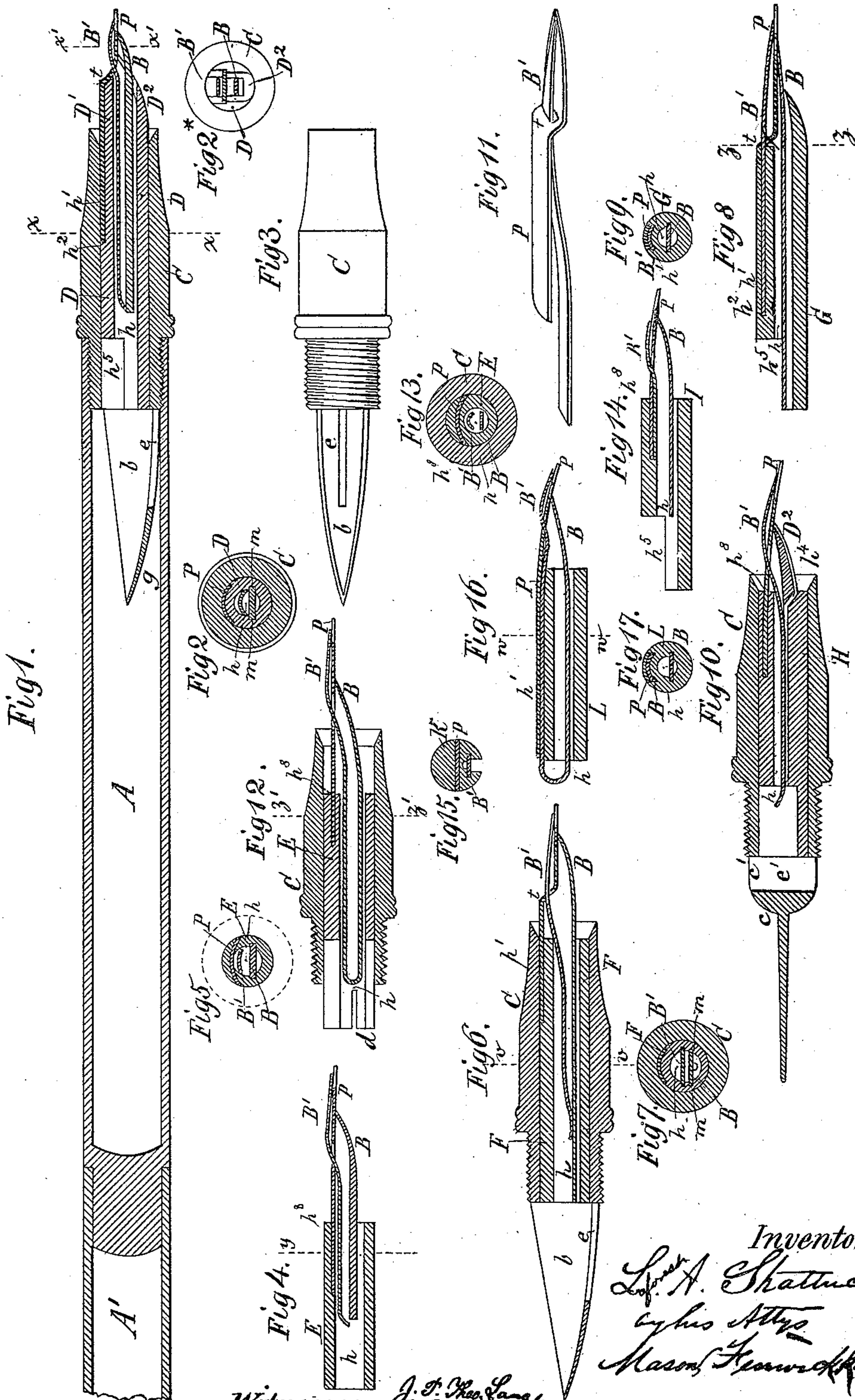


(No Model.)

L. A. SHATTUCK.  
FOUNTAIN PEN.

No. 441,111.

Patented Nov. 18, 1890.



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# UNITED STATES PATENT OFFICE.

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## FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 441,111, dated November 18, 1890.

Application filed February 15, 1889. Serial No. 299,937. (No model.)

*To all whom it may concern:*

Be it known that I, LAFORST A. SHATTUCK, a citizen of the United States, residing at Bloomsburg, in the county of Columbia and State of Pennsylvania, have invented certain new and useful Improvements in Fountain-Pens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to fountain-pens; and it consists, first, in a combined upper-feed and pen-supporting bar arranged to conduct ink through the pen forward of the nozzle to the top of the pen-point without passing it over the heel of the pen, whereby I am enabled to construct a top-feed pen and yet keep a portion of the upper side of the pen free from ink, which is an advantage to persons having a tendency to slide the fingers forward upon the pen, as soiling the fingers with ink is thereby avoided; second, in a combined ink-retaining and under-feed bar having its body portion rigidly secured within the ink-passage and its forward free point bent upward against the under side of the pen, so as to have a constant bearing against the nibs of the pen, whereby ink is prevented from dropping by cohesive attraction and the keeping of a constant supply of ink at the nibs and the conducting back of unused ink to the reservoir when the pen is not in use are accomplished; third, in the combination of the said ink-retaining bar and the said combined upper-feed and pen-supporting bar, whereby a means is secured for overcoming gravity, and thereby preventing the too sudden flow of ink to the front of the nozzle, and also the precipitation of ink from the pen-point in an irregular manner; fourth, in an improved pen, whereby its rear end can be adjusted in the upper surface of the nozzle, and at the same time its point brought more nearly in line with the central longitudinal axis of the fountain-reservoir and also a more direct ink-passage provided when such ink-passage is beneath the heel of the pen, this construction also affording other advantages, as will be hereinafter set forth; fifth, in an improved nozzle, whereby its rear end can be utilized

as an ink-conductor, and also a sediment-receptacle is provided at the lower end of the reservoir, and, sixth, in other features of construction hereinafter fully set forth and specifically claimed.

Referring to the drawings, Figure 1 is a central vertical longitudinal section of a fountain-pen with my invention in one mode of its embodiment. Fig. 2 is a transverse section of Fig. 1 in the line  $x x$ . Fig. 2\* is a similar section in the line  $x' x'$  of Fig. 1. Fig. 3 is a plan view in detail of the nozzle shown in Fig. 1. Fig. 4 is a central vertical longitudinal section of a part of the fountain-pen, showing a form of lock adapted for use with a straight pen. Fig. 5 is a transverse section of Fig. 4 in the line  $y y$ . Fig. 6 is a central vertical longitudinal section of the nozzle shown in Fig. 1 with the lips cut off. Fig. 7 is a cross-section of Fig. 6 in the line  $v v$ . Fig. 8 is a central vertical longitudinal section, showing a slightly-changed arrangement of the parts shown in Fig. 1. Fig. 9 is a cross-section of Fig. 8 in the line  $z z$ . Fig. 10 is a longitudinal section showing another form of the nozzle and lock, the lock taking the place of the ink-retaining bar shown in the other views. Fig. 11 is a perspective view of the upper-feed bar and a pen separated from the lock. Fig. 12 is a central vertical longitudinal section showing the upper-feed bar and lower-feed and ink-retaining bar formed in one piece and the lock slightly changed in its construction and arrangement. Fig. 13 is a cross-section of Fig. 12 in the line  $z' z'$ . Fig. 14 is a longitudinal section showing another form of the lock, pen, and feed bars as adjusted for an under-feed pen. Fig. 15 is a cross-section of the lock changed with respect to the manner of forming the ink-passage through it. Fig. 16 shows the two feed-bars united and arranged beneath the pen, and Fig. 17 is a cross-section of Fig. 16 in the line  $w w$ .

In the drawings, A represents the reservoir or ink-fountain, and A' the cap constructed in the ordinary manner.

C is the nozzle, which forward of its point of attachment to the reservoir may be constructed in the usual form, but in rear of said point of attachment is provided with a novel



reduced extension projecting into the reservoir, as shown at *b* in Figs. 1, 3, and 6, as at *c*, Fig. 10, as at *d* in Fig. 12, or of other equivalent construction. This extension serves as  
 5 an ink-conductor by entering the reservoir, it conducting the ink back into the reservoir from the nozzle when the pen is not in use, and thereby preventing "weeping" of the ink around the screw-threads while adjusting the  
 10 nozzle to the reservoir, it also tending to lead the ink into the nozzle quickly at the point where it is taken up by the feed-bars and conveyed to the pen-point. By means of this extension a pen can be provided which will re-  
 15 spond promptly to the demands of the writer without the necessity of extending the feed-bars themselves into the reservoir. The pen also has the further advantage of affording a sediment-receptacle at the forward end of  
 20 the reservoir and in rear of the nozzle-attachment by means of the said extension.

In Figs. 1, 3, and 6 the extension *b* is in form of a spear and concave—open at top and provided with a slot in its bottom—so that ink  
 25 can flow along its upper edges, bottom surfaces, and through it. In Fig. 10 the extension *c* is in form of a tapered prong, which is attached to a bifurcated shank *c'*, having an entrance *e'* for ink at top and bottom, said  
 30 entrance communicating with the hollow of the shank and the screw-threaded portion of the passage through the nozzle. In Fig. 12 the extension *d* is in the form of two prongs having inner faces flush with the bore of the lock  
 35 and outer surfaces a little inward from the bore of the reservoir.

The extensions described may be of homogeneous material with the nozzle or they may be suitably connected to the nozzle and of  
 40 any other suitable material than that of the nozzle. The extension or extensions, being attached to the nozzle, can be more conveniently manufactured, and their construction with the nozzle is preferable to having them  
 45 formed on the lock or on the feed-bar or on the reservoir-handle of the fountain-pen, and thus constructed they form the sediment receptacle or chamber at *g* and also afford an additional cohesive attraction-surface at this point, which  
 50 surface comes directly into use at such times when all the ink is at such point, the major portion having been exhausted in the use of the pen, and by thus coming into use prevents a too sudden or an irregular discharge of ink, as  
 55 commonly occurs under conditions such as stated with many kinds of fountain-pens provided with ordinary conductors. My extension or extensions from the nozzle may be used in conjunction with other conductors,  
 60 which are attached to the pen-lock, feed-bars, or the reservoir, if found desirable.

Within the nozzle a pen-lock is adjusted so as to be held by friction, as usual. This lock may be of the construction, as at *D*, Figs. 1  
 65 and 2; as at *E*, Figs. 4, 5, 12, and 13; as at *F*, Figs. 6 and 7; as at *G*, Figs. 8 and 9; as at *H*, Fig. 10; as at *I*, Fig. 14; as at *K*, Fig. 15, and

as at *L*, Figs. 16 and 17. The lock *D* has an ink-passage extending through it, and it may be cut away at its rear end for one-half its  
 70 diameter, as at *h*<sup>5</sup>, and it having a pen-seat *h'* and shoulder *h*<sup>2</sup>, against which the pen abuts. In the lateral walls of its ink-passage grooves *m m* are cut for the rigid adjustment of the rear end of the ink-retaining bar *B*, the  
 75 forward end of which is curved upward, so as to have a bearing against the under side of the pen. The forward end of this lock may be of different lengths, as at *D'* *D*<sup>2</sup>, or it may be cut off flush with or a little inward  
 80 from the front end of the nozzle, as in Figs. 4, 6, 12, and 14. The end projecting from the nozzle, as at *D'*, will give support to the pen and the projection *D*<sup>2</sup> will support the projecting end of the ink-retainer bar *B*, the  
 85 same affording a better security against the dropping of ink. The lip *D*<sup>3</sup> has an opening in its point for cleaning purposes and for the free play of the bar *B* upward and downward, but prevents any lateral movements. The  
 90 lock *E* has the ink-passage *h*; but instead of the pen-seat *h'* it has a transverse slot *h*<sup>8</sup> just above the ink-passage for the heel of the pen, which in this instance is a straight pen. By  
 95 this lock I am enabled to bring the pen-point on the same plane as with the bent pen in Fig. 1. The lips *D'* and *D*<sup>2</sup> in this view are cut away, but the bar-holding grooves *m m* are retained. The lock *F* is a combination of  
 100 *D* and *E*, as clearly shown in Fig. 6. The lock *G* is similar to that shown in Fig. 1, with the exception that the seat *h'* is made deep enough to receive both the pen and the bar  
 105 *B'*. The lock *H* is similar to *G*, except that it is adapted for a straight pen by having a pen-slot, the same as in Fig. 12, and having an opening, as at *h*<sup>4</sup>, at the base of its lip *D*<sup>2</sup> for cleaning purposes. The extreme end of this  
 110 lip has a bearing against the under surface of the pen, so as to take the place of the bar *B*, which bar in this embodiment of my invention is left out, as are also the grooves *m m*. The  
 115 lock *I* is a combination of locks *D* and *E*, (shown in Figs. 1 and 4,) and the lock *K*, Fig. 15, is only changed in respect to the manner of forming the passage through it, which in this instance is a groove cut on the lower side instead of a perforation through it.

The combined ink-retaining and lower-feed bar *B* may be formed of hard rubber or metal  
 120 and of any suitable form—flat, oval curvilinear, or semi-cylindrical—and is preferably set in side grooves *m m*, formed in the lateral walls of the ink-passage *h* of the lock, though it may be fitted in said passage close enough to  
 125 hold by friction. It may extend through the nozzle, but preferably just enough within the ink-passage to be held in place. Its forward free point, which projects from the lock, is bent up so as to have a bearing against the  
 130 under surface of the pen-point forward of the rear end of the slit in the pen. It holds all surplus ink and feeds it to the under side of the nibs, and thus keeps a constant supply on



hand and conducts the unused ink back to the nozzle, and thence by the nozzle-extension into the reservoir, which action insures the keeping of the pen clean. My improved feed-bar has the advantage over under-feed bars of ordinary construction, in that its body portion is rigidly held, while its forward free end always has a bearing against the pen, whereby the pen is prevented from bleeding at its point, and it may be employed alone for an under feed-pen by adjusting it quite close to the pen and adjusting the upper-feed bar farther back, as shown in Fig. 14, unless a very stiff pen is employed.

The combined pen-supporting and upper-feed bar B' may be formed of metal, hard rubber, or any other desired material. It is slightly curved longitudinally and extends from the ink-passage of the lock up through a perforation made in the pen at a point intermediate of its length outside and forward of the nozzle, thence along and over the nibs of the pen to near the point, as shown in Figs. 1, 4, 6, 8, 10, and 12. This bar in cross-section is preferably curvilinear, though it may be flat, and is made narrow enough to enter the ink-passage of the lock, and is held by its spring action and by friction. The object of this bar is to check the gravity of and form with the pen a channel for the ink and lead it to the pen-point, where it is held by adhesive attraction. It also follows the upward force of the under-feed bar, so as to protect the pen. This bar may be formed integral with the under-feed bar B, as clearly shown in Figs. 12 and 13, in which it appears as a loop slipped into the ink-passage and held by friction. In Figs. 8 and 9 I have shown the rear end of the bar B' seated immediately beneath the pen, outside of the ink-passage; but I prefer it seated within the ink-passage, as it conducts the ink to and from the pen-point better in this way.

The pen P is preferably formed with a bend  $t$  at a point intermediate of its length. This bend is a step downward and forward, and it enables me to adjust the heel of the pen in the upper side of the nozzle, and yet bring the point of the pen more nearly in line with the central longitudinal axis of the pen-handle. Through this bend or step  $t$  an opening is made for the adjustment of the bar B' and the passage of the ink. By this manner of constructing a top-feed pen I am enabled to keep a portion of the top of the pen immediately in front of the nozzle uncovered and free from ink, whereby danger of soiling the fingers is avoided. I apply my invention to a straight pen, however, by seating the pen in a suitable slot or slit near the central axis of the lock, as shown in Figs. 4, 5, 10, 12, 13, and 15.

In Fig 10 the nozzle is shown changed in construction to the extent of utilizing the lip D<sup>2</sup> on the lock to perform the service of the bar B, which is left off. The point of the lip has a bearing against the pen, being bent up

and arranged to have an action similar to the bar B. An opening may be made, as shown, at the base of the lip for cleaning the nozzle, as in all the other forms of locks shown, wherein provision is made for this purpose either at the point of the lip D<sup>2</sup>, where the bar B passes through, or by cutting off the lip flush with or a little inward from the front of the nozzle.

In Fig. 15 I have shown the ink-passage formed through the nozzle by grooving the lower side of the lock, and by this means I am enabled to adjust the pen exactly in the center of the nozzle.

The construction of my pen is simple and its working very satisfactory, and the operation is as follows: When inverting the pen to write, the ink is precipitated to the nozzle by gravity, where it is held in part by mechanical obstruction and in part by capillary repulsion and by cohesive attraction to the feed-bar. The ink then travels along the bar B' to the pen-point, being prevented from leaving said bar by gravity, cohesion, aided by capillary repulsion, overcoming the gravity. The bar B holds the ink from dropping and feeds it to the under side of the pen-point. It also aids the bar B' in conducting all the ink away from the pen when the pen is not in use. The two bars in contact with the upper and lower side of the pen furnish sufficient attraction-surface to effectually prevent the "bleeding," peculiar to many single upper-feed pens.

What I claim is—

1. In a fountain-pen, in combination, the reservoir, a nozzle, a lock having side-locking grooves  $m$ , and a bar B, locked in said grooves beneath the pen, with its forward point curved up against a writing-pen, substantially as described.

2. A fountain-pen provided with a combined upper-feed and pen-supporting bar extending from beneath through an opening in the pen at a point intermediate of its length outside and forward of the nozzle to the upper side of the nibs of the pen, whereby ink is conducted beneath the heel of the pen to about the center thereof and from thence to its point above the pen, substantially as described.

3. In a fountain-pen, a writing-pen having its nibs occupying a lower plane than its shank or body by reason of a bend or step being formed at  $t$ , and having a perforation or opening through said step, substantially as shown and described.

4. A fountain-pen provided with a writing-pen proper having a perforated bend or step, as  $t$ , outside and forward of the nozzle, and a bar passed from beneath at a point intermediate of its length through said perforation, with its forward portion in contact with the top of the pen-point, substantially as described.

5. As a new article of manufacture, a writing-pen formed with a bend or step forward



at a point intermediate of its length and with a passage through said bend, substantially as described.

6. In a fountain-pen, in combination, a nozzle, a pen, and under and upper feed bar-lock, an ink-retaining bar having its forward point bent up against the under surface of the pen near its nibs, an upper pen-supporting bar, and a writing-pen formed with a bend between its shank and nibs and perforated at said bend, substantially as described.

7. In a fountain-pen, in combination, a reservoir, a nozzle, a lock, a combined feed and pen-supporting bar B', passed through a perforated writing-pen, and an ink-retaining and under-feed bar B, having its rear end rigidly secured within the ink-passage, substantially as described.

8. The nozzle of a fountain-pen, provided with an extension or extensions beyond its screw-threaded portion, said extension or extensions being formed on or attached directly to the nozzle and reaching within the reservoir-handle, substantially as described.

9. In a fountain-pen wherein the nozzle or pen-section of the case or holder is attached to the handle or reservoir by means of a screw-thread, the extension or extensions to said nozzle, and the reservoir in rear of the screw-thread attachment, said extension having a divided base at its union with the thread-

ed portion of the nozzle, substantially as described.

10. In a fountain-pen, in combination, a reservoir, a nozzle, a lock having a perforated lip D<sup>2</sup>, a perforated pen, and a bar B', passed through the pen outside of the nozzle, substantially as described.

11. A fountain-pen provided with a combined pen and bar lock having a perforated lip D<sup>2</sup>, substantially as described.

12. In a fountain-pen wherein the case or holder is formed in separable parts, the lock-holding or nozzle section of said case having a reduced extension or extensions into the reservoir-section beyond the fastening of the nozzle to the reservoir, substantially as described.

13. A fountain-pen feed-bar, in combination with a nozzle and a lock, whereby the feed-bar passes through an opening in the pen and the nib end of the pen is enabled to lie on a plane about central with the axis of the ink-passage of the nozzle, substantially as described.

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

LAFOREST A. SHATTUCK.

Witnesses:

EDWARD T. FENWICK,  
J. P. THEO. LANG.