D. C. DEMAREST.

FOUNTAIN PEN.

APPLICATION FILED JUNE 17, 1911. RENEWED MAY 15, 1914.

1,112,362. **Patented Sept. 29, 1914.**

Fig. 1.

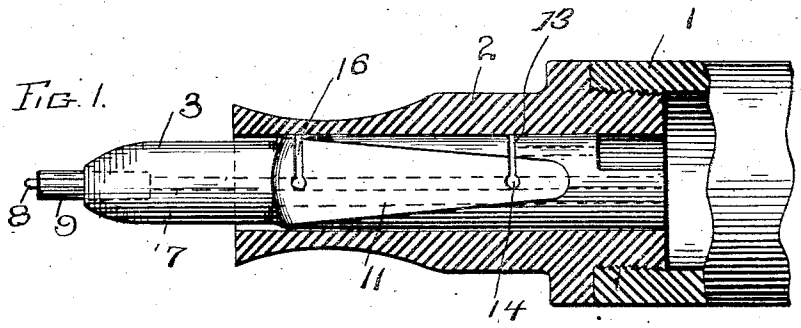


Fig. 2.

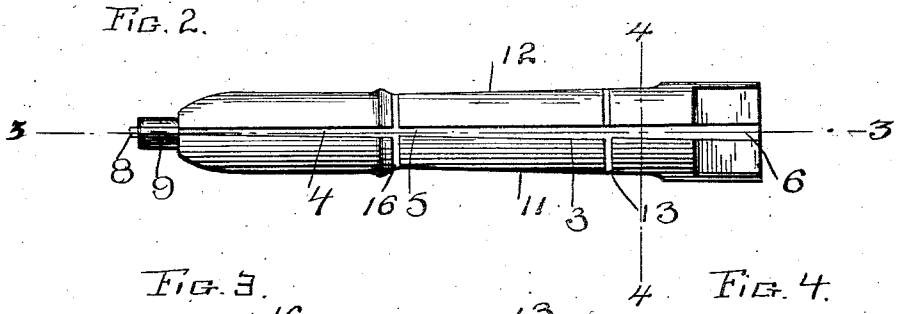


Fig. 3.

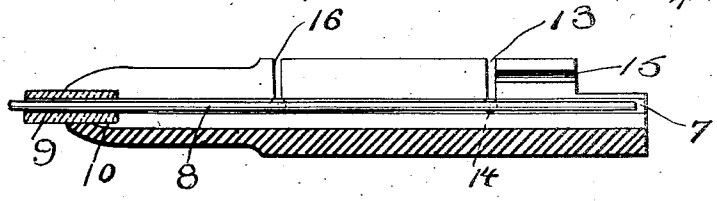


Fig. 4.

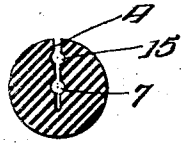


Fig. 5.

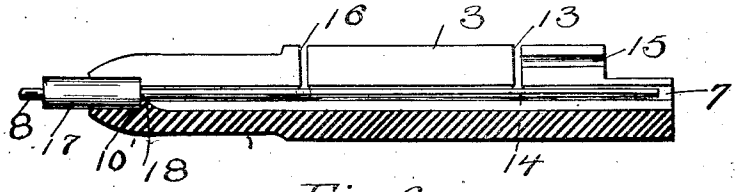
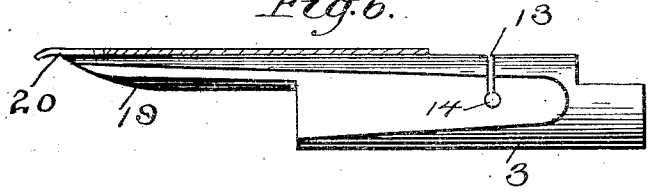


Fig. 6.



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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

1,112,362. Specification of Letters Patent. Patented Sept. 29, 1914.

Application filed June 17, 1911, Serial No. 633,739. Renewed May 15, 1914. Serial No. 838,860.

To all whom it may concern:

Be it known that I, DEWITT C. DEMAREST, a citizen of the United States, residing at Passaic, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates to improvements in fountain pens, and particularly to improved feed bars therefor which may be utilized either in the stylograph kind of pens or in the ordinary kind.

The object in view is the provision of an improved feed bar designed to so regulate the flow of ink from the holder and the admission of air thereto as to cause an even and regular feed.

Another object in view is the provision of a feed bar formed with a novel construction and arrangement of air passageways through which air is permitted to pass into the holder to take the place of the ink as the ink flows through some of the passageways in the feed bar, the various passageways being so formed and arranged as to automatically seal the holder against admission of air except when necessary to displace a proper amount of ink for keeping the point of the pen supplied with ink.

With these and other objects in view the invention comprises certain novel constructions, combinations, and arrangement of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings: Figure 1 is a longitudinal vertical section through a stylographic pen embodying the invention. Fig. 2 is a top plan view of the feed bar. Fig. 3 is a section through Fig. 2 on line 3—3. Fig. 4 is a cross section through Fig. 2 on line 4—4. Fig. 5 is a view similar to Fig. 3, except that the same discloses a slight modification of the invention. Fig. 6 is a view similar to Fig. 1, except the invention is applied to the ordinary style of pen.

Referring to the drawing by numerals, 1 indicates the holder which contains a supply of ink in the usual manner, and 2 the removable feed bar casing. The feed bar casing 2 may be bored in the usual manner or as desired for properly accommodating the feed bar 3. The feed bar 3 is formed with a longitudinal slot 4 formed by a saw or in any desired manner, and is tapered from its rear toward its front, as best illustrated in Fig. 2, the front portion 5, being narrower than the rear part 6. The longitudinal groove or channel formed by the cut 4, extends preferably below the central line of the feed bar 3, as shown in Fig. 3, and beyond an ink carrying bore 7, formed in the feed bar. The bore 7, is designed to accommodate preferably a wire feed rod 8, which extends entirely through the feed bar and protrudes at one end from a glass tube 9. The end of the feed rod 8, opposite the tube 9, extends an appreciable distance into the holder 1, so as to form a proper feed by capillary attraction to the outer end of the tube 9. The rod 8, may be held in place in any desired way as by friction, preferably by bending the wire slightly which will cause the same to bind against the walls of the bore 7, and firmly hold the wire feed rod in place, while at the same time permitting a free passage of the ink or writing fluid. The channel 4, not only extends to the bore 7; but also extends to the bore 10, into which the tube 9, is placed, so as to permit a free supply of ink to the tube 9, and a free action of the air in the slot 4. The slot 4, is intended to permit a proper gripping of the tube 9, for holding the same in place by ordinary frictional contact.

The feed bar 3, is formed on its exterior surface with side recesses 11 and 12, which preferably extend from the front of the casing 2, to a point near the rear end of the feed bar so as to permit a free supply of air on each side of the feed bar to a point in proximity to the ink in the holder 1. In order to complete the passageway for the air from the notched out or recessed portions 11 and 12, the feed bar 3, is formed with a transversely extending recess 13, having at its inner end an enlarged boring or opening 14, intersecting the bore 7, and through which air may freely pass into the upper part of the slot 4, and into the longitudinal bore 15, which extends from the rear end of the feed bar and opens into the transverse recess 13. If desired, a second and corresponding transverse recess 16, may be formed near the front of the feed bar 3, for assisting in supplying air to the slot 4, for balancing to a great extent the inflow of air and the outflow of ink. In constructing the slots and bores, the same, of course may be made in varying sizes as desired, but the rear part of the slot or channel 4, is preferably larger than the front part, the channel

tapering from rear to front, and preferably the bore 15 is smaller than the bore 7, and the bore 7, larger than the transverse bore 14, while the bore 14, is preferably slightly smaller than the bore 15.

In operation, when the pen disclosed in Fig. 1 is being used, ink will flow through the slot or channel 4, and through the bore 7, and also through the bore 15, transverse recess 13, and bore 14, until the recess 13, and bore 14, have been filled with ink, when additional air is prevented from entering into the holder. When the transverse recess 13, and its bore 14, have been filled with ink, it is manifest that no further admission of air can be had, but the ink will be permitted to freely flow through the bore 7, and out through the tube 9, in the usual manner until the ink in the transverse recess 13, and bore 14, has passed out of the bore 7, whereupon an additional supply of air will be admitted to the holder, and the operation repeated indefinitely so long as the supply of ink lasts. The second, or auxiliary, transverse recess 16, assists in permitting the ink entering recess 13 and bore 14, to flow into the bore 7, and from thence out of the pen by supplying air or taking the place thereof.

In Fig. 5, a slightly modified form is disclosed in which a metallic tube 17, is employed instead of glass tube 9. In this form of the device the forward portion of the channel 4 ends at point 18, slightly before the same reaches the bore in which the tube 17, is held. The bore 7, extends into this bore for the tube 17, said tube being designated 10′ so as to supply ink freely to said tube.

In Fig. 6, the invention is shown applied to the ordinary style of pen in which a feed bar 3 is provided with an extension 19, for fitting under the pen or nib 20. Aside from this slight change, the construction and operation of this feed bar is substantially like the form shown in the other views of the drawing, and will therefore need no additional description.

It will be evident that the various cuts and borings to produce slots or channels and the recesses and the like, may be varied in size without departing from the invention as occasion may require and for pens or nibs of varying sizes. It will further be understood that the cuts and various borings may be changed or rearranged to accommodate various forms of feed bars, and for other purposes, without departing from the spirit or scope of the invention as defined in the appended claims.

What I claim is:

1. A fountain pen feed bar formed with notched-out portions, with a longitudinal feeding bore, with a transverse recess communicating with said bore and notched-out portions, and with another longitudinal bore leading to said recess from the inner end of the feed bar.

2. A fountain pen feed bar formed with tapering notched out portion on each side thereof for the purpose specified, also formed with a longitudinal feeding bore, with a transverse recess communicating with said bore and notched-out portions, and with another longitudinal bore leading to said recess from the inner end of the feed bar.

3. A fountain pen feed bar formed with a longitudinal feeding bore, and with a transversely extending recess having at its inner end a transverse bore intersecting the longitudinal bore, the feed bar being further formed with a side recess intersected by the transverse recess, and with another longitudinal bore leading to said transverse recess from the inner end of the feed bar.

4. A fountain pen feed bar formed with a longitudinal bore, with side recesses, with front and rear transverse recesses intersecting said recesses and said bore, and with a longitudinal channel intersecting said transverse recesses and said bore.

5. A fountain pen feed bar formed with a longitudinal feed bore, and with tapering longitudinal recesses with front and rear transverse recesses intersecting the longitudinal bore, and with another longitudinal bore leading from the inner end of the feed bar to the rear transverse recess.

6. A fountain pen feed bar formed with a longitudinal bore, with side recesses, with front and rear transverse recesses intersecting said side recesses and said bore, with a longitudinal channel intersecting said transverse recesses and said bore, and with another longitudinal bore leading into the rear transverse recess from the inner end of the feed bar.

7. A fountain pen feed bar formed with a longitudinal feeding bore, with front and rear transverse recesses intersecting said bore, with another longitudinal bore opening into the rear transverse recess from the inner end of the feed bar and with a communication distinct from said first-named bore between said front and rear recesses.

In testimony whereof I affix my signature in presence of two witnesses.

DEWITT C. DEMAREST.

Witnesses:
CORNELIUS H. DEMAREST,
ELIZABETH ROSS.