(No Model.) 2 Sheets—Sheet 1.

L. A. SHATTUCK.

FOUNTAIN PEN.

No. 482,592. Patented Sept. 13, 1892.

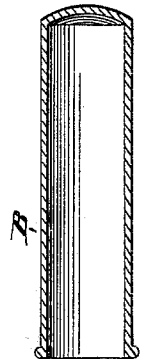

Fig. 1.

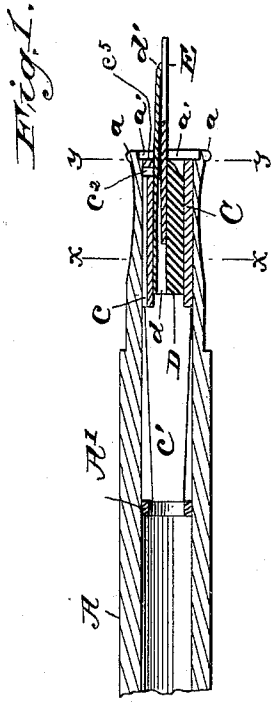

Fig. 6.

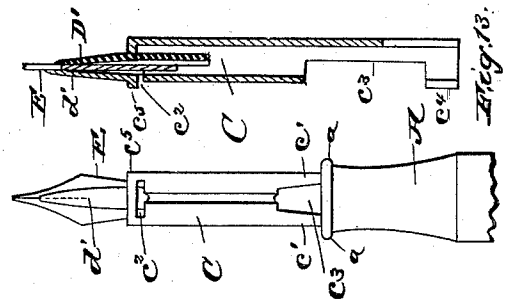

Fig. 13.

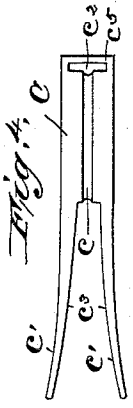

Fig. 4.

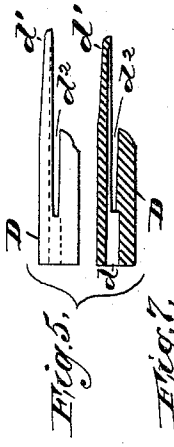

Fig. 5.

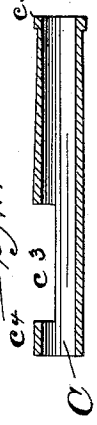

Fig. 7.

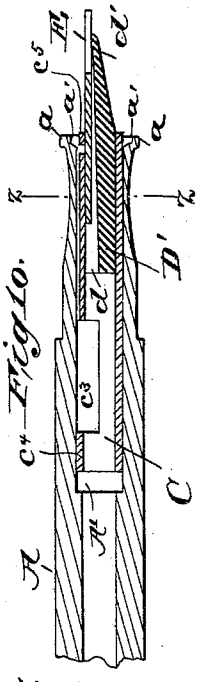

Fig. 10.

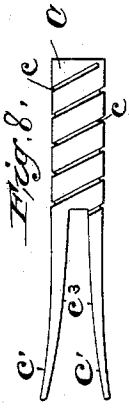

Fig. 8.

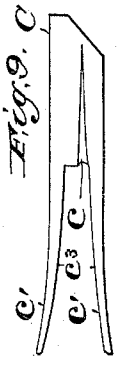

Fig. 9.

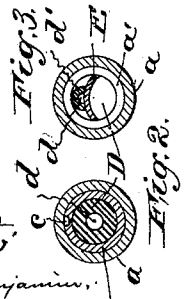

Fig. 3.

Fig. 2.

Fig. 12.

Fig. 11.

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(No Model.)

2 Sheets—Sheet 2.

L. A. SHATTUCK.

FOUNTAIN PEN.

No. 482,592. Patented Sept. 13, 1892.

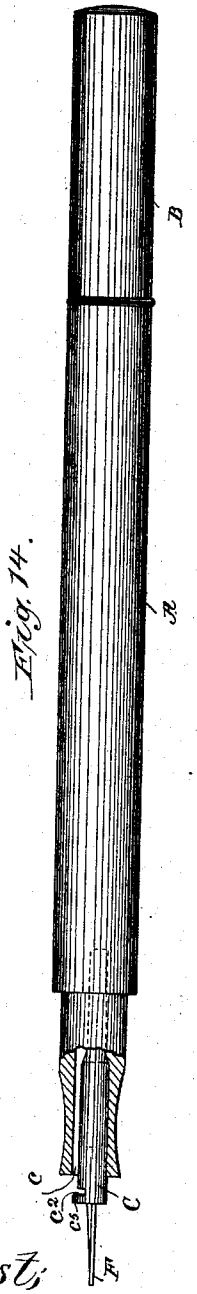

Fig. 14.

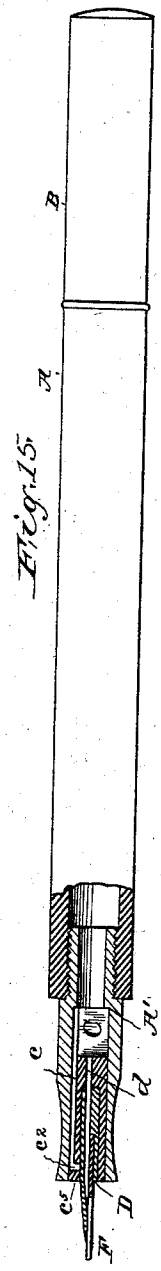

Fig. 15.

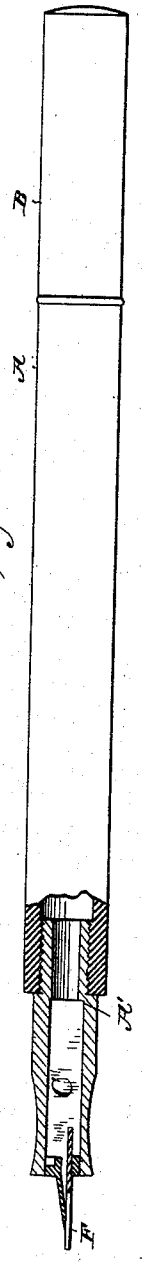

Fig. 16.

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UNITED STATES PATENT OFFICE.

LAFOREST A. SHATTUCK, OF BLOOMSBURG, PENNSYLVANIA.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 482,592, dated September 13, 1892.

Application filed July 30, 1891. Serial No. 401,162. (No model.)

To all whom it may concern:

Be it known that I, LAFOREST A. SHATTUCK, a citizen of the United States, and a resident of Bloomsburg, Columbia county, Pennsylvania, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

My invention relates to fountain-pens; and it consists of the novel features hereinafter fully set forth, whereby I am enabled to cheapen the construction and place upon the market a perfect-working gravity-feeding fountain-pen at a moderate price.

Referring to the drawings, which are made part of this specification, Figure 1 is a longitudinal sectional view of my invention in one mode of its embodiment. Fig. 2 is a cross-section at *x x* of Fig. 1. Fig. 3 is a cross-section at *y y* of Fig. 1. Fig. 4 is a top plan view of the point-section or nozzle shown in Fig. 1. Fig. 5 is a side elevation and longitudinal sectional view of the pen-seat and feeder shown in Fig. 1. Fig. 6 shows how the nozzle may be only partially withdrawn to admit of filling. Figs. 7, 8, and 9 are side elevations showing slightly-changed constructions of the nozzle. Fig. 10 shows the pen and nozzle adjusted with an under feed. Fig. 11 is a cross-section at *z z* of Fig. 10. Fig. 12 is a cross-section of the rear end of the feeder employed with a nozzle shown by Fig. 7. Fig. 13 shows a modification of nozzle. Fig. 14 shows point-section slightly advanced out of handle to increase exposed length of pen and to change feeding power, and Figs. 15 and 16 show how stop A′ may be formed integral with the handle when said handle is formed in separable parts.

The handle or reservoir A is constructed much the same as the reservoirs shown in my various patents on fountain-pens, except that its forward open end is longitudinally curvilineal-shaped on its exterior suitably for a finger-rest, as shown. It may be formed in separable parts, though a jointless handle is preferable.

At A′ is a stop to prevent the nozzle sliding in too far. It may consist of a small ring or section of a tube slipped into the reservoir the proper distance and held by friction or otherwise, as shown in Fig. 1, or it may be formed integral with the reservoir by counterboring its open end, forming a shoulder, as shown in Fig. 10. At its mouth I preferably counterbore it again to form a beveled shoulder *a′*, which is to operate with the shut-off end a^5 of nozzle to control the feed, as hereinafter more fully set forth. The reservoir may be constructed without the shoulder *a′*, if preferred. At a^2 I form a finger-stop to prevent the fingers from sliding onto the pen.

B is the pen-cap to protect the pen when not in use. It has its seat, when adjusted, over the pen upon the reservoir instead of the nozzle.

C is the point-section or nozzle. It has a tubular body portion concealable entirely within the reservoir by a loose fit, which enables me to apply a new principle in fountain-pens and to save quite an item of expense in manufacture. The usual tight screw-fitting nozzles are apt to break or leak, causing annoyance aside from their expense, while the frictional-holding pen-sections heretofore constructed are fitted by a tight joint and are impractical.

With my proposed method of adjusting the nozzle loosely within the handle I can construct it of celluloid, which is cheaper than rubber, as in this case the slight permeation of ink through the material could do no harm.

To construct this device, I take a piece of tubing slightly smaller than the bore of the reservoir. I cut out of the rear end of this tube on one or two sides a section, so as either to form two or more rearwardly-diverging arms *c′ c′*, projecting from the rear end of its body portion, as shown in Figs. 1, 4, 8, and 9, or an opening c^3 and an enlarged tubular rear end c^4, as in Figs. 6, 7, 10, and 13. The object of the opening c^3 is to provide a means for filling the reservoir without entirely withdrawing the nozzle. The arms *c′ c′* may be arranged laterally or horizontally and may consist of two or more. These arms are bent outwardly or diverging rearwardly, so that when they are pressed together to insert in reservoir they will have a spring-bearing against the walls of the reservoir and hold the nozzle in adjustment by friction. I have observed that some persons require a pen projecting but a short distance from the pen-stock, while others prefer

a long pen; also, that a person when fatigued in writing will hold the pen-stock with the hand nearer the paper. I have conceived the idea of making the length of the exposed portion of the pen-point longitudinally adjustable to accommodate different people and conditions, and I can think of no better way than to adjust the pen firmly in the nozzle and provide for the adjustability of the nozzle, as shown. Another advantage in this nozzle is that, having its principal frictional hold at its rear end, it need not be entirely removed to fill the reservoir, as illustrated in Fig. 6. The body of the nozzle in Figs. 1 and 4 has a longitudinal groove *c* cut in the external periphery of the nozzle and extending from the opening c^3 to the radial or transverse slot c^2. The object of this is, primarily, for the escape of air when inserting nozzle, and, secondarily, for an auxiliary ink-passage, and as such is more or less operative, according as the nozzle is moved forward or backward, the transverse ink-slot c^2, penetrating to the central bore of the nozzle, allows the ink to escape to the sides of the pen and feed-bar. When the shut-off end c^5 of nozzle is adjusted flush with the shoulder a', as in Fig. 1, or front end of reservoir, the ink passes but slowly through the passage *c* and main passage *d;* but when the nozzle is moved forward, so that the radial slot c^2 is greater or less exposed to the atmosphere forward of the shoulder a', as in Fig. 14, then the ink flow through the main passage is increased according to adjustment. This ink-slot c^2 is normally closed to the air, but can be instantly opened if more ink is required. Thus it will be clearly understood that this pen can be instantly adjusted so as to secure a slow or rapid feed and at the same time have the pen project from the handle to a greater or less extent at will. The rear end of the nozzle abutting against the stop A′ prevents its sliding in too far, and its frictional hold at its rear end will sustain it in any adjustment.

Instead of the diverging arms c' c' I sometimes employ the tubular rear end c^4. (Shown in Figs. 6, 10, and 13.) This is formed of sufficient size to hold by friction, and an opening c^3 for filling is formed by cutting a piece out of one or two sides near its rear end. Fig. 7 shows a nozzle constructed without the groove *c* and slot c^2. The body portion is slightly reduced in size from near its front end to the opening c^3. This answers a good purpose if used in connection with a feeder having auxiliary ink-grooves, as shown at d^3 in Fig. 12.

Fig. 8 shows the nozzle with the groove *c* cut spirally, and Fig. 9 shows the groove *c* cut on both sides and terminating at the front end.

Fig. 13 shows a nozzle chamfered off on the upper side to take the place of the groove *c*, and the rear end c^4 is split up for a distance and sprung apart to increase its frictional hold in the reservoir. I sometimes form the auxiliary passage *c* by extending the split in the point-section as far forward as the radial slot c^2.

Though in Fig. 10 I have shown the auxiliary ink-passage *c* and slot c^2 arranged on the top of the nozzle, I prefer them on the bottom in a single under-feed pen; but in a double feed or a single upper feed they should be either on top or on one or both sides, as shown, in order to convey the ink to the feed-bar. The front end of point-section or nozzle is preferably counterbored as far back as the radial slot c^2 to prevent the clogging of ink at the sides of the pen.

D is the feed device and pen-seat preferably employed when adjusting for an upper feed, though I may use any of my patented feed devices with equally good results. It is formed of tubing cut away at its front end to form a grooved flexible bar d', resting at its sides and point upon the pen to form a continuation of the ink-passage to the nibs of the pen. It has a cylindrical body with an ink-passage *d* through it. At its front end it has a transverse slot d^2 to receive the heel of the pen, and an unobstructed passage *d* from the reservoir to the pen-point, together with auxiliary passage *c* and radial ink-slot c^2, insures a prompt and steady flow of ink by gravity, and no special air-vent is needed. Along the sides of the body of the feeder, in line with the pen-slot at its lower side, I cut V-shaped peripheral grooves d^3 d^3, which may be extended the full length of the body or only part way, as shown in Figs. 1 and 12. The object of these grooves are, primarily, to conform the slot d^2 to a pen of different curves, so that though cutting the pen-slot with a straight saw a round pen can be as readily adjusted in every feeder as a flat pen. The secondary object, when extended the full length of the feed, is to form auxiliary ink-passages, which I consider a great improvement to a tubular feeder entirely above the pen.

D′ is the feeder as constructed for an under feed. (Shown in Figs. 10 and 13.) It is cut away laterally on an angle of forty-five degrees to adapt it to pens of different curves and to form auxiliary ink-passages.

In Fig. 13 I represent the upper lip of nozzle extended to form support to the pen when using the under feed, and this upper lip might be elongated sufficiently to form a double feed.

The pen E may be in any of the forms shown in my various patents, but is preferably formed with shoulders to abut against the end of the point-section and is held in its position by friction.

I regard my invention of paramount importance, as it permits of a perfect-working pen at a low cost to manufacture, an important feature being a loosely-fitting tubular point-section or nozzle and its longitudinal adjustability, whereby it may at will be wholly concealed within the reservoir or only partially to regulate the feed and the exposed

length of the pen. I do not wish to be limited to the special manner shown of supporting it in position by the outwardly-bent arms c' c' or enlarged tubular end c^4.

Other ways of securing frictional hold might be devised—such, for instance, as a soft rubber pad or ring attached within the rear end of the body of the nozzle or a soft rubber ring secured to the reservoir, or a wire coil or spring could be attached to the rear end of the nozzle, or the body of the nozzle could be held and adjusted by a loosely-fitting screw-thread; but I much prefer a form of frictional holding device constructed integrally with the point-section, slight changes in this respect not affecting the principle of the invention, so long as the holding force is applied in rear of the filling-opening c^3. My tubular point-section or nozzle should not be confounded with feeders having diaphragms and long extensions impinging against the side walls of the reservoir or with any form of feed device.

The operation of this pen is simple. The nozzle being partially withdrawn for filling, as in Fig. 6, the ink is injected through the exposed opening c^3, and the nozzle is then adjusted in its normal position. If the nozzle is pushed in to its fullest extent—the normal position—the groove c and slot c^2 are closed to the air, forming auxiliary ink-passages, as shown in Fig. 1; but if the nozzle is slightly withdrawn then said groove and slot are open to the atmosphere, as shown in Fig. 10, in which adjustment the ink flows more freely through the main feed-channel, as in Fig. 14.

The auxiliary passage c, whether formed by a groove, chamfer, or slit terminating at a radial or transverse slot c^2, may be applied to a point-section and feeder formed integrally, as in Figs. 13 and 14; but I prefer the feeder formed separable and held within the point-section by friction.

I claim—

1. In a fountain-pen, a point-section or nozzle having a tubular body loosely fitting at its front end and wholly concealable within the handle and a rear end portion, as c', adapted to hold by friction and abutting against a section of a tube held within the reservoir by friction or otherwise, forming a stop, as A', substantially as described.

2. In a fountain-pen, a longitudinally-adjustable point-section or nozzle having a split rear end portion and a tubular body wholly concealable and loosely fitting within the reservoir and holding a feeder and a pen having shoulders abutting against the front end of said point-section, substantially as described.

3. In a fountain-pen, a point-section or nozzle wholly concealable within the reservoir, having one or more auxiliary ink-passages, as c, formed on its external periphery, one or more transverse slots or openings, as c^2, forming communication between said auxiliary passage and the main passage, pen, and feed-bar, substantially as described.

4. In a fountain-pen, in combination, a reservoir A, having stop A' and shoulder a', a nozzle C, having tubular body wholly concealable within the reservoir, an enlarged rear end portion adapted to hold by friction, and an external peripheral groove or grooves c, communicating with transverse slot c^2, a feeder, a pen, and a pen-cap, substantially as described.

5. In a fountain-pen, the combination, with a handle or reservoir having an open end exteriorly curvilineal shaped for a finger-rest, of a point-section, as C, having a tubular body counterbored at its front end, having ink and air stops, as c^5, radial slot c^2, auxiliary passage c, a shouldered pen, a feeder, and a pen-cap, substantially as described.

6. In a fountain-pen, a tubular feeder, as D, having a straight transverse pen-slot conformed to pens of different curves by V-shaped side grooves d^3 d^3, cut in the external periphery in line with said pen-slot and forming auxiliary ink-passages above the pen outside of the main central feed-channel, substantially as described.

7. In a fountain-pen, in combination, a reservoir open at one end, a nozzle having a tubular body fitting within the reservoir and held by two or more rearwardly-diverging arms, a pen, a feeder, and a pen-cap, substantially as described.

8. In a fountain-pen, a tubular nozzle or point-section held by its rear end within the reservoir and having an opening, as c^3, forward of its rear end for filling without wholly removing said nozzle from the reservoir and a body portion forward of said opening of slightly-less diameter than the bore of the handle to form a loose fit, whereby said point-section may be readily adjusted longitudinally to regulate the flow of ink and to gage the exposure of the pen without removing the pen from its seat, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 29th day of July, 1891.

LAFOREST A. SHATTUCK.

Witnesses:
LEWIS L. PIERCE,
C. N. JOHNSON.