections. Referring now to Figures 2 and 3, the cap piece is indicated in its entirety by the reference numeral 20 and comprises a flat central section 21 slit at 22 and 23 to form a pair of flat generally axially extending anchoring prongs 25 and 26. The prongs 25 and 26 are provided with teeth 27 of fish-hook formation and so inclined that the insertion of the prongs into the material of the stopper is facilitated while the withdrawal of the cap piece from the stopper is effectively prevented.

In the construction shown in Figures 2 and 3, the prong sections 25 and 26 are formed integral with the material of which the central section 21 is formed, and the prongs 25 and 26 are attached to the central section at their base portions. This particular way of punching out the prongs 25 and 26 leaves openings 30 and 31 in the cover or central section 21, and likewise the flanged section of the cap piece 20 is formed in two parts 35 and 36 separated a short distance as at 37 and 38. While this construction leaves certain portions of the stopper exposed, it is of somewhat simpler and less expensive construction as compared with the form shown in Figure 1.

Figures 4 to 8, inclusive, show a third form of a stopper cap which is similar to the previously described forms in that a pair of anchoring prongs are provided. In Figure 4, the stopper, preferably cork, is indicated by the reference numeral 40, and while the stopper 40 is shown as

conical, it is to be understood that it could be cylindrical or any other desired or necessary shape. The cap piece is indicated in Figures 4, 7 and 8 by the reference numeral 41 and includes a central section 42 and a flanged portion 43. In this case the cap piece 41 has its central section 42 formed with a pair of slits 44 and 45, each central portion of which is curved and each having end portions disposed at an angle thereto.

A U-shaped anchoring stud is employed with the cap piece 41 and is indicated in its entirety by the reference numeral 50. The anchoring stud means 50, shown in Figures 4 to 8, is a part separate from the cap piece proper, whereas in Figures 1 to 3, the anchoring stud means is formed integrally therewith. In Figure 4 the central portion 51 of the anchoring stud means 50 is shown as embracing the portion 53 of the cap piece 41 between the slits 44 and 45 in such a manner that the prong sections 55 and 56 extend in an axial direction relative to the cap piece 41 and the stopper 40. The prong sections 55 and 56 are preferably of the same construction as the prongs 7 and 8 shown in Figure 1; that is, each prong is provided with a central axially extending curved section 57 and reversely curved laterally flaring tooth portions 60 of fish-hook formation. It will be observed that the end portions of the slits 44 and 45 are of approximately the same angularity as the teeth 60 on the anchoring prongs 55 and 56. This facilitates the insertion of the anchoring member 50 in the slits 44 and 45.

Figure 6 illustrates the stock, partly processed, from which the anchoring studs 50 are formed, and it will be noted that the flat stock is formed with the teeth 60 extending generally inwardly toward the central portion 51a of the piece of stock, the central portion 51a being rounded to cover the intermediate section 53 mentioned above.

Figures 9 and 10 show a fourth form of the invention. This form differs from the previously described forms in one important respect. In Figures 9 and 10 the cap piece includes a flanged cover section 65 the central portion of which is provided with four arcuate slits to receive tongues 66, 67, 68 and 69 formed on a cylindrical anchoring stud 70. The stud 70, like the anchoring prongs described above, forms the means for securing the cap piece 65 to a stopper or the like, but the anchoring member 70 is not provided with teeth as such. Rather, the cylindrical anchoring member 70 is provided with a number of openings 72. These openings, however, like the teeth described above, generically speaking, are in the form of cutaway portions and it has been found that the openings 72 also effectively lock the cap piece 65 to the stopper when the anchoring pin or stud 70 is forced into the material of the stopper. The tongues 66 to 69 serve to secure the anchoring stud to the central portion of the cap piece 65.

In the modified form shown in Figures 12 and 13, the anchoring means is first cut in the form of the blank of Figure 12. This blank comprises two approximately semi-circular elements 73 connected by a web element 74 from the opposite sides of which extend prongs 75, each serrated along its lateral edges at 77. The serrations or teeth 77 of prongs 75 are shaped similarly to the teeth 17 of prongs 7-8 of Figure 1. The blank is then shaped in a suitable manner so that the prongs 75 extend downward from web element 74, substantially perpendicular thereto, this web element and the elements 73 remaining flat and

defining a circular head or disc at the upper ends of the prongs. During the shaping of the blank, the prongs 75 are curved transversely so as to be of arcuate cross-section, and the teeth 77 are curved reversely to the prongs, in the same manner as in Figure 1. A cap 78 is then secured to the disc at the upper ends of the prongs in a suitable manner, as by means of a bead 79 formed at the lower edge of the cap and tightly clamped over the edge portion of the disc, as in Figure 13. If desired, this head may be welded or otherwise suitably secured to the disc to prevent relative movement between the parts.

With the exception of the form shown in Figures 2 and 3, all of the anchoring means described above is in the form of, or includes portions which serve as, arcuate or curved sections. According to the preferred form of the invention, the stopper body, usually cork, which receives the stopper caps of Figures 1 to 12, is preferably formed with an arcuate or circular slit for the purpose of facilitating the insertion of the anchoring prongs or stud means. To this end, a suitable tool 80, shown in Figure 11, is used. This tool includes a head 81 carrying a tubular section 82, the end opposite the head 81 having a cutting edge 83. The cutting tool is rotated as it is forced downwardly into the stopper 40 to the position shown in Figure 11, and cuts a circular slit in the central portion of the stopper, the curvature of this slit preferably corresponding to the curvature of the prong sections. Cutting the cork in this manner facilitates the attachment of the cap piece and the anchoring means which it carries. The cutaway sections or portions of the anchoring means cooperate with the material of the stopper 40 effectively to lock the cap piece thereto, both against axial displacement and relative rotation. When the stopper is forced into the neck of a bottle, or like container, it is compressed, such compression of the stopper rendering the attaching means even more effective by forcing the material of the stopper into tight contact with the anchoring means and between the teeth or into the openings thereof. This is particularly true when the stopper is formed of cork or like highly compressible material. A closure made in this manner can be applied and removed a great number of times without destroying or reducing its efficiency.

When anchoring means having prongs or non-arcuate or flat cross-section are employed, the stopper is cut by suitable means to provide therein non-circular slots corresponding to the shape of the prongs. It will be understood that the prongs of anchoring means may be variously shaped and disposed, and that the stopper may be cut or slotted accordingly.

While I have shown the anchoring means as being initially formed integrally with the cap, in certain forms of my invention, it will be understood that, if desired, the anchoring means may be first formed separately from the cap and then secured thereto by welding or equivalent means. This is an obvious variation, and need not be illustrated nor described in detail.

While I have described above the preferred

forms in which my invention has been embodied, it will be apparent to those skilled in the art that my invention is not to be limited to the specific details shown and described, but that, in fact, widely different means may be employed in the practice of the broader aspects of my invention.

What I claim, therefore, and desire to secure by Letters Patent is:

1. A stopper comprising a body of compressible material and a cap having a thin anchor projecting therefrom, said anchor having a curved central portion and serrated edges disposed out of the direction of curvature of said curved central portion and adapted for anchoring the cap to the body of the stopper, said anchor being resilient.

2. A stopper for bottles and the like comprising a body of compressible material having an arcuately shaped slit formed in the central portion thereof, a stopper cap disposed on said body, and an anchoring prong carried by said cap adjacent the central portion thereof and having a central curved section corresponding to the curvature of said arcuate slit, and outwardly flaring toothed edges disposed outside of said curved section so that when the stud is forced into said arcuate slit the toothed edges bite into and secure the cap on said stopper body.

3. A bottle stopper comprising a body portion, a cap piece mounted thereon, and an arcuate anchoring stud carried by said cap piece and having serrated edges disposed out of the direction of the arcuate part of the stud so that when the stud is forced into said body portion the cap piece is secured against separation from and against turning with respect to said body portion.

4. A cap for bottle stoppers and the like having a thin anchor projecting therefrom, said anchor having a curved central portion and a serrated edge disposed out of the direction of curvature of said curved central portion.

5. A bottle stopper comprising a cap member, a body member of compressible material having a generally centrally disposed circular slit therein, and an anchor member of a curvature adapted to fit said circular slit, said anchor member comprising a prong pressed into said slit to secure said cap and body member together and provided with serrated edges for securing said prong in said slit, said serrated edges being disposed out of the direction of curvature of said slit.

6. A bottle stopper comprising a cap member, a body member of compressible cork-like material having a curved slit within the periphery thereof, and a curved anchor member secured to the central part of said cap member and having an anchoring section disposed in said slit and provided with anchoring serrations along its opposite edges, said anchoring serrations being disposed out of the path of curvature of the slit and said anchor member being of less than complete annular form and securing said cap member and body member together.

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