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PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Improvements in Fountain Pens.

I, WILLIAM IRVING FERRIS, of No. 525, Lawrence Avenue, Westfield, in the County of Union and State of New Jersey, United States of America, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

This invention relates to improvements in fountain pens having a feed bar of the kind formed with a longitudinal channel provided with fissures in its bottom, which fissures may be extended down the inner end surface of the bar, and has for its object to facilitate the free and continuous flow of ink from the reservoir along the feed bar to the metallic pen during use.

By means of this invention the passage of ink along the feed bar is continuous, there being no noticeable diminution of the supply when a bubble of air passes from the pen point into the reservoir. The reasons for this are : first, that the capillary fissures in the feed bar give a constant limited supply of ink ; and second, by the improved construction of the feed bar, the ink in passing into the bar accelerates the air bubble, especially when it reaches the end of the bar, so that the air bubble passes through the feed bar rapidly and leaves the feed bar without hesitation or clinging to the same.

My invention consists of a feed bar having its inner end constructed so that the ink can all be taken from the reservoir to the last drop, and that air bubbles passing upward through the bar are given an impetus, thus causing them to clear the end of the feed bar and allow the ink to flow to the metallic pen without interruption.

By my invention, when the pen is not in a writing position, the surplus ink is withdrawn from that portion of the feed bar which comes in contact with the metallic pen, thereby avoiding the possibility of sweating or spilling ink within the cap.

While the surplus ink is so withdrawn and falls into the main supply of ink within the reservoir, nevertheless, the recessed portion of the feed bar within the barrel of the pen retains a sufficient amount of ink to form a secondary ink supply available to keep the capillary plates and fissures of the feed bar moist when the pen is inverted and not in use.

The result is that when the pen is brought into a writing position, even after a considerable period of disuse, the ink is fed immediately through the already moist feed bar, and the metallic pen writes instantly when touched to paper.

The old type of feed bar is so constructed that an air bubble will seat itself on the reservoir end of the feed bar, thereby closing the channel for the ink and

[*Price 6d.*]

the air bubble does not detach itself until displaced by a sharp movement of the pen or by a succeeding air bubble.

In the accompanying drawing which illustrates one embodiment of the invention and wherein similar reference characters are employed to designate similar parts in the several views,

Figure 1 is a sectional view of a fountain pen with the feed bar and metallic pen in elevation ;

Figure 2 is a similar view with the metallic pen in section ;

Figure 3 is a central longitudinal sectional view of the nipple, feed bar and metallic pen ;

Figure 4 is a plan view of a slightly modified feed bar ; and

Figures 5, 6 and 7 are transverse sections respectively on lines 5—5, 6—6 and 7—7, Figure 1.

In this specification, the pen point, which is usually made of metal, although it may be made of other material, will be called the metallic pen to differentiate it from the entire structure which is called a pen.

The pen is made of any suitable material and comprises a barrel 10 forming a reservoir and into which is screwed the nipple 11. The feed bar 12 fits in the bore of the nipple, the lower end 13 of the bar being under the metallic pen 14 which is secured in the nipple, usually by friction. The top of the feed bar has a groove 15 which extends the length of the same and acts as a channel for the ink passing down and for the air bubbles which pass up from the metallic pen to the reservoir. The feed bar is also provided with parallel fissures 16 in the bottom of the groove 15, and these fissures may extend down the end face of the bar as shewn in Figure 4. These fissures, by their capillary action, make the passage of ink positive and are not clogged by the air. The feed bar extends beyond the nipple and within the reservoir, the extension 17 having a cut-away portion or recess 18 at the bottom at the back end of the feed bar. This recessed extension 17 forms an overhang which, with the wall of the reservoir, forms a secondary reservoir or chamber 20. The fissures 16 are cut through the bar in the back part of the same to form apertures 21 which are in communication with the secondary reservoir 20.

In the old type of feed bar, an air bubble will cling to the inner end of the groove or channel, resisting displacement unless the pen is shaken or it is succeeded by another air bubble and thus blocking the entrance of ink into the feed bar.

In my improved pen, the bubble, when it passes above the secondary reservoir 20, passes directly from the inner end of the feed bar. The ink in the supplemental reservoir 20 passes through the comparatively shallow apertures 21 and coming up into the channel 15 gives an impetus to the bubble and it passes from the inner end of the feed bar quickly and does not cause any appreciable cessation of flow of the ink. The introduction of ink in the rear of the bubble takes place in the feed bar and within the reservoir, the ink in the secondary reservoir being directed mainly behind the bubble on account of the tendency of the overhang 17 to resist the expenditure of the pressure of the ink back into the reservoir 10.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is :—

1. A fountain pen feed bar of the kind hereinbefore set forth, having a channel extending throughout its length, fissures extending the full length of the channel, and apertures in the bottom of the feed bar adjacent to its inner end for supplying ink to the fissures and channel in addition to the ink that enters the channel from the end of the bar.

2. A fountain pen feed bar as claimed in Claim 1, whereof the inner end is cut away to form a secondary reservoir from which ink enters the fissures.

3. A fountain pen feed bar of the kind hereinbefore set forth, having its under

side, adjacent to the inner end, recessed from one side to the other, said recess extending into the bottoms of the fissures to form apertures for permitting ink to enter the fissures at points inwardly from the receiving end of the channel.

4. A fountain pen constructed and arranged substantially as hereinbefore set forth with reference to the accompanying drawings.

Dated this 9th day of June, 1916.

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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig.1.

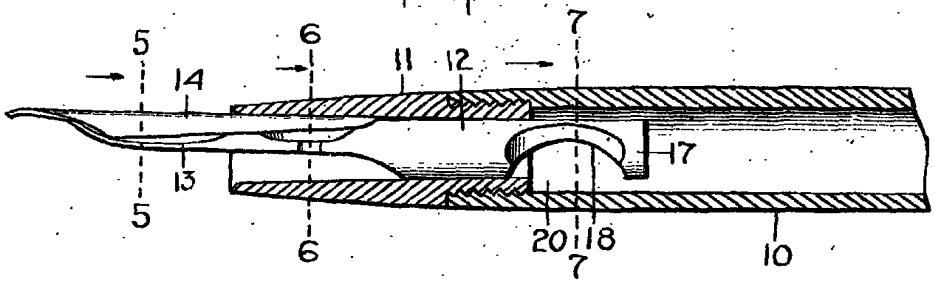


Fig.2.

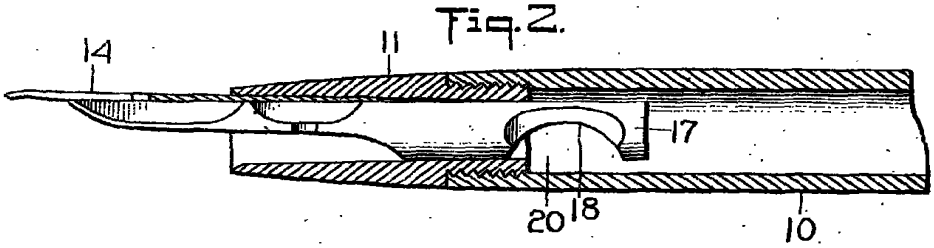


Fig.3.

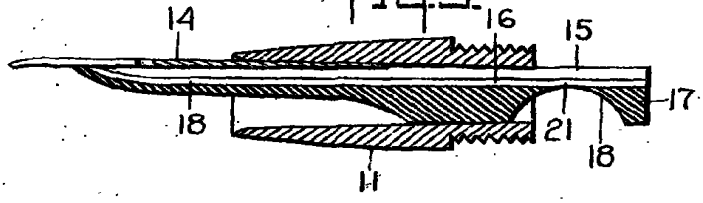


Fig.4.

Fig.5.

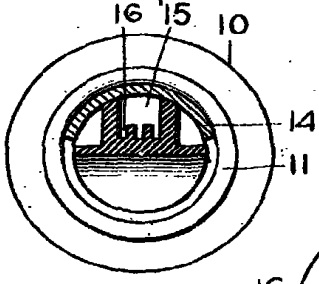


Fig.6.

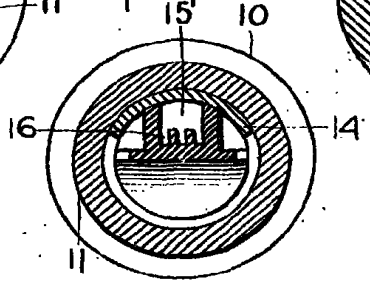
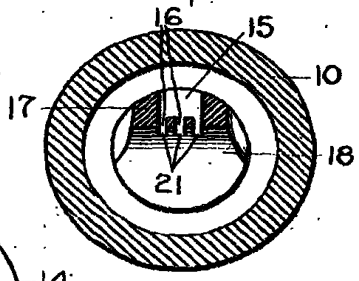


Fig.7.



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