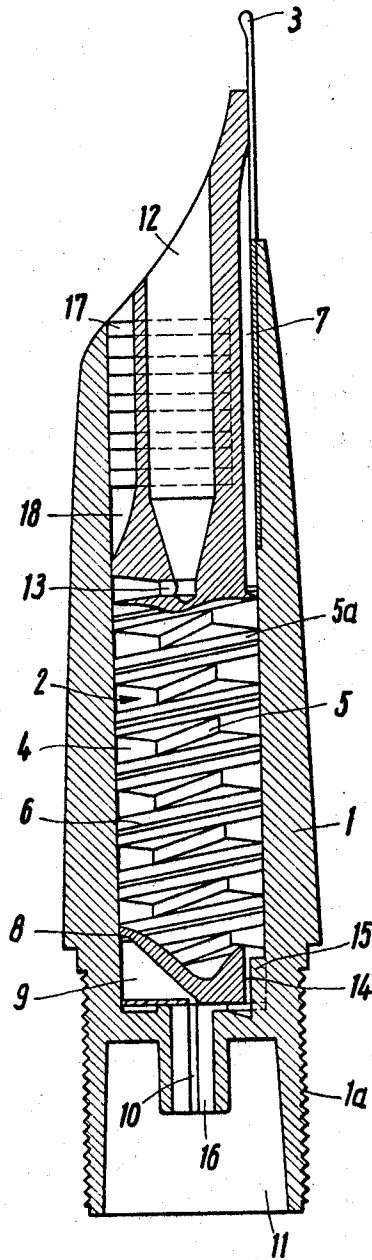


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FEED BAR FOR FOUNTAIN PEN
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FEED BAR FOR FOUNTAIN PEN

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5 Claims

ABSTRACT OF THE DISCLOSURE

The feed bar of a fountain pen is formed with a circumferential helical groove which defines a helical rib on the bar, and is normally closed by an internal wall of the point holder portion of the pen barrel or body. The groove is a part of the compensating system which admits air to the ink compartment in the barrel. The crest of the helical rib is formed with a capillary, helical ink conduit which is radially closed by the afore-mentioned wall and supplies ink to a duct subjacent the point from the ink compartment.

Background of the invention

This invention relates to fountain pens, and particularly to an improved feed bar which guides ink from a storage compartment in the pen barrel to the point and admits a compensating amount of air from the atmosphere to the compartment.

The feed bar controls the rate of ink flow from the storage compartment to the writing point of the pen, and the writing properties of the pen depend to a substantial extent on a uniform ink flow. The configuration of the feed bar has therefore been the subject matter of many patents, such as United States Patents Nos. 2,935,968, 2,601,846, and 2,795,211, the German Patent No. 1,222,404, and the French Patent No. 932,339. Although much effort has been spent on the construction of the feed bar, the known devices leave room for further improvement.

Summary of the invention

I have now found that more uniform ink flow than was available heretofore can be achieved by guiding the ink from the storage compartment to the point in a capillary conduit entirely separated from the compensating system which supplies air from the atmosphere to the compartment, and by making the ink conduit very much longer than the distance which separates the writing point from the ink storage point.

These seemingly contradictory requirements are met in a simple manner by forming the feed bar with a helical groove about a longitudinal axis, the groove defining a helical rib of the feed bar and constituting a portion of the aforementioned compensating system. The rib is formed with a capillary helical conduit about the same axis and separated from the groove which constitutes a portion of the ink duct. The cross section of the helical conduit in the rib is but a small fraction of the groove which separates the turns of the helical rib.

The groove and the ink conduit in the feed bar are open in a radially outward direction, and are closed by an inner wall of the pen barrel or body portion which functions as a point holder. The point holder portion of the pen body is tubular, the feed bar being inserted therein, and the writing point being superposed on a portion of the feed bar formed with an axially elongated groove subjacent the point. The last-mentioned groove communicates with one end of the helical ink conduit, and the other end of the latter communicates with the ink storage compartment through a capillary slot in the feed bar.

Other features and many of the attendant advantages

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of this invention will readily become apparent from the following detailed description of a preferred embodiment when considered in connection with the appended drawing.

Brief description of the drawing

The sole figure of the drawing shows a fountain pen of the invention in fragmentary axial section, the main portion of the pen barrel having been omitted.

Description of the preferred embodiment

Only the point holder portion 1 of an otherwise conventional fountain pen body or barrel is shown in the drawing, the illustrated portion being attached to the non-illustrated remainder of the barrel by means of an external thread 1.

The front end of an axial bore in the point holder 1 receives a feed bar 2 and a nib or writing point 3 which is partly interposed between the front end of the feed bar 2 and an inner wall of the point holder 1, and partly projects outward of the barrel. The middle portion of the feed bar 2 behind the writing point 3 is formed with a helical groove 4 whose cross section has the approximate shape of an isocetes trapezoid, and whose pitch decreases somewhat in a rearward direction. The remainder of the middle portion of the feed bar forms an axial carrier rod 5 which connects the turns of a helical rib 5a between the turns of the groove 4.

The flat crest of the rib 5a is formed with a radially open helical conduit 6 of capillary cross section, much smaller than that of the groove 4 and radially closed by the inner wall of the barrel portion 1. The front end of the conduit 6 communicates with an axially elongated ink duct 7 cut into the surface of the feed bar 2 subjacent the writing point 3. The terminal rear portion 8 of the conduit 6 communicates with a slot 9 of capillary dimensions which extends in the feed bar 2 in an axial plane and communicates with a corresponding slot 10 in the point holder portion 1 leading to the portion 11 of the ink storage compartment which is radially confined by the point holder portion 1.

An axial bore 12 in the front portion of the feed bar 1 is open to the atmosphere and communicates with the front end of the groove 4 through a radial bore 13 in the feed bar. The rear end of the groove 4 communicates with a recess 14 in the feed bar which is partly occupied by an abutment 15 on the inner wall of the point holder portion 1 so that the feed bar is secured against rotation about the pen barrel axis. The abutment 15 is received in the recess 14 with sufficient clearance to leave a restricted throttling passage for the flow of air from the bore 12 to the ink storage compartment 11 through a tubular air duct 16 centered in the point holder portion 1 which connects the compartment with the recess 14.

Lamellar fins 17 radially project from the front end of the feed bar 2 into a forwardly open air space 18 between the feed bar and the point holder portion 1 to retain any excess of ink which may be supplied through the long and narrow ink conduit 6.

It should be understood, of course, that the foregoing disclosure relates only to a preferred embodiment of the invention, and that it is intended to cover all changes and modifications in the example of the invention herein chosen for the purpose of the disclosure which do not constitute departures from the spirit and scope of the invention set forth in the appended claims.

What is claimed is:

1. In a fountain pen having a body formed with an ink storage compartment, a writing point, and a feed bar including ink duct means for guiding ink from said compartment to said point and compensating means for admitting air to said compartment from the ambient atmos-

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here, the improvement in the feed bar which comprises:

- (a) said feed bar having an axis and being formed with a helical groove about said axis, said groove defining a helical rib of said feed bar about said axis and constituting a portion of said compensating means; and
 - (b) said rib being formed with a capillary helical conduit about said axis and separated from said groove, the cross section of said helical conduit being substantially smaller than the cross section of said groove, and said conduit constituting a portion of said ink duct means.
2. In a pen as set forth in claim 1, said body having a tubular point holder portion, said feed bar being inserted in said point holder portion, and said writing point being superposed on said feed bar, said feed bar being formed with an axially elongated groove subjacent said point and communicating with one end of said helical conduit, and with a capillary slot communicating with the other end of said helical conduit and with said compartment.
3. In a pen as set forth in claim 2, said feed bar being formed with a recess in the surface thereof communicating with said groove and open toward said compartment,

and said body including abutment means received in said recess for securing said feed bar against rotation about said axis, said abutment means defining a restricted passage in said recess for throttled flow of air therethrough into said compartment.

4. In a pen as set forth in claim 3, lamellar fins radially projecting from said feed bar adjacent said point.

5. In a pen as set forth in claim 2, said point holder portion having an internal wall, said helical groove and said helical conduit being closed in a radially outward direction by said wall and separated thereby from each other.

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