

DE WITT C. VAN VALER.
FOUNTAIN PEN.
APPLICATION FILED FEB. 17, 1912.

1,151,980.

Patented Aug. 31, 1915.

Fig. 1.

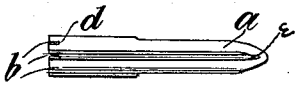


Fig. 2.



Fig. 3.



Fig. 4.

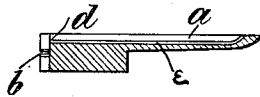


Fig. 5.

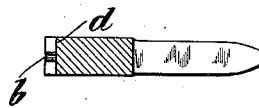


Fig. 6.

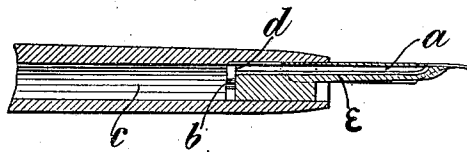
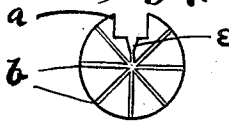


Fig. 7.



WITNESSES

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FOUNTAIN-PEN.

1,151,980.

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To all whom it may concern:

Be it known that I, DE WITT C. VAN VALER, a citizen of the United States, and a resident of Richmond Hill, Queens county, New York, have invented an Improvement in Fountain-Pens, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The invention relates more particularly to improvements in feed plugs for fountain pens, and its main object is to provide a plug which will permit the ink to be drawn out readily and delivered to the pen as the latter moves over the surface of the writing element and, at the same time, to prevent the ink from flowing too freely and from being discharged through the feed plug when the pen is not in use.

A common fault with fountain pens has been found in the failure of the ink to flow down quickly when the pen is positioned for writing. This usually happens when the pen has been out of use a sufficient length of time to permit the ink in the duct to drain back into the barrel leaving the duct practically dry. To overcome this difficulty, I provide in the main duct of the feed plug a narrow V-shaped groove which, on account of the proximity of its sides, retains some moisture even after the remainder of the duct becomes quite dry. When the pen is inverted to a position for writing, there is almost an instantaneous flow of ink to the point of contact owing to the fact that the moisture in the V-shaped groove breaks down the surface film of the head of ink pressing into the feed duct and permits the ink to flow with little or no frictional resistance along the surfaces of the duct. Thus, while the ink flows quite readily, the volume passing at any given time may be controlled by other means, it having been proposed heretofore to provide in the plugs of fountain pens, narrow-feed channels for the purpose of producing capillary attraction to prevent the ink from flowing too freely. These feed channels are generally cut down well in the interior of the plug and require considerable care in their construction or formation. In accordance with the present invention, I propose to do away with these small feed channels and provide

in their place a number of very small transverse cuts, that is cuts made substantially straight across the plug ordinarily by means of a thin saw and thus being formed with shoulders which check the flow of ink in a downward direction through said cuts. The cuts are in communication with the main ink duct which extends longitudinally through the plug, or is made as a groove in the side of the plug, and serve as feeding channels in the sense that there is a limited flow of ink through the same from the ink reservoir into the main duct of the plug. By reason of their shallowness and their square shoulders, however, the flow of ink there-through is greatly restricted and they exercise a considerable retarding power upon the flow of ink through the main duct with which, as was just stated, they communicate. The cuts are preferably made across the inner end of the plug by making a number of shallow radial cuts straight across the said inner end. The cuts thus communicate in the center and at least one of the cuts should communicate with the main duct.

In the accompanying drawings, where a practical embodiment of the invention is illustrated, Figure 1 is a view in front elevation thereof, Figure 2 is a side elevation, Figure 3 is a view of the upper or inner end of the plug, Figs. 4 and 5 are longitudinal sections, the section of Fig. 4 being taken through the groove forming the feed duct, and that of Fig. 5 at right angles thereto. Figure 6 is a sectional view of the end of a fountain pen with the improved plug in place therein, and, Figure 7 is an enlarged view of the inner end of the plug.

The body of the plug will be seen to have the same general shape as the conventional feed plug of fountain pens. In the present case, the main duct of the plug, denoted by *a*, consists of a longitudinal groove in one side thereof. As a part of this main duct, and cut in one surface thereof, is a V-shaped groove *e* adapted to hold between its sides by capillary attraction a small quantity of ink which remains in a moist condition when the pen is not in use and after the ink has drained back from the remaining surfaces of the duct into the reservoir *c* of the pen. At the inner end of the plug are a plurality of shallow saw cuts *b* formed straight across this end of the plug and

crossing each other near its center. One of the cuts will be seen to strike through the main duct *a* and thus all of the cuts are placed in communication with the main duct. The external ends of the cuts *b* are open to the ink reservoir *c* of the pen while the inner ends and the circumferential ends of the cuts are limited respectively by surfaces *d* and the inner walls of the reservoir *c* which retard the downward flow of the ink through the cuts. Whatever flow of ink there is through the cuts, therefore, must be sidewise so as to deliver the same ultimately into the main ink duct *a*; and it will be obvious that with the narrowness of the ducts and the check in the direct downward flow of the ink, a considerable retarding force will be exercised upon the flow of ink through the plug after its initial rapid passage along the V-shaped groove *e*. It has been found in practice that such a construction checks very satisfactorily any excessive flowing of the ink and works equally well in any size of pen.

I claim as my invention:

1. A feed plug for a fountain pen, having a feed duct and a plurality of cuts traversing the inner end of the feed plug, at least two of said cuts being positioned to intersect at a point remote from said feed duct.

2. A feed plug for a fountain pen, having a feed duct, a cut across the inner end of said feed plug and communicating with said feed duct, and another cut across the inner end of the feed plug to intersect the first-mentioned cut at a point away from the feed duct.

3. A feed plug for a fountain pen having a feed duct, a cut communicating with said feed duct and a plurality of cuts converging at a point remote from the feed duct.

4. A feed plug for a fountain pen, having a feed duct, a cut communicating with said feed duct, and a plurality of cuts converging at a point remote from the feed duct, and intersecting said first-mentioned cut.

5. A feed plug for a fountain pen, having a feed duct, and a plurality of cuts across

the inner end of said feed plug, each cut being of substantially constant depth.

6. A fountain pen containing, in combination, a barrel and a feed plug closing the end thereof, said plug being provided with a longitudinal feed duct at its outer surface next the barrel and at its inner end with flow restraining cuts effectively centering at a point remote from the entrance to the feed duct, thereby to restrain excessive flow of the ink to said duct.

7. A fountain pen containing, in combination, a barrel and a feed plug closing the end thereof, said plug being provided with a longitudinal feed duct at its outer surface next the barrel and at its inner end with a plurality of cuts, each of constant depth and extending through the periphery of said plug, the peripheral openings thus formed being closed by the inner cylindrical surface of said barrel.

8. A fountain pen containing, in combination, a barrel and a feed plug closing the end thereof, said plug being provided with a longitudinal feed duct at its outer surface next the barrel and at its inner end with a cut communicating with the feed duct and a plurality of cuts intersecting said cut remote from the entrance to said feed duct.

9. A fountain pen containing, in combination, a barrel and a feed plug closing the end thereof, said plug being provided with a longitudinal feed duct at its outer surface next the barrel and at its inner end with a cut of constant depth communicating with the feed duct, a cut of constant depth intersecting said first-mentioned cut at a point remote from said feed duct and extending through the periphery of said feed plug, the peripheral openings thus formed being closed by the inner surface of said barrel.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

DE WITT C. VAN VALER.

Witnesses:

JOHN W. THOMPSON,
ALEXANDER S. GRASS.