Feb. 24, 1942. F. F. BOYLE ET AL 2,274,470

FOUNTAIN PEN

Filed Feb. 26, 1941

Fig. 1.

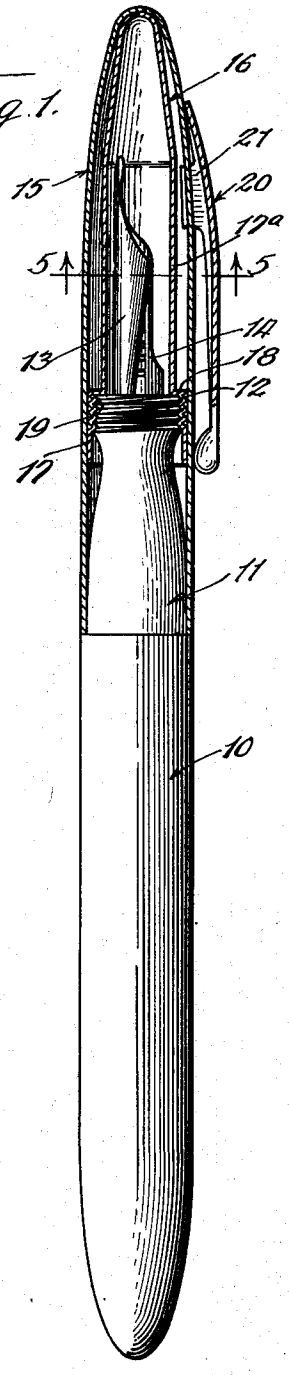


Fig. 2.

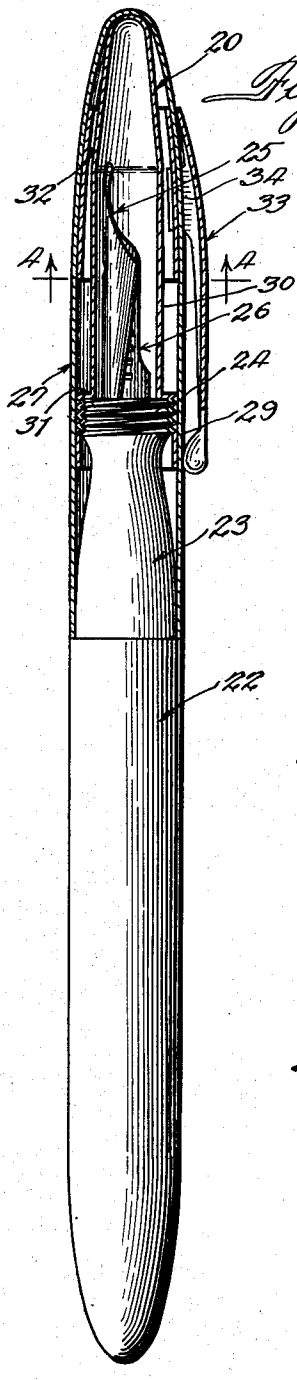


Fig. 3.

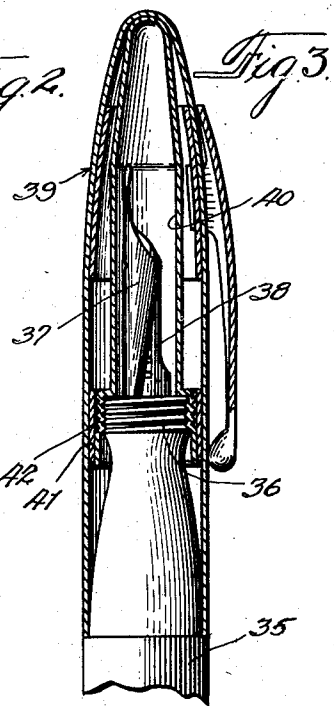


Fig. 4.

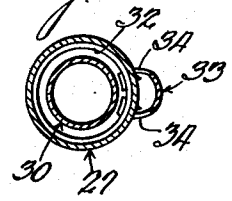
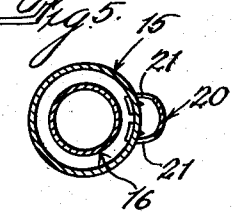


Fig. 5.



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2,274,470

FOUNTAIN PEN

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Application February 26, 1941, Serial No. 380,612

11 Claims. (Cl. 120—42)

This invention relates to a fountain pen and has special reference to the cap portion of a fountain pen for enclosing and hermetically sealing the writing point and fluid feeding mechanism extending from the barrel thereof.

More particularly, this invention relates to a fountain pen having an outer metal cap and an inner supplemental metal cap for enclosing the writing point and ink feeding means of the fountain pen, the supplemental cap having an open end portion of an outside diameter to engage in a fixed relation the bore of the outer cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of the outer cap. The juncture of the open and closed end portions of the inner cap forms a shoulder against which the end of the fountain pen rests and a clip is secured to the outer cap by attaching means extending through the outer cap into the space between the outer and the inner caps. Suitable connecting means are provided on the metal cap for engaging cooperating connecting means at the writing point end of the barrel of the fountain pen to hold said cap in a detachable relation with the barrel.

Fountain pens having barrel and cap portions of precious metal have been in commercial use for a substantial length of time. Of comparatively recent origin and in public favor today, are fountain pens in which the cap is made of precious metal and the barrel is made of a usual plastic or composition material. The metal casings forming the caps or caps and barrels are not made of pure gold or other precious metal but of 10 carat or 14 carat gold for the reason that the pure metal is too weak to withstand ordinary usage. Then, again, the casings of the pen may merely be of a base metal gold plated or gold filled.

Platinum, stainless steel, tantalum, gold, silver and other metals or alloys of this class do not readily form an oxide at normal temperatures and are of a character resistant to the corrosive action of writing fluids. Most of the less expensive metal pens formed of a gold filled or gold plated material have a brass base, and writing fluids have a very corrosive action on brass. Even 14 carat gold has a substantial amount of copper alloyed therewith and writing fluids have a corrosive action thereon.

It is one of the objects of this invention to provide a supplemental metal cap disposed within the outer gold or gold filled or plated cap and other metal caps in which the inner cap is formed of a material, or is plated with a material, that is resistant to the corrosive action of writing fluids.

The inner metal cap has an open outer end of a diameter to engage in a fixed relation the bore of the outer cap, the inner cap having a closed end of reduced diameter in which the entire external peripheral surface is spaced from the inside walls of the bore of the outer cap. The juncture of the open and closed end portions of the inner cap form a shoulder against which the end of the pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen extended within the closed end portion of the inner supplemental cap.

A clip is provided with attaching means which latter extend through the outer cap into a space between the outer and inner caps. The reduction of the diameter of the closed end portion permits the attaching means of the clip to be formed over on the inside wall of the outer cap to provide a fixed relation between the cap and the clip. Production is facilitated to a very great extent by the provision of the above spaced relation since peripheral alignment of the respective caps is not necessitated by a particular positioning of the clip with respect thereto.

Where the cap is formed of a base metal which is gold filled or plated, sufficient rigidity is obtained for the affixing of the clip directly thereto since the base metal is relatively hard. However, when a cap of 14 carat gold is employed, this material is relatively soft and a relatively hard sleeve is provided on the inner wall of the cap in the space between the inner cap and the outer cap, the attaching means of the clip extending through both the outer cap and the sleeve. Thus the clip is firmly secured to a relatively hard material and may withstand the ordinary usage.

It is, therefore, a further object of this invention to provide an outer cap of a relatively soft material having a sleeve of relatively hard metal within the cap in the space between outer and inner caps for reinforcing the outer cap, the clip having attaching means extending through the outer cap and the sleeve into such space.

Other objects and advantages of this invention will hereinafter be more particularly pointed out and, for a more complete understanding of the characteristic features of this invention, reference may now be had to the following description when taken together with the accompanying drawing, in which latter:

Figure 1 is a central longitudinal sectional view of a cap embodying the features of this invention, the cap being disposed in position on the end of a fountain pen which latter is shown in elevation;

Fig. 2 is a view similar to Fig. 1 showing a modified form of cap construction embodying the features of this invention;

Fig. 3 is a view similar to Fig. 1 showing a further modification of cap construction embodying the features of this invention;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2; and

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 1.

Referring now to the drawing and more particularly to Figs. 1 and 5 thereof, the device of the present invention is shown as being mounted on the writing point end of the barrel 10 of a fountain pen, the fountain pen having an undercut portion 11 and the latter, in turn, having threads 12 formed adjacent the end thereof. The fountain pen is provided with a writing point 13 and ink feeding means 14 which extend outwardly from the end thereof and have communication with the writing fluid reservoir in order that fluid may be supplied for writing on a surface. In the present instance the barrel is provided with threaded connecting means at the end of the undercut portion 11 thereof although it is readily understood that such connecting means might be the usual frictional means, or the threaded connecting means may be disposed in a spaced relation from the end of the fountain pen.

An outer metal cap 15 may be formed from a gold filled or gold plated material having a brass base. The outer metal cap 15 has an open and a closed end, the closed end preferably tapering outwardly for the purpose primarily of enhancing its appearance. An inner supplemental metal cap 16 is disposed within the outer metal cap 15, the supplemental cap having an open end portion 17 of an outside diameter to engage in a fixed relation the bore of the outer cap 15. This open-ended portion may be soldered, brazed, sweated, or otherwise fixedly secured to the outer cap and the relative position between the outer and inner caps is fixed by the abutting relation of the ends of the respective caps.

The closed end portion 17*a* of the inner or supplemental cap is of a reduced diameter in order that its entire external peripheral surface be spaced from the inside walls of the bore of the outer metal cap. The juncture of the open and closed end portions of the inner or supplemental cap forms a shoulder 18 against which the end of the barrel 10 of the fountain pen rests to seal from the atmosphere the writing point 13 and ink feeding means 14 of the fountain pen which latter are extended within the closed end portion of the supplemental cap. Because of the provision of a threaded connecting means 12 at the end of the undercut portion 11 of the barrel 10, co-operating threaded connecting means 19 are formed in the open end portion 17 of the inner cap, the threaded connecting means co-operating to releasably hold the cap on the fountain pen and to urge the end of the barrel against the shoulder for obtaining the aforesaid sealed relation.

It is desirable that the open end of the outer cap abut against the shoulder formed by the undercut portion 11 of the barrel 10 at the same time the end of the barrel engages the shoulder 18 formed in the inner cap. This relation is assured and assembly is greatly facilitated because of the abutting relation of the ends of the respective caps.

A clip 20 of any usual type is provided with attaching means in the form of spaced ears 21 preferably formed integrally with the clip on opposed edges thereof. The ears extend through spaced apertures formed in the outer wall of the cap 15 and are cleated on the inside wall thereof, the ears preferably being bent over in a direction toward each other within the space between the outer and inner caps.

Since writing fluids have a very corrosive action on brass, of which the outer cap is principally formed, it is desirable that the material of the inner cap be formed from a material which is resistant to the corrosive action of a writing fluid. It would not be practical in a gold filled or gold plated construction to provide an inner cap which is substantially greater in cost than the outer cap so for that reason the inner cap would not be formed of platinum or such precious material but may be formed of sterling silver. However, it might be desirable from the standpoint of cost to provide an insert of a non-precious metal such as steel, brass or the like and plate the bore thereof with a metal that is resistant to the chemical action of writing fluids. Such plating may preferably be of platinum although any of the corrosive resisting materials above mentioned might be substituted therefor.

Referring now more particularly to Figs. 2 and 4 of the drawing, the barrel 22 of the fountain pen is undercut as at 23 at the writing point end thereof and is provided with threaded connecting means 24 at the outer end of the undercut portion. A writing point 25 and ink feeding means 26 extend from the end of the undercut portion and are in communication with the writing fluid reservoir.

The outer metal cap 27 and the inner metal cap 28 for enclosing the writing point and ink feeding means 25 and 26, respectively, are the same structurally as those previously recited in connection with the illustrated construction of Fig. 1, the outer metal cap having an open and a closed end and the supplemental metal cap is disposed within the closed end of the outer metal cap. The supplemental metal cap has an open end portion 29 of an outside diameter to engage in a fixed relation the bore of the outer metal cap 27 and a closed end portion 30 of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of the outer metal cap. The juncture of the open and closed end portions of the inner metal cap forms a shoulder 31 against which the end of the undercut portion 23 of the barrel 22 of the fountain pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen which extend within the closed end portion of the supplemental cap.

The outer metal cap 27 in this instance, however, may be of 14 carat gold which is relatively soft and, in order to reinforce the cap so that it may withstand the ordinary usage of a fountain pen, a sleeve 32 is provided in the space between the outer and the inner caps, the sleeve being of an external diameter to snugly engage the bore of the outer cap. A clip 33 is provided with attaching means in the form of spaced ears 34, the ears extending through registering apertures in the cap and sleeve 27 and 32, respectively, the extended ends of the ears being cleated behind the material of the sleeve and cap between the apertures thereof and within the space between the outer and the inner caps.

The inner sleeve may, as in the previous embodiment, be formed of sterling silver or of a base metal such as steel, or brass, plated or otherwise coated with chromium or other material resistant to the corrosive action of writing fluids.

Referring now more particularly to Fig. 3 of

the drawing, the barrel 35 of the fountain pen is undercut at the writing point end thereof with the undercut portion being threaded or otherwise provided with connecting means 36. A writing point 37 and ink feeding means 38 extend from the end of the undercut portion and are in communication with the writing fluid reservoir.

The outer metal cap 39 and the inner metal cap 40 of a cap assembly are structurally the same as in either of the previously described modifications with the exception that a sleeve 41 is disposed about the open end of the inner cap 40 adjacent the threads 42 thereof, the open end of the inner cap being preferably flared to facilitate the introduction of the writing point and ink feeding means into the inner cap. The sleeve 41 may be soldered, sweated, brazed or otherwise fixedly secured to the inner cap and reinforces the cap so that it may readily withstand ordinary usage. Of course, this construction is preferable where the cap members are of a relatively soft material although the sleeve may be employed to strengthen the construction irrespective of materials employed.

While several embodiments of this invention are herein shown and described, it is to be understood that various modifications thereof may be apparent to those skilled in the art without departing from the spirit and scope of this invention and, therefore, the same is only to be limited by the scope of the prior art and the appended claims.

We claim:

1. In a fountain pen having connecting means at the writing point end thereof, an outer metal cap having an open and a closed end, a supplemental metal cap within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap, the juncture of said open and closed end portions forming a shoulder against which the end of the fountain pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen extended within the closed end portion of the supplemental cap, co-operating connecting means on the open end portion of said supplemental cap for releasably holding said cap on the fountain pen, and a clip having attaching means extending through said outer cap into the space between said outer and said inner caps.

2. In a fountain pen having threaded connecting means at the writing point end thereof, an outer metal cap having an open and a closed end, a supplemental metal cap within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap, the juncture of said open and closed end portions forming a shoulder, co-operating threaded connecting means on the open end portion of said supplemental cap for releasably holding the end of the fountain pen against said shoulder to seal from the atmosphere the writing point and ink feeding means of the fountain pen extended within the closed end portion of the supplemental cap, and a clip having attaching means extending through said outer cap into the space between said outer and said inner caps.

3. In a fountain pen having connecting means at the writing point end thereof, an outer substantially conical-shaped metal cap having an open and a closed end, a supplemental substantially conical-shaped metal cap within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap with the ends thereof in an abutting relation, the juncture of said open and closed end portions forming a shoulder against which the end of the fountain pen rests to seal the writing point and ink feeding means of the fountain pen extended within the closed end portion of the supplemental cap, co-operating connecting means on the open end portion of said supplemental cap for releasably holding said cap on the fountain pen, and a clip having attaching means extending through said outer cap into the space between said outer and said inner caps.

4. In a fountain pen having connecting means at the writing point end thereof, an outer metal cap having an open and a closed end, a supplemental metal cap of a character resistant to the corrosive action of writing fluids within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap, the juncture of said open and closed end portions forming a shoulder against which the end of the fountain pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen extended within the closed end portion of the supplemental cap, co-operating connecting means on the open end portion of said supplemental cap for releasably holding said cap on the fountain pen, and a clip having attaching means extending through said outer cap into the space between said outer and said inner caps.

5. In a fountain pen having connecting means at the writing point end thereof, an outer metal cap having an open and a closed end, a supplemental metal cap having a plating on the bore thereof of a character resistant to the corrosive action of writing fluids within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap, the juncture of said open and closed end portions forming a shoulder against which the end of the fountain pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen extended within the closed end portion of the supplemental cap, co-operating connecting means on the open end portion of said supplemental cap for releasably holding said cap on the fountain pen, and a clip having attaching means extending through said outer cap into the space between said outer and said inner caps.

6. In a fountain pen having connecting means at the writing point end thereof, an outer metal

cap having an open and a closed end, a supplemental sterling silver cap within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap, the juncture of said open and closed end portions forming a shoulder against which the end of the fountain pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen extended within the closed end portion of the supplemental cap, co-operating connecting means on the open end portion of said supplemental cap for releasably holding said cap on the fountain pen, and a clip having attaching means extending through said outer cap into the space between said outer and said inner caps.

7. In a fountain pen having connecting means at the writing point end thereof, an outer metal cap having an open and a closed end, a supplemental metal cap within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap, the juncture of said open and closed end portions forming a shoulder against which the end of the fountain pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen extending within the closed end portion of the supplemental cap, co-operating connecting means on the open end portion of said supplemental cap for releasably holding said cap on the fountain pen, a sleeve of relatively hard metal within said outer cap in the space between said outer and said inner caps for reinforcing said outer cap, and a clip having attaching means extending through said outer cap and said sleeve into said space.

8. In a fountain pen having connecting means at the writing point end thereof, an outer cap of relatively soft metal having an open and a closed end, a supplemental metal cap within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap, the juncture of said open and closed end portions forming a shoulder against which the end of the fountain pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen extending within the closed end portion of the supplemental cap, and co-operating connecting means on the open end portion of said supplemental cap for releasably holding said cap on the fountain pen, a sleeve of relatively hard metal within said outer cap in the space between said outer and said inner caps for reinforcing said outer cap, and a clip having attaching means extending through said outer cap and said sleeve into said space.

9. In a fountain pen having an undercut and connecting means at the writing point end thereof, said undercut forming a shoulder, an outer metal cap having an open and a closed end, a supplemental metal cap within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap with the ends thereof in an abutting relation, the juncture of said open and closed end portions forming a second shoulder, co-operating connecting means on the open end portion of said supplemental cap for releasably holding the end of the fountain pen against one of said shoulders and the end of the outer cap against the other of said shoulders to seal from the atmosphere the writing point and ink feeding means of the fountain pen extended within the closed end portion of the supplemental cap, and a clip having attaching means extending through said outer cap into the space between said outer and said inner caps.

10. In a fountain pen having connecting means at the writing point end thereof, an outer metal cap having an open and a closed end, a supplemental metal cap coated on the bore thereof with acid resisting material and being disposed within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap, the juncture of said open and closed end portions forming a shoulder against which the end of the fountain pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen extended within the closed end portion of the supplemental cap, co-operating connecting means on the open end portion of said supplemental cap for releasably holding said cap on the fountain pen, and a clip having attaching means extending through said outer cap into the space between said outer and said inner caps.

11. In a fountain pen having connecting means at the writing point end thereof, an outer cap of relatively soft metal having an open and a closed end, a supplemental metal cap within said outer metal cap, said supplemental metal cap having an open end portion of an outside diameter to engage in a fixed relation the bore of said outer metal cap and a closed end portion of reduced diameter having its entire external peripheral surface spaced from the inside walls of the bore of said outer metal cap, the juncture of said open and closed end portions forming a shoulder against which the end of the fountain pen rests to seal from the atmosphere the writing point and ink feeding means of the fountain pen extending within the closed end portion of the supplemental cap, and co-operating connecting means on the open end portion of said supplemental cap for releasably holding said cap on the fountain pen, a sleeve of relatively hard metal disposed about the open end portion of said supplemental cap adjacent the connecting means thereof for reinforcement thereof, and a clip having attaching means extending through said outer cap into the space between said outer and inner caps.

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