March 8, 1938. C. R. SHEAFFER 2,110,558

FOUNTAIN PEN

Filed May 18, 1936

Fig. 1.

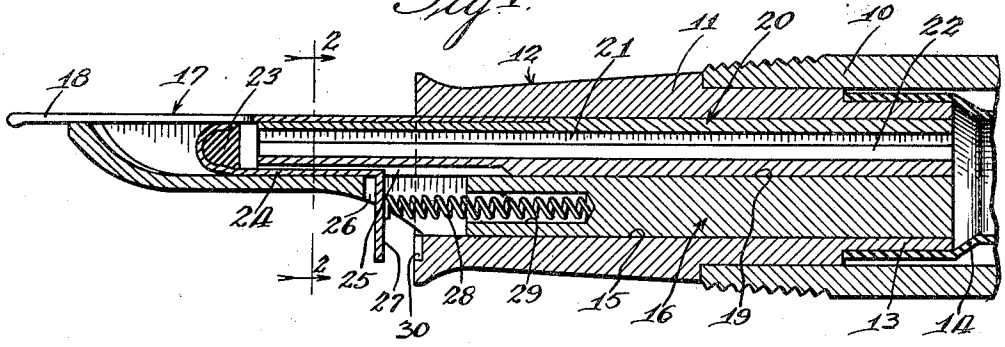


Fig. 2.

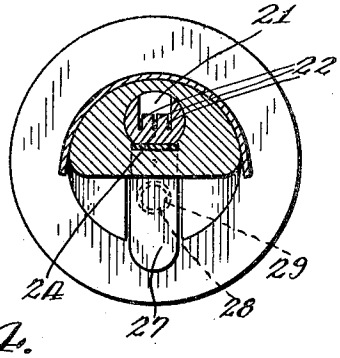


Fig. 3.

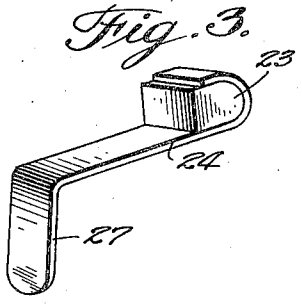
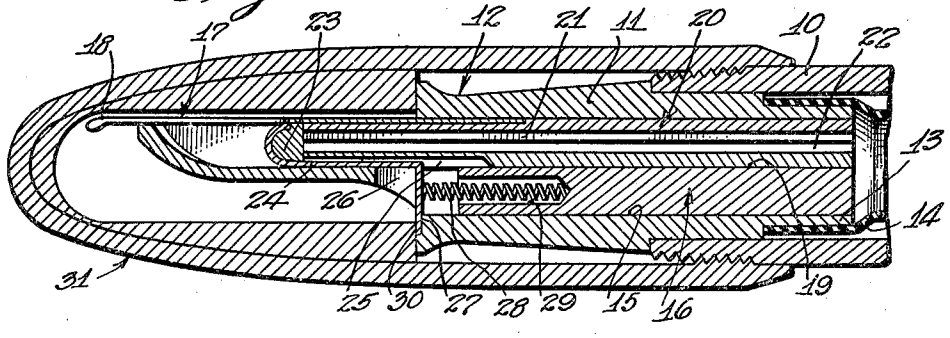


Fig. 4.



Inventor:
Craig R. Sheaffer:
By: Jones, Addington, Ames & Seibold:
Attys.

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UNITED STATES PATENT OFFICE

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FOUNTAIN PEN

Craig R. Sheaffer, Fort Madison, Iowa, assignor to W. A. Sheaffer Pen Company, Fort Madison, Iowa, a corporation of Delaware

Application May 18, 1936, Serial No. 80,328

4 Claims. (Cl. 120—48)

This invention relates to a fountain pen and has special reference to a fountain pen having a writing fluid feeding mechanism including means for regulating the flow of the writing fluid to the pen nib thereof when the fountain pen is in condition for use and for sealing the writing fluid within the feed bar when the cap is on the writing point end of the barrel and the fountain pen not in use.

More particularly, this invention relates to a fountain pen, including a feed bar and nib in the writing point end of the barrel and a cap for enclosing the feed bar and nib, having means within the feed bar for controlling the flow of the writing fluid through the passage in the feed bar in communication between a fluid reservoir of the barrel and the pen nib, there being resilient means for normally holding the fluid controlling means in an open position when the cap is removed to permit a flow of the writing fluid to the pen nib in writing, and means on the cap for overcoming the resilient means and for urging the fluid controlling means in a sealed relation with the passage to prevent a flow of the writing fluid when the cap is in position on the writing point end and the pen not in use.

The present construction affords a simple and efficient means for effectively sealing the writing fluid against leakage when the cap is in place and the pen not in use. While it is the function of the cap in most present day constructions to effect a seal of the writing mechanism, such seal is merely effected exteriorly of the feed mechanism with the result that leakage may occur from the reservoir through the feed bar into the cap and about the pen section. Therefore, when the cap is removed from the writing point end of the barrel, there is great danger of the writing fluid soiling the fingers or clothing of the writer, the writing fluid being forced into a flooded condition by abnormal temperatures or by being jostled about in a handbag or by other such conditions.

The present invention contemplates the elimination of the above objections in the provision of a seal preferably wholly contained in the feed bar and adjacent the upper end of the channel in the pen nib so that the writing fluid is sealed within the fountain pen in order that a flow of writing fluid from the reservoir through the feed bar and into the slit or channel may not be obtained at any time when the cap is in position on the writing point end of the barrel. It is to be particularly noted in the description hereinafter presented that the seal is effected at the upper end of the slit of the pen nib or at that portion of the feed mechanism where the writing fluid is finally conducted to the writing surface. In constructions now known to applicant, the stop-off or seal is effected between the reservoir in the barrel and the feed bar or feed section. This leaves a head of ink in the feed mechanism that is not sealed and which could cause serious inconvenience in the soiling of the hands, clothing and the like, although the loss of ink from within the writing mechanism may be materially limited.

In the present invention it is contemplated that not only the writing fluid in the reservoir but that in the feed section itself be prevented from emptying into the cap since the fluid controlling means is disposed at a position adjacent the inner end of the slit and the outer extremity of the passage of the feed bar.

It is therefore one of the objects of this invention to provide a fountain pen having a writing fluid feeding mechanism of the character above noted wherein the writing fluid is effectively sealed against flooding the writing point of the pen nib or the feed bar by the fluid controlling means disposed within the feed bar and operable upon the positioning of the cap on the writing point end of the barrel, an unsealed condition being obtained upon the removal of the cap.

It is also an object of this invention to provide a fountain pen having a writing fluid feed mechanism of the character hereinabove recited which is efficient and simple in operation and comparatively inexpensive to manufacture.

Other objects and advantages 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 fragmental enlarged central sectional view of the writing point end of a fountain pen having a writing fluid feeding mechanism embodying the features of the present invention;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a perspective view of the fluid controlling means disposed in the feed bar; and

Fig. 4 is a view similar to Fig. 1, showing a cap in position on the end of the barrel of the fountain pen and illustrating the relation of the cap to the valve mechanism which it operates.

Referring now more particularly to Figure 1

of the drawing, the fountain pen incorporating the features of this invention comprises a barrel 10 for engaging a reduced extension 11 of a feed section 12, the reduced extension 11 preferably having a further reduced extension 13 on which a flexible writing fluid sack 14 is secured. The feed section 12 is provided preferably with a longitudinally extending central opening 15 for receiving a feed bar 16 in a fluid-tight engagement therewith.

The feed bar 16 extends beyond the outer end of the feed section 12 in the usual manner and receives a pen nib 17 in peripheral engagement on one side thereof, the pen nib extending into the feed section a short distance to be held in position therein between the bore of the feed section and the outer periphery of the feed bar by frictional fit. The pen nib 17 is slit to provide a channel 18 through which the writing fluid may flow to the writing surface, the slit extending a substantial distance inwardly from the outer end of the pen nib.

In the embodiment shown in the drawing, the feed bar 16 is preferably provided with a longitudinally extending opening 19 which is enclosed at the outer end thereof by the pen nib 17 and communicates at the inner end with the flexible sack 14, the sack providing a writing fluid reservoir. An insert 20 is disposed in the opening 19 of the feed bar and extends preferably from the inner end thereof to substantially the inner end of the slit or channel 18 of the pen nib 17. The insert is provided with a channel 21 and a plurality of fissures 22, both of which extend preferably the full length of the insert.

The fluid controlling means shown more particularly in Fig. 3 preferably comprises a plunger 23 in the form of a rubber block disposed at one end of an arm 24 and clamped thereat by an inturned portion of the arm forming a pocket in which the block is clampingly held. The plunger is disposed adjacent the end of the insert and an arm 24 extends inwardly thereof adjacent the bore of the opening 19 and a cut-away portion 25 of the insert to a point adjacent the end of the feed section 12 where the arm is directed outwardly through an opening 26 in the feed bar, the projecting finger 27 extending in a parallel relation with the end of the feed section.

The plunger 23 is normally held spaced from the end of the insert 20 when the cap 31 is removed from the end of the fountain pen by a compression spring 28, one end of the spring being seated in an aperture 29 in the feed bar 16 and the other end extending to engage the finger 27. The compression spring 28 urges the arm 24 outwardly and thereby the plunger 23 in a spaced relation with the end of the insert 20 permitting a flow of writing fluid from the reservoir provided by the flexible sack 14 through the fissures 22 and the channel 18 to the writing surface when the cap 31 is removed from the pen. However, when the cap is inserted on the end of the pen, the shoulder 30 of the inner cap thereof or any other projecting means may engage the finger 27 and move the same inwardly against the compression of the spring 28 to seal the plunger 23 against the end of the insert 20. A seal of the writing fluid within the fountain pen is thus effected adjacent the inner end of the channel 18 of the nib.

While but a single embodiment of this invention is 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.

I claim:

1. In a fountain pen including a feed bar and nib in the writing point end of the barrel and a cap for enclosing the feed bar and nib, an insert in a longitudinally extending opening of said feed bar, means within the feed bar opening for controlling the flow of the writing fluid through a passage in said insert in communication between a fluid reservoir of the barrel and the pen nib comprising a plunger within said opening abutting against the end of said insert, resilient means for normally holding said plunger in an open position in a spaced relation from said insert when the cap is removed to permit flow of the writing fluid, and means on said cap for overcoming said resilient means and for urging said plunger in a sealed relation against the end of said insert to prevent flow when the cap is in position.

2. In a fountain pen including a feed bar and a slit nib in the writing point end of the barrel and a cap for enclosing the feed bar and nib, the feed bar having a longitudinally extending opening enclosed at one end by the nib and communicating at the other end with a fluid reservoir and the slit extending from the outer end a substantial distance inwardly thereof, an insert having fluid conducting fissures disposed in said opening and extending substantially to the inner end of the slit, means within the feed bar for controlling the flow of the writing fluid out of the fissures comprising a plunger within said opening adjacent the end of said insert, resilient means for normally holding said plunger spaced from the end of said insert when the cap is removed to permit flow of the writing fluid from the reservoir to the slit, and means on said cap for overcoming said resilient means and for urging said plunger against the end of said insert in a sealed relation therewith to prevent flow when said cap is in position.

3. In a fountain pen including a feed bar and a slit nib in the writing point end of the barrel and a cap for enclosing the feed bar and nib, the feed bar having a longitudinally extending opening enclosed at one end by the nib and communicating at the other end with a fluid reservoir and the slit extending from the outer end inwardly for communication with said opening, an insert having fluid conducting fissures disposed in said opening and extending substantially to the inner end of the slit, means within the feed bar for controlling the flow of the writing fluid out of the fissures comprising a plunger within said opening adjacent the end of said insert, an arm extending inwardly along said opening adjacent said insert to adjacent the end of the barrel and outwardly of the feed bar, resilient means engaging said arm for normally holding said plunger spaced from the end of said insert when the cap is removed to permit flow of the writing fluid from the reservoir to the slit, and means on said cap for engaging the outwardly extending portion of the arm for overcoming said resilient means and for urging said plunger against the end of said insert in a sealed relation to prevent flow when said cap is in position.

4. In a fountain pen including a feed bar and nib in the writing point end of the barrel and

a cap for enclosing the feed bar and nib, an insert in a longitudinally extending opening of said feed bar means contained wholly within the feed bar opening for controlling the flow of the writing fluid through a passage in the insert in communication between a fluid reservoir of the barrel and the pen nib, resilient means for normally holding said fluid controlling means in an open position when the cap is removed to permit flow of the writing fluid, and means on said cap for overcoming said resilient means and for urging said fluid controlling means in a sealed relation with said passage to prevent flow when the cap is in position.

CRAIG R. SHEAFFER.