

Feb. 12, 1924.

1,483,675

S. E. PETERS

FEED BAR FOR FOUNTAIN PENS

Filed Dec. 29, 1920

Fig. 1.

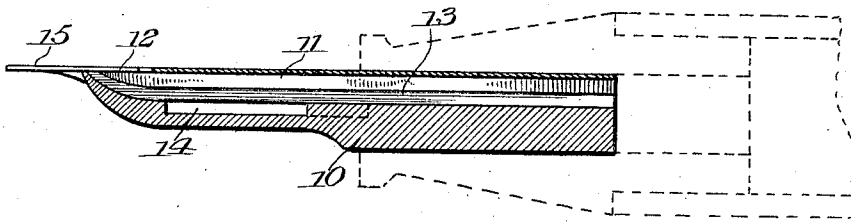


Fig. 2.

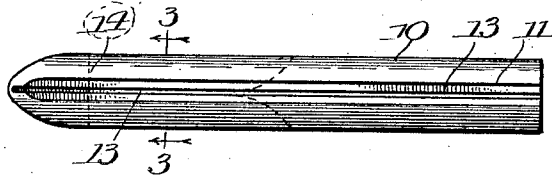


Fig. 3.

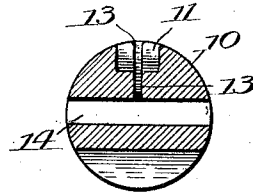


Fig. 4.

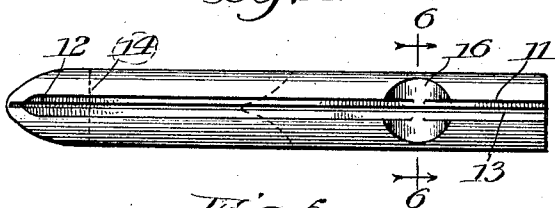


Fig. 6.

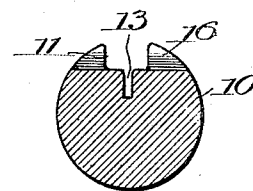
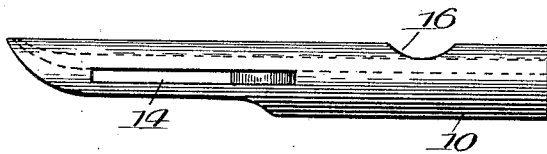


Fig. 5.



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UNITED STATES PATENT OFFICE.

STANLEY E. PETERS, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
KRITIKSON BROS., INC., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

FEED BAR FOR FOUNTAIN PENS.

Application filed December 29, 1920. Serial No. 433,326.

To all whom it may concern:

Be it known that I, STANLEY E. PETERS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Feed Bars for Fountain Pens, of which the following is a full, clear, concise, and exact description; reference being had to the accompanying drawings, forming a part of this specification.

The invention relates to improvements in feed bars for fountain pens and is particularly designed to regulate the flow of writing fluid to the pen point of the fountain pen.

The invention has among its various objects the provision of a simple structure whereby any excess of ink flowing towards the pen point will be momentarily arrested and prevented from finding its way to the end of the pen and dropping therefrom. In addition, it is an object of the invention to provide a structure, which will automatically feed a portion of the excess ink together with that flowing to the pen point from the barrel of the fountain pen, so that the excess will be consumed during the writing operation until conditions are again restored to normal.

The invention has a further feature, the provision of means whereby the flow of ink is controlled as it leaves the barrel of the pen; and prior to its reaching the structure for compensating for any excess ink reaching the pen point, thus, further insuring against the occurrence of the objections which the invention is designed to overcome.

The structure illustrated in the drawings for accomplishing the invention contemplates the use of a feed bar which has an aperture which communicates with the atmosphere, the dimension of this aperture, and the dimensions of the cooperating elements, being such that the atmospheric pressure and the surface friction of the fluid normally maintains the ink in its proper channels, but permits any excess to escape from its normal path and be retained so that it may be utilized and consumed when the flow of ink towards the pen is again restored to normal. In other words, an arrangement is provided which acts as a control valve and holds back any excess ink and only permits it to be fed to the pen point proportionally to the demand. The particular arrange-

ment herein shown contemplates the use of the usual air passage provided in the feed bar which communicates with the interior of the fountain pen barrel or rubber sack depending upon the particular or preferred construction, and feeds air into the barrel so that the writing fluid will feed to the pen point. A fluid passage of relatively smaller dimension communicates with the above referred to air passage and extends substantially throughout the length of the above named passage. A portion of this fluid passage opens into and connects with a port or aperture which communicates with the atmosphere. The dimension of the second mentioned passage is such that the fluid is maintained between the walls of this passage above the aperture by the surface tension of the liquid which causes it to adhere to the walls and permits this liquid to seal this passage. Thus the fluid in the first mentioned passage is fed in a normal manner to the pen point. However, should the pressure within this first mentioned passage become excessive, the ink retained between these walls above the aperture would tend to seek an outlet which is afforded by the aperture above referred to, the atmospheric pressure at the aperture preventing the escape of the ink, as the relative dimension of this aperture and other elements of the structure is such that the ink is maintained and prevented from flowing over the sides of the bar, yet will sufficiently relieve the pressure within the ink or fluid channel of the bar, and eliminate the possibility of the occurrence above referred to.

It has been found that the arrangement also insures a ready flow of ink to the pen point, so that the pen is at all times ready for immediate use, also that the ink will feed from the pen point without the application of any great pressure upon the pen point. The feed bar is further provided with means for controlling the flow of ink from the barrel of the holder to the above referred to structure, this latter structure being particularly advantageous in connection with fountain pens of a larger size than the usual fountain pen.

The invention will be explained, and more readily understood, when read in conjunction with the accompanying drawings which disclose one form which the invention is susceptible of, it being understood however,

that the invention is not limited to this particular structure, the scope of the invention being determined by the appended claims forming a part hereof.

5 In the drawings, Figure 1 is a central sectional view of an end of a fountain pen, pen point and feed bar embodying the invention;

Figure 2 is a top plan view of the feed bar shown in Figure 1;

10 Figure 3 is a sectional view taken on line 3—3 of Figure 2;

Figures 4 and 5 are respectively plan and side views of a modified construction which may be resorted to;

15 And Figure 6 is a sectional view taken on line 6—6 of Figure 4.

In the structure illustrated in Figures 1 to 3 the feed bar 10 is provided with a longitudinal groove or air passage 11 which extends substantially throughout the length of the bar and is arranged so that it is uppermost when applied to the fountain pen barrel. The most forward end of this groove or passage is curved upwardly as indicated at 12. A second groove or fluid passage 13, which is of a substantially smaller dimension than the first mentioned groove, communicates with the groove 11 and extends throughout the length of the feed bar in a manner similar to the groove 11. This ink passage 13 is closed throughout the greater portion of its length except at its communication transversely to and below the groove or passage 13 and extends to and opens into the atmosphere at the sides of the feed bar. This arrangement, just described, regulates the flow of ink to the pen point 15 and compensates for any excess ink which flows towards the pen point and prevents its reaching and dropping therefrom. Under ordinary conditions, air is admitted into the passage 11. This causes the ink to flow from the barrel along the passage 13 to the pen point. The portion of the passage 13 which communicates with the aperture 14 is also filled and is constantly fed to the pen point as it is consumed in writing. The ink is maintained in this portion of the passage and prevented from normally entering the slotted aperture 14 by virtue of the fact that the walls of this passage are arranged so closely together that the surface tension of the liquid causes it to adhere to the walls of the passage, and holds it suspended above the aperture 14. However, should an excess amount of ink seek to escape to and out of the end of the pen point, the ink in this passage above the aperture 14 will recede between the walls of the aperture, thereby relieving the passage 13 of this excess which thereby prevents the ink from reaching and escaping from the pen point. However, as the ink is consumed at the pen point, that excess between the walls of the

aperture 14 is fed back into the passage 13 through the portion of the passage 13 above the aperture until only the ink between the walls above the aperture remains. As before stated, the aperture 14 communicates with the atmosphere and by virtue of this fact and the fact that the walls of this slotted aperture are spaced only a slight distance from each other, the ink which enters it is held against overflowing the sides of the aperture.

The structure illustrated in Figures 4 to 6 contemplates the use of an added feature to assist in controlling any excess which may attempt to enter the passage 13 and is particularly useful in conjunction with fountain pens which are somewhat larger, or of a greater ink capacity, than pens of the ordinary dimension or capacity. This structure contemplates the provision of a pocket 16 which, in this instance, is formed by making a transverse cut in the side walls of the groove or passage 11 which preferably extends to the lowermost wall of the passage. This pocket is arranged between the aperture 14 and the end of the bar which is inserted into, or communicates with, the ink reservoir. Under normal conditions, the ink passes this pocket as it flows along the passage 13, but in the event of an excess flow, the excess ink will fill the pocket and only feed out an amount equal to that utilized at the pen point. In other words, the ink is retarded at this point, which regulates the flow of ink as it moves to the structure shown in Figures 1 to 3. Whereas this pocket is illustrated as cooperating with the structure shown in Figures 1 to 3, its use is not so limited.

Having described the invention, what I claim and desire to cover by Letters Patent is:

1. A feed bar for fountain pens having an air passage and an ink passage the former being arranged above the latter, a slot arranged transversely of the feed bar below the ink passage and having communication at its end with the atmosphere, the upper wall of the slot and the bottom of the ink passage being arranged to intersect each other and having that portion of the material at the intersection removed to provide an opening through which ink may pass from said ink passage into the slot and from the slot into said passage.

2. A feed bar for fountain pens having an air and ink passage and an aperture terminating at the opposite sides of the feed bar and having a communication with the atmosphere, one wall of the aperture and a wall of said ink passage being arranged to intersect each other and provide a slotted opening whereby ink may flow into the aperture from the passage and from the aperture to said passage.

3. A feed bar for fountain pens having an air and an ink passage which extends lengthwise of the feed bar, a transverse slot communicating at its end with the atmosphere, said slot being arranged below the ink passage, the material between the ink passage and said slot being removed to provide an opening which substantially corresponds to the length of the slot and said opening providing a means whereby ink may pass from the ink passage into the slot and from the slot back to said ink passage.

4. A feed bar for fountain pens having an ink passage, an air passage and an opening which communicates with the atmosphere, said air and ink passages and said opening being arranged relatively to each other to produce an opening which is substantially I-shaped in outline.

5. A feed bar for fountain pens having a longitudinally extending ink channel and a horizontally extended transverse chamber communicating with the atmosphere, the ink channel being bottomless at the chamber to thereby provide a slotted opening whereby ink may enter the chamber from said ink channel and be fed from the chamber back to the ink channel.

6. A feed bar for fountain pens having a chamber arranged lengthwise and transversely of the feed bar, said chamber being open at the opposite sides of the feed bar and providing a communication with the atmosphere, an ink passage arranged above the chamber and having a portion thereof removed to provide a slotted opening which extends throughout substantially the entire length of the chamber and provides a means whereby ink may pass from the ink passage into the chamber and from the chamber into said ink passage.

7. A feed bar for fountain pens having an air and ink passage, a chamber having a communication with the atmosphere arranged at one side of said air and ink passage, and an elongated opening arranged between the passage and said chamber, said chamber being extended in opposite directions relatively to said opening, said passage providing means whereby ink may flow from the passage to the chamber and from said chamber to the passage.

In witness whereof I hereunto subscribe my name this 20th day of December, A. D. 1920.

STANLEY E. PETERS.