May 11, 1943. J. J. LARMOUR 2,318,950

CAP AND CLIP FOR FOUNTAIN PENS

Filed July 27, 1940

Fig. 1

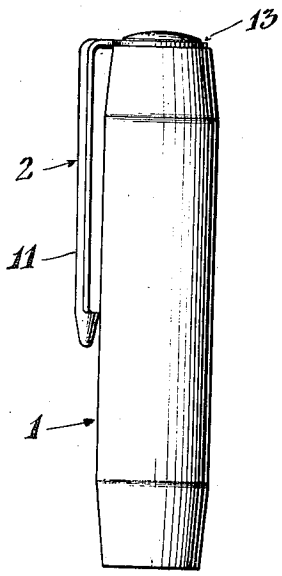


Fig. 4

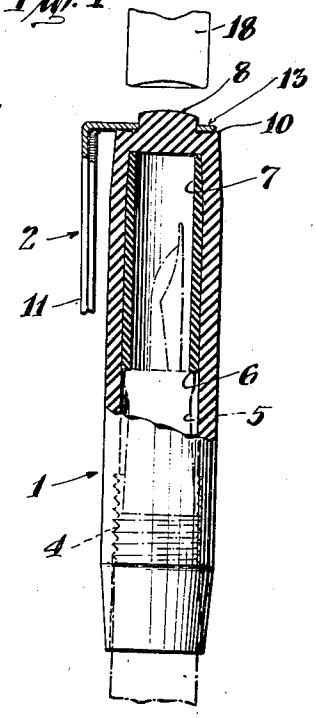


Fig. 5

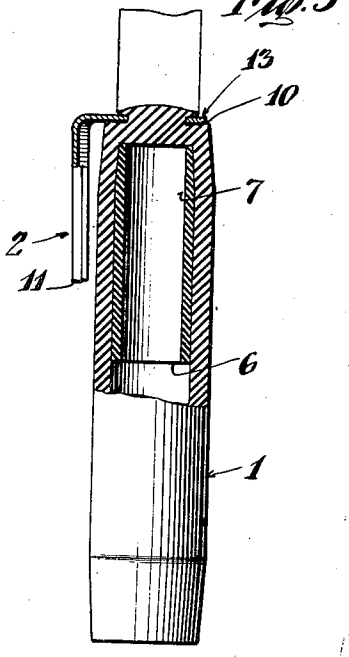


Fig. 2

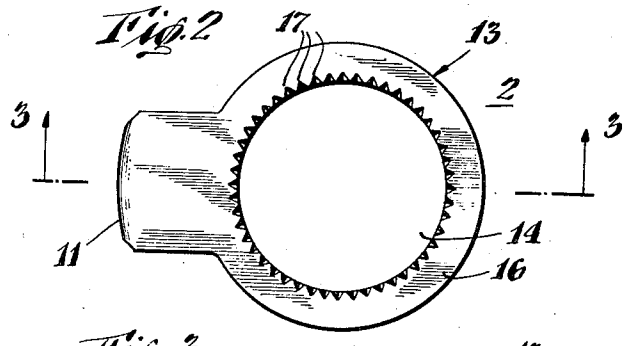
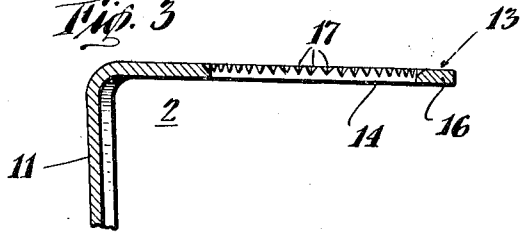


Fig. 3



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CAP AND CLIP FOR FOUNTAIN PENS

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2 Claims. (Cl. 24—11)

The present invention relates to a new and improved closure cap and clip for use on fountain pens and the like.

It is customary and desirable to attach clips to fountain pens so that the pens may be carried upright in the pocket of a user and so that they will not accidentally drop out and be lost. Such clips are usually attached to a cap which screws over the writing end of a pen and which excludes air from the pen nib so as to prevent drying of ink thereon.

It is impracticable, for many reasons, to form a pen cap and clip from a single piece of material. Therefore, in most instances, a separate metal clip member is attached to the cap. Where separate clip members are utilized several objections or difficulties appear: for example, that of providing a simple and effective means for holding together the clip and cap, that of holding the clip against rotation with respect to the cap, the additional parts necessary to lock the cap and clip members together, and the extra operations required for assembling the additional parts.

The present invention aims to overcome the above objections or difficulties by providing an improved closure cap for fountain pens and the like having a clip member securely retained in position against separation and rotation by simple and improved means, and by simplifying the assembly of caps and clips for fountain pens and the like.

An object of the present invention is to provide a new and improved cap and clip assembly for fountain pens and the like.

Another object of the invention is to provide a new and improved means for retaining together a cap and a clip.

Still another object of the invention is to provide a new and improved means adapted to prevent relative rotation between a cap and a clip.

A still further object of the invention is to provide means for securing together cap and clip members without requiring any members in addition to the cap and clip members themselves.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawing, forming a part of the specification, wherein

Fig. 1 is an elevational view of a cap for fountain pens and the like showing a preferred embodiment of the invention;

Fig. 2 is an enlarged top plan view of a preferred form of clip member;

Fig. 3 is a fragmentary view taken along the line 3—3 of Fig. 2;

Fig. 4 is an elevational view, partly broken away, of the present clip and cap members prior to securing them together; and

Fig. 5 is an elevational view, partly broken away, of the present clip and cap members, after they are secured together.

Referring again to the drawing, illustrating a preferred embodiment of the invention, there is shown a cap 1 carrying a clip member 2. The cap 1 is preferably formed of a plastic molding composition such as hard rubber, pyroxylin, phenol or urea resins, cellulose acetate, or other suitable materials. The interior of the cap is provided with a threaded portion 4 adapted to retain it on a pen section 5, and also with an annular collar 7 adapted to form a seat 6 for a pen section when the cap is applied thereto. The exterior part of the cap adjacent its closed end has a hob-like projection 8 of reduced cross-section extending outwardly therefrom adapted to cooperate with the clip member 2 to retain it with the cap, as will be later described. The hob-like projection 8 is preferably of round cross-section and centrally located on the pen cap so as to provide a ledge or shelf 10 about the projection. With certain types of materials the projection 8 may be molded at the time the cap 1 is molded and with others it may be cut or formed in any suitable manner.

The clip member 2 is preferably made of base metal plated with silver, gold or other decorative materials, and comprises an elongated article gripping portion 11 and an enlarged cap engaging portion 13. The article gripping portion 11 is of the usual type and extends along the side of the cap 1 a distance equal to about one-half the length thereof; the shape of the clip 2 and the natural resiliency of the metal of which it is formed causes it to resist outward movement when an article such as a pocket edge is passed between the clip and the cap. The pocket edge is thus gripped firmly between the cap 1 and the article gripping portion 11 of the clip 2. The upper or cap engaging part of the clip preferably comprises an enlarged portion 13 with an aperture 14 therein of a size adapted to fit freely over but closely about the cap projection 8 on the pen cap so that a flange 15 of the clip which extends about the ap-

erture 14 may rest against the shelf or ledge 10 on the pen cap. While the clip aperture 14 and cap projection 8 are shown as being circular in shape or cross section, it will be understood that other suitable shapes or cross sections may be utilized.

The clip aperture 14 is preferably provided adjacent its upper portion with a plurality of circumferentially spaced recesses 17 (Figs. 2 and 3). The recesses 17 are shown as being relatively small and spaced closely adjacent to each other to provide a roughened or serrated edge about the upper, inner edge of the aperture 14. The serrated edge extends about the inner upright edge of the aperture 14 and also about the horizontal clip flange 16. The recesses and projections of the roughened or serrated edge cooperate with the cap projection 8, as will be described, to prevent rotation of the clip with respect to the cap.

In the present method of assembling the cap 1 and the clip 2, (Figs. 4 and 5) the cap may first be placed on a suitable mandril or other support (not shown) and then the cap engaging portion 13 of the clip 2 passed downwardly over the cap projection 8 so that the latter projects upwardly through the clip aperture 14 and above the surface of the clip and so that the clip flange 16 rests against the shelf or ledge 10 on the pen cap. A heated die or pressing member 18 is then moved into contact with the upwardly extending portion of the cap projection 8 so as to soften adjacent parts of the projection and tend to flatten and spread it. The softening, flattening and spreading of the cap projection 8 causes portions thereof to spread outwardly into the recesses or spaces 17 located at the interior and upper part of the clip aperture 14. Continued heat and pressure applied to the cap projection 8 effects further spreading of the cap projection material outwardly over the upper surface of the clip adjacent the aperture 14. Upon completion of the heating and pressing operation, material forming the cap projection 8 extends outwardly over the upper surface of the clip to prevent separation thereof from the cap and also extends into the recesses or spaces 17 to prevent rotation of the clip with respect to the cap.

The present method of assembling caps and clips requires no parts other than the caps and clips themselves; the operation of bradding or spreading the end of the cap projection itself over the clip locks the parts together. No additional screws, bolts, clamps, or the like are required to secure the cap and clip together. The instant method is considerably less expensive than previous methods and affords easy, rapid and secure assembly of caps and clips.

If desired, the recesses 17 at the interior periphery of the clip aperture 14 may be made in the form of grooves which extend across the entire face of the aperture, or they may have any other shape. However, the present type of recess may be easily formed at the same time that the clip is stamped or formed from a sheet of material and has been found to provide a secure lock against relative rotation of the parts. Since the maximum heating and spreading of the projection 8 occurs at points immediately adjacent the pressing member 18, recesses or spaces at the upper part of the clip aperture 14 will be rapidly, easily and completely filled so as to securely lock the clip against rotative movement. The projection 8 first spreads outwardly into the vertical part of the serrated edge 17 and then, as the pressing member 18 continues to move downwardly, into the horizontal part of the serrated edge. The material of the cap projection 8 is thus squeezed tightly into the horizontal and vertical recesses. While the recesses may be fewer than shown or described herein, the present relatively large number of small recesses has been found to provide, in effect, a substantially continuous gripping band about the complete circumference of the clip aperture 14 and the hob-like projection 8. Even in instances where the inner edge of the aperture 14 is not provided with recesses the material of the projection 8 tightly grips the clip when softened and spread by the pressing member 18; the recesses are preferred however since they insure a more positive locking together of the parts.

The heating and pressing member 18 may be utilized to apply steady pressure against the cap projection 8 or may be rapidly reciprocated so as to spread and flatten the projection 8 by means of a series of taps. With some materials a cold pressing member may be utilized but heating is preferred. Also it will be noted that the die or pressing member 18 has its pressing surface curved or domed slightly upwardly. The top of the cap projection 8 may thus be given a shape corresponding to that of the pressing member. The pressing member need not come into contact with the plated surface of the clip and the latter is thus not subjected to any scratching or other marring action.

It will be seen that the present invention provides a fountain pen cap having a clip secured thereto by a new and improved means. The clip and cap assembly can be made in a simple and inexpensive manner as no elements other than the clip and cap themselves are necessary to effectively secure the parts together. The clips and caps may be rapidly assembled without the necessity of skilled labor and will readily withstand any rough usage to which they may be subjected.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. A closure cap for fountain pens and the like comprising the combination of a clip member having a substantially circular opening therein, the inner edge of said opening having a plurality of spaced recesses therein, and a cap made from a plastic molding compound having an integral reduced end portion extending through the opening in said clip over its adjacent edge and into said recesses to hold said members together and lock them against relative rotation.

2. A closure cap for fountain pens and the like comprising the combination of a clip member having a substantially circular opening therein, the inner edge of said opening having serrations therein, and a cap member made from a plastic molding compound having an integral reduced end portion extending through the opening in said clip over its adjacent edge and into said serrations to hold said members together and lock them against relative rotation.

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