

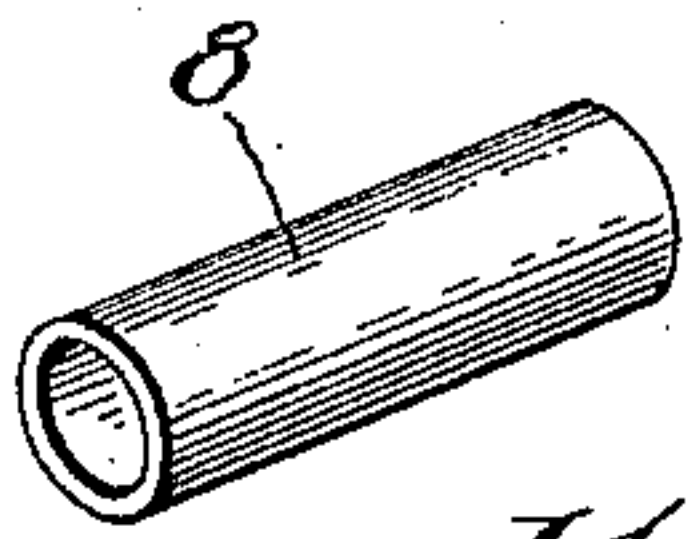
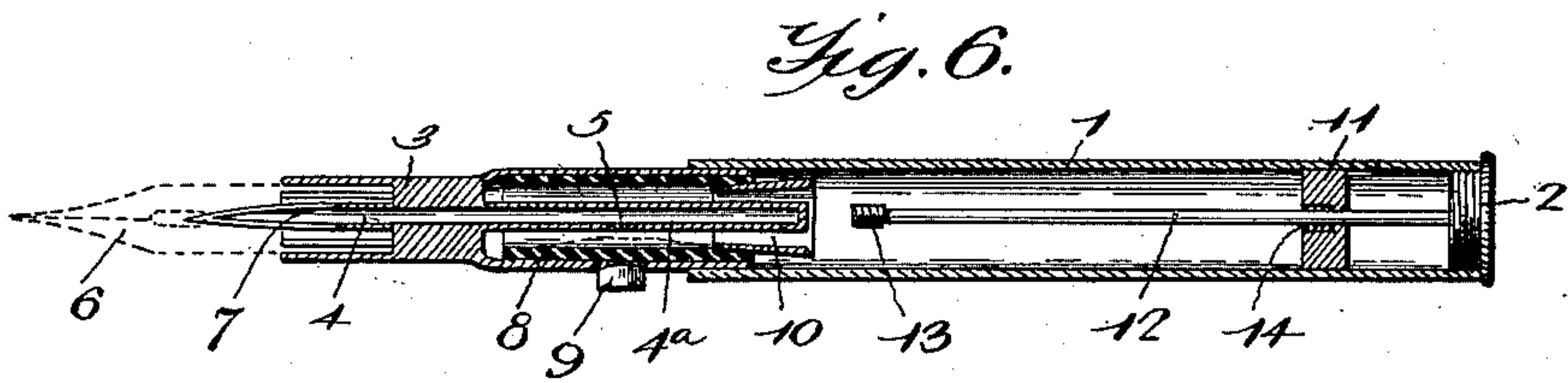
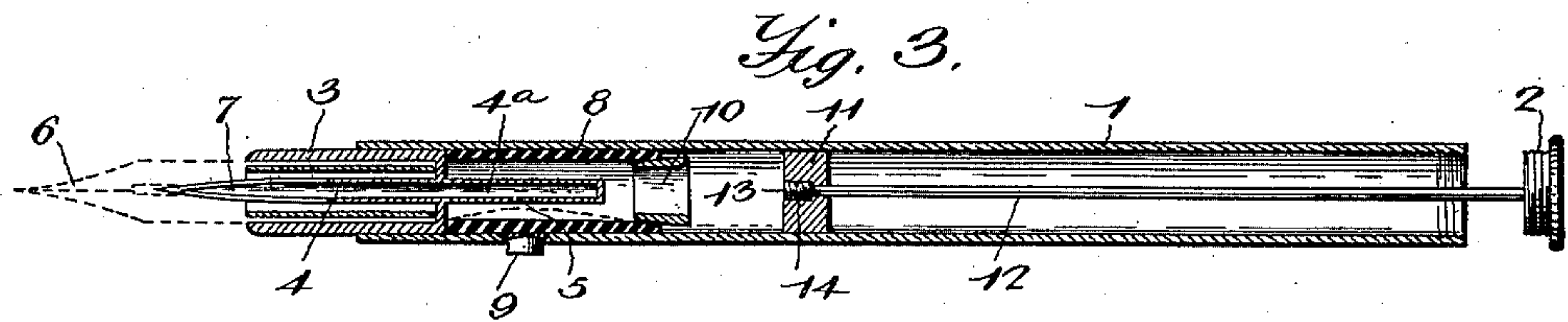
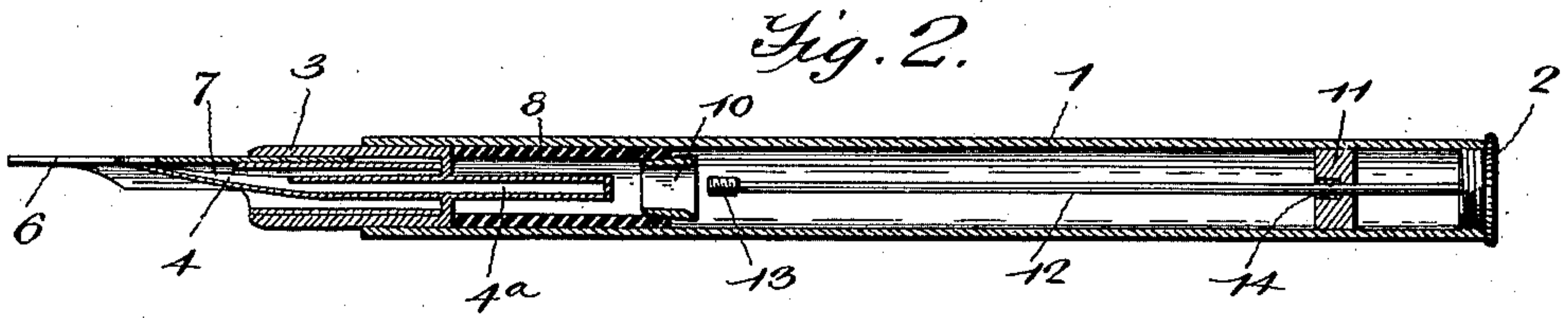
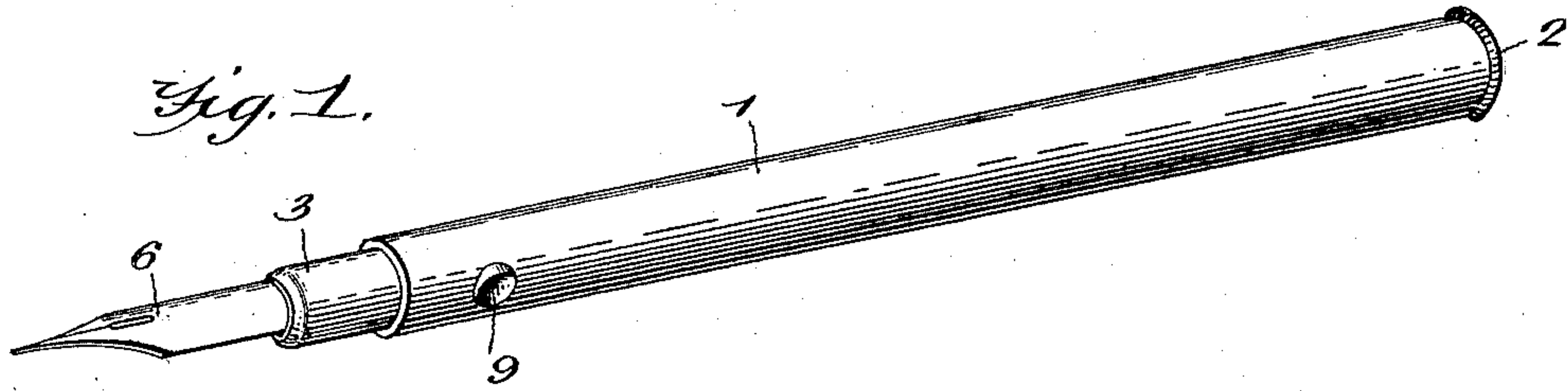
No. 610,818.

Patented Sept. 13, 1898.

G. H. MEANS.
FOUNTAIN PEN.

(Application filed Jan. 31, 1898.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE H. MEANS, OF FRANKFORT, KENTUCKY.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 610,818, dated September 13, 1898.

Application filed January 31, 1898. Serial No. 668,592. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. MEANS, a citizen of the United States, residing at Frankfort, in the county of Franklin and State of Kentucky, have invented a new and useful Fountain-Pen, of which the following is a specification.

My invention relates to fountain-pens, and has for its object to provide a simple and compact combination and arrangement of feeding, controlling, and refilling devices whereby the choking of the feeder and the flooding of the pen are prevented and whereby the rapidity of flow to the pen is under the control of the operator.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view of a pen constructed in accordance with my invention. Fig. 2 is a longitudinal section of the same, showing the refilling device in its folded position. Fig. 3 is a similar view showing the refilling device in its operative position. Fig. 4 is a detail view in perspective of the collapsible forcing tube or bulb detached. Fig. 5 is a similar view of the pressure-button detached. Fig. 6 is a sectional view of a slightly-modified construction of the device wherein the forcing tube or bulb is arranged in the pen-stock.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The pen-handle 1 is of hollow or tubular construction and constitutes a fountain, of which the upper end may be open, as illustrated in the drawings, and fitted with a cap or plug 2, threaded or otherwise removably secured in place. Fitted in the lower end of the fountain is a pen-stock 3, carrying a feeder 4, which is extended above the end of the stock in a tubular form, as shown at 4^a, and is closed at its upper end. This tubular portion of the feeder is provided with a lateral feed opening or orifice 5. The lower end of the pen-stock forms a barrel or pen-point clamp, in which a pen-point 6 of the ordinary or any preferred construction may be inserted,

the lower end of the feeder 4 being open-sided, as shown at 7, toward the pen-point to distribute ink to the latter.

Surrounding the tubular portion of the feeder is a collapsible force bulb or tube 8, of soft rubber or equivalent material, having an open upper end in communication with the fountain and interiorly spaced from the surface of the feeder, and in operative relation with this collapsible force-bulb, preferably at a point opposite the inlet-orifice of the feeder, is a pressure-button 9, which is exposed for pressure by the thumb or finger (preferably the former) of the operator's hand, said button being so disposed as to be under the thumb or finger by which it is to be operated when the pen is grasped in the proper position for writing.

Owing to the small diameter of the ink-inlet orifice of the feeder, the contents of the fountain will not, in practice, enter the feeder except when the force-bulb is collapsed by the operation of the button, and then only a sufficient quantity of ink will be forced into the feeder by one pressure of the button to properly charge the same. Hence after operating the pressure-button to charge the feeder the pen will be properly fed so long as the supply in the feeder lasts, and when that becomes nearly exhausted another operation of the button will recharge the feeder, and thus enable the operator to write continuously without raising the pen-point from the paper and without the risk of the pen-point becoming flooded.

In the construction illustrated in Fig. 6 the only difference resides in the fact that instead of disposing the collapsible tube in the lower portion of the pen-handle it is placed in the removable portion or pen-stock, in which case the button also is mounted upon the pen-stock and the feeder need not extend above the upper end of the pen-stock, it being obvious that the extension of the feeder in the construction illustrated in Figs. 1 to 5 is designed to allow the upper portion thereof to be inclosed within the collapsible bulb or tube. In order to prevent the collapsing of the upper portion of the bulb or tube, and thus provide for a continuous flow of ink into the bulb, I preferably fit a tubular or hollow

stretcher 10 therein. This stretcher also constitutes a means of maintaining the collapsible bulb or tube in place in the lower end of the fountain, whether the latter is formed wholly within the handle, as illustrated in Figs. 1 to 5, or partly in the pen-stock or barrel, as illustrated in Fig. 6.

A feature of particular importance in connection with the construction above described is that the force-feed device, consisting, essentially, of the compressible bulb or tube, is actuated by means of a pressure-button, which may serve as a permanent rest for the thumb or finger of the operator, and therefore in order to supply the feeder successively with ink it is only necessary to increase the pressure of said thumb or finger upon the button, or, in other words, grasp the pen-handle a little more tightly for a moment to compress the bulb. This manner of operating the force-feed device obviously does not change the position of the pen-handle in the hand of the operator and therefore need not in any way interrupt the continuous use of the pen; also, the elastic quality of the compressible bulb or feeder provides for the prompt return of the finger-rest to its normal position after each pressure.

Ink, owing to its viscosity, is not a perfect fluid, and hence the advantage in employing a reduced feeder-tube or a feeder-tube having a reduced portion provided with a lateral opening and surrounded by the compressible bulb forming one element of the force-feed device. The lateral opening serves to prevent the continuous flow of ink to the pen-point, and by arranging the pressure-button in a position in alignment with said lateral opening and at the same side of the holder the inward movement of the pressure-button to compress the bulb serves to force the ink directly through the lateral opening, and hence into the bore of the feeder. I have found in practice that by employing a lateral opening of a suitable size there will be no flow of ink whatever, except when the button is pressed, and therefore the rapidity with which ink is fed to the pen-point is completely under the control of the operator.

In connection with the fountain I employ a permanently-attached filler consisting of a piston or plunger 11, fitted for reciprocation in the bore of the handle, which obviously must for at least a portion of its length be of a uniform diameter, and a plunger-stem 12, which is permanently attached to the terminal plug or cap 2 and is provided at its inner or lower end with a plunger-engaging device 13, consisting in the construction illustrated of a threaded portion of slightly-larger diameter than the body portion of the stem and adapted to be engaged upwardly with the corresponding thread 14 in the bore of the plunger and to be disengaged downwardly from the same when the plunger is in the position illustrated in Fig. 2.

The normal positions of the parts are illustrated in Fig. 2, wherein the plunger is located near the upper end of the fountain. The cap or plug 2 is fitted tightly into the opening at the extremity of the handle, thus closing the upper end of the fountain, and the plunger-stem, which is permanently attached to the cap or plug 2, extends axially through the plunger and is arranged with its threaded extremity contiguous to the lower end of the fountain, such extremity of the stem, however, not interfering in any way with the operation of the ink-supplying devices. When the fountain becomes exhausted and it is necessary to refill the same, the cap or plug 2 is unscrewed or otherwise disengaged from the seat in the end of the handle and the stem is drawn through the plunger until the threaded portion thereof is in operative relation with the opening in the plunger, whereupon the rotation of the stem will cause the engagement of its threads with those of the plunger, thus attaching the plunger-stem and enabling the plunger to be reciprocated, as may be required, to cleanse the interior of the fountain, thereby removing sediment or impurities, and also by dipping the lower end of the feeder into ink to refill the fountain. When the plunger has been raised to the position illustrated in Fig. 2, an opposite rotary movement of the stem to that above described will disengage the threads 13 thereof from the plunger, and thus allow the axial movement of the plunger-stem to fit the cap or plug 2 into the end of the fountain. Thus it is obvious that the refilling apparatus, which is essentially of syringe construction, forms a permanently-attached portion of the pen, and in order to refill the fountain it is not necessary to detach any of the parts or to employ any part not permanently attached to the pen. The unseating of the cap or plug 2 and the engagement of the stem with the plunger can be accomplished practically in one movement, after which the forcing of the plunger to the lower end of the fountain-tube, the return movement thereof to draw ink into the fountain, and the subsequent disengagement of the stem from the plunger and the reseating of the plug or cap may be accomplished without loss of time.

A further function of the plunger 11, in connection with the construction embodying my invention, is to insure the proper seating of the tubular spreader 10 in the upper end of the compressible tubular bulb 8, said spreader being slightly tapered exteriorly, whereby as it is forced downwardly into the end of the tubular bulb the upper edge of the latter is compressed between the spreader and the wall of the reservoir, formed by the bore of the handle, and hence the fastening of the bulb in a fixed position in the reservoir is insured.

Various changes in the form, proportion, and the minor details of construction may be

resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A fountain-pen having a tubular pen-point feeder closed at its outer end and provided with a lateral orifice in permanent communication with the ink-reservoir, and a force-feed device for applying pressure to the contents of the reservoir, substantially as specified.

2. A fountain-pen having a tubular pen-point feeder closed at its outer end and provided with a lateral orifice in communication with the fountain, and a force-feed device, including a compressible bulb of tubular form in communication with the reservoir and surrounding and spaced from the portion of the feeder which is provided with said orifice and accessible means for compressing the bulb, substantially as specified.

3. A fountain-pen having a tubular pen-point feeder closed at its outer end and provided with a lateral orifice in communication with the fountain, and a force-feed device, including a compressible bulb of tubular construction surrounding and spaced from the portion of the feeder which is provided with said orifice, and being terminally open and in permanent communication with the interior of the fountain, and means for compressing the bulb, substantially as specified.

4. A fountain-pen having a pen-point-feeding device including a tubular feeder closed at its outer end and provided with a lateral orifice, and a compressible tubular bulb in communication with the interior of the fountain and surrounding the portion of the feeder which is provided with said orifice, and an exposed pressure-button in operative relation with the compressible bulb in alinement with said orifice, and yieldingly held in its normal position by the elasticity thereof, substantially as specified.

5. A fountain-pen having a pen-point-feeding device including a tubular feeder closed at its outer end and provided with a lateral orifice, a compressible tube surrounding and spaced from the portion of the feeder having said orifice, and in communication with the interior of the fountain, and a separate terminally-exposed pressure-button in contact at its inner end with the exterior surface of said tube, and having said inner end flanged

and concaved to fit the side of the tube, substantially as specified.

6. A fountain-pen having a tubular handle forming a reservoir, a pen-stock removably fitted in the lower end of the handle and carrying a reduced tubular feeder closed at its upper end and having a lateral orifice, a separate compressible open-ended tube snugly fitted in the handle, surrounding and spaced from the portion of the feeder having said orifice, and in communication with the interior of the handle, and a pressure-button mounted for radial movement in an opening in the wall of the fountain, bearing at its inner end against the exterior surface of the compressible tube, and yieldingly held in its normal position by the outward pressure of said tube, substantially as specified.

7. A fountain-pen having a pen-point-feeding device including a feeder having an orifice, a compressible tube surrounding and spaced from the portion of the feeder having said orifice, an inelastic tubular stretcher fitted in the open end of the tube to maintain a permanent communication with the fountain, and exposed means for compressing the tube, substantially as specified.

8. A fountain-pen having a tubular handle, a pen-stock removably fitted in the lower end of the handle and provided with a pen-point-feeding device, including a feeder having a reduced tubular extension arranged axially in the handle, closed at its outer end, and provided with a lateral orifice, a compressible tube snugly fitted in the bore of the handle surrounding said reduced extension of the feeder, a tubular exteriorly-tapered incompressible spreader removably fitted in the upper end of said tube, a plunger fitted for reciprocatory movement in the bore of the handle above said spreader, a plunger-stem having a detachable engagement with the plunger, the spreader being in the path of downward movement of the plunger, whereby it may be forced to place by the plunger, and a cap removably fitted in the upper end of the handle and attached to the plunger-stem, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE H. MEANS.

Witnesses:

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L. C. WALLACE.