No. 815,721. PATENTED MAR. 20, 1906.

W. C. LUTHER.

FOUNTAIN PEN.

APPLICATION FILED SEPT. 7, 1905.

2 SHEETS—SHEET 1

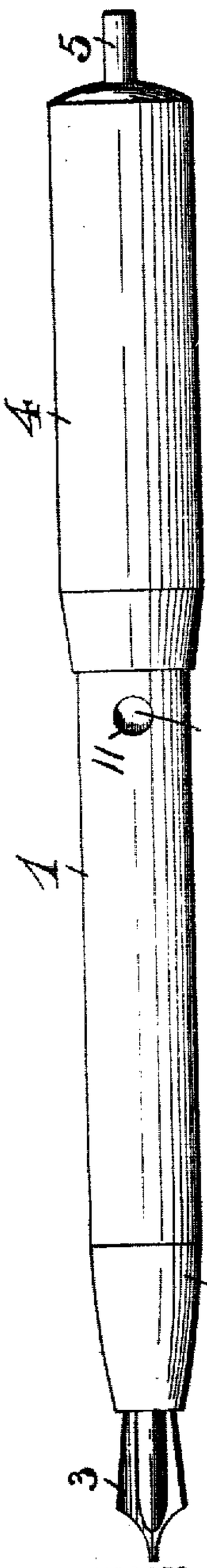

FIG. 1.

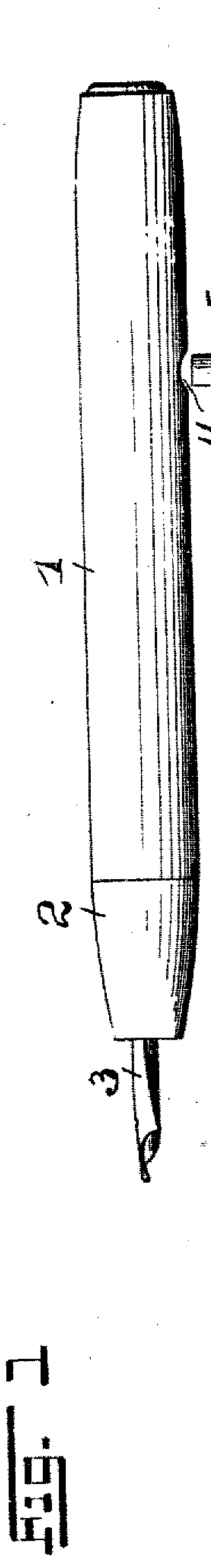

FIG. 2.

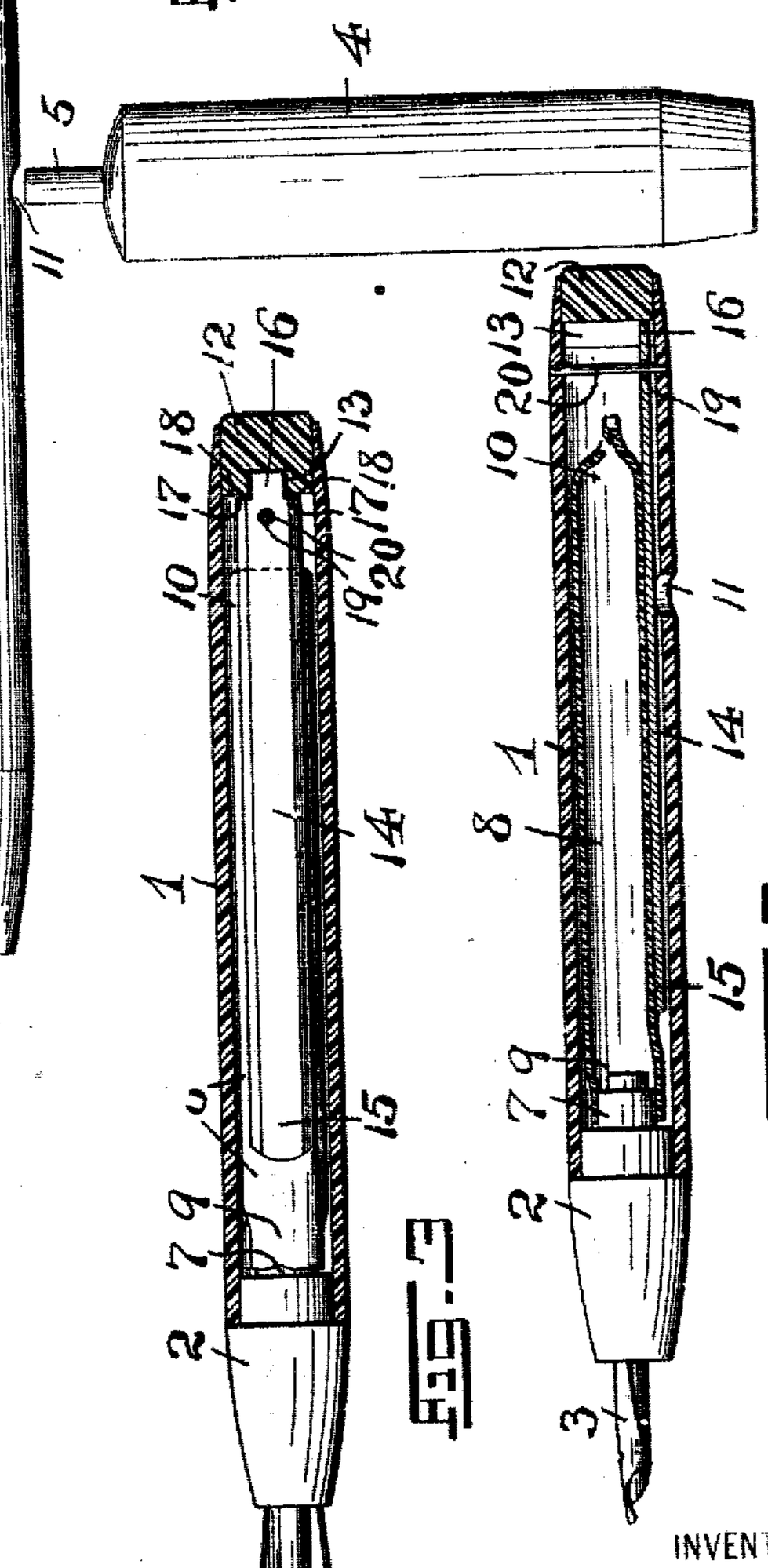

FIG. 3.

FIG. 4.

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2 SHEETS—SHEET 2.

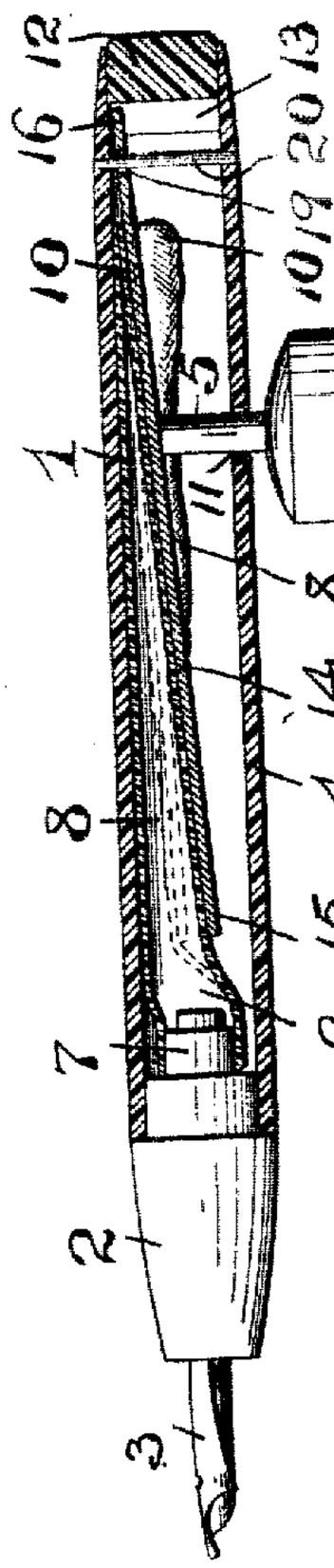

FIG. 5.

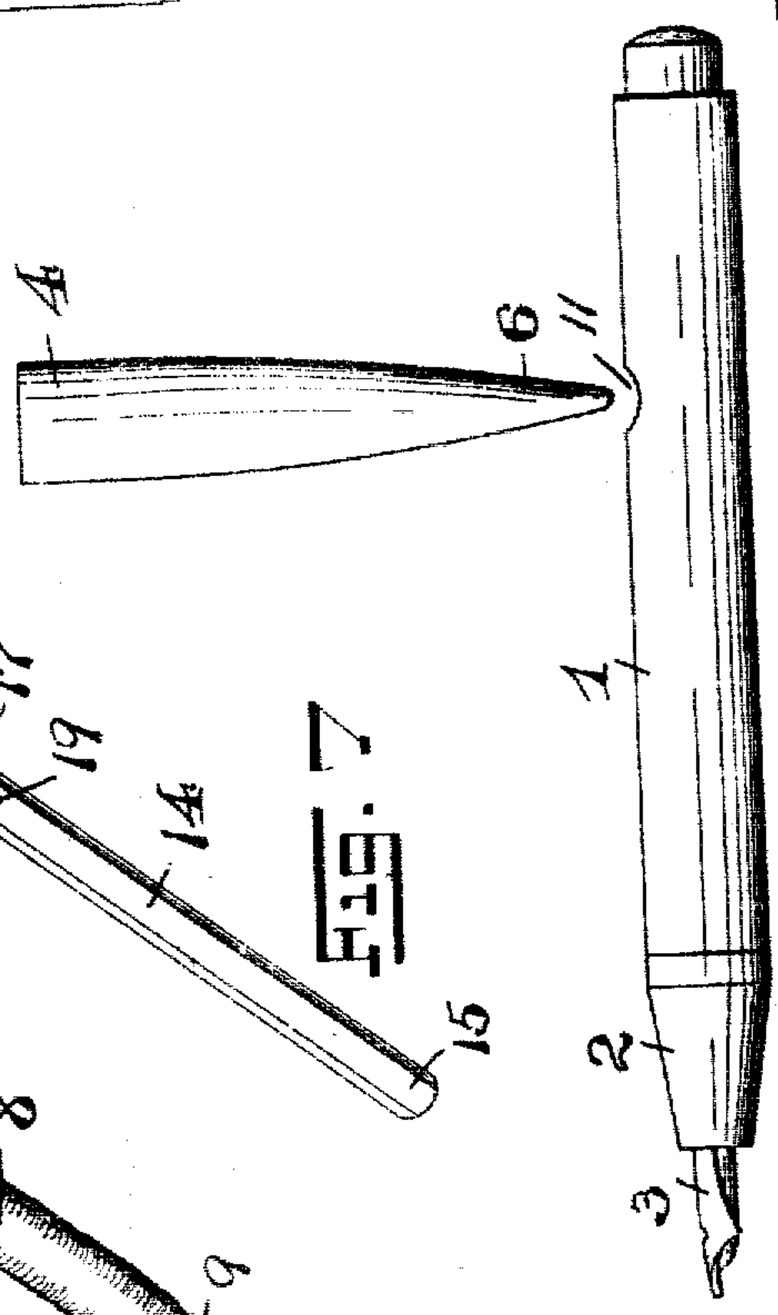

FIG. 6.

FIG. 7.

FIG. 8.

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UNITED STATES PATENT OFFICE.

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FOUNTAIN-PEN.

No. 815,721. Specification of Letters Patent. Patented March 20, 1906.

Application filed September 7, 1905. Serial No. 277,302.

To all whom it may concern:

Be it known that I, WILLIAM C. LUTHER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates generally to improvements in fountain-pens; and the invention has reference more particularly to a novel self-filling fountain-pen substantially of the character and construction hereinafter set forth.

My present invention has for its principal object to provide a self-filling fountain-pen the holder of which shall have no laterally-projecting parts and the arrangements and construction of the devices for compressing the flexible ink containing and receiving bulb or reservoir being such that the presser-bar while capable of an oscillatory motion will be fixed within the chambered or tubular penholder against any longitudinal and lateral displacements except its hinged relation for compressing the flexible bulb or reservoir.

A further object of my present invention is to provide a novel and simply-operated means for compressing the ink-receiving bulb or reservoir from the rear end of the flexible bulb or bag toward the front end thereof, so as to exclude all air from the bulb or bag during its compression, and thus filling the entire body of the bulb or bag with the ink as it returns to its normally-expanded condition; and the invention has for its further object to provide a flexible bulb or bag compressing means for fountain-pens the action of which upon the bulb or bag is such that the bulb or bag is not injured by the application of any uneven compression upon the flexible body of the bulb or bag.

Other objects of this invention not at this time more particularly mentioned will be clearly understood from the following detailed description of the invention.

With the various objects of my present invention in view the same consists, primarily, in the novel self-filling fountain-pen hereinafter set forth; and, furthermore, this invention consists in the general arrangements and combinations of devices and parts, as well as in the details of the construction of the same, all of which will be hereinafter more fully described and then finally embodied in the clauses of the claim which are appended to and which form an essential part of this specification.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view of a fountain-pen embodying the principles of the present invention, and Fig. 2 is a view at right angles to the position shown in Fig. 1 with the end of the cap about to be inserted in a perforation the penholder prior to the manipulation of the flexible bulb or bag compressing means. Fig. 3 is a longitudinal section of the penholder in the position shown in said Fig. 1, the end cap having been omitted from said view, said view showing in plan certain other parts of the pen and the flexible bulb or bag and presser-bar in their normal initial positions; and Fig. 4 is a longitudinal section of the pen in the position shown in Fig. 2 except the forward or pen-holding portion of the fountain-pen. Fig. 5 is a sectional representation of the penholder and parts similar to that shown in said Fig. 4, with an elevation of the end cap, showing the end portion of the cap inserted in the perforation in the penholder and in depressed engagement with the presser bar or plate, the flexible bulb or bag also being shown depressed. Fig. 6 is a perspective view of the flexible ink-holding bulb or bag and pen or ink feeding device or member of the fountain-pen to which the open end of the said bulb or bag is attached; and Fig. 7 is a collective perspective view of the presser bar or plate and retaining member or anchor with which the one end portion of said bar or plate is movably connected. Fig. 8 is a view of a penholder and cap similar to that represented in Fig. 2 of the drawings, but showing a slightly-modified form of cap having a pointed end portion which is adapted to be inserted in the perforation of the penholder for the manipulation of the presser-bar and flexible bulb or bag.

Similar characters of reference are employed in the said above-described views to indicate corresponding parts.

Referring now to the several figures of the drawings, in most of which the fountain-pen is shown on a considerably-enlarged scale, the

reference character 1 indicates the usual hollow or tubular holder, which is provided at its forward end with the usual construction of tubular ink-feeding member or device 2, carrying the nib or pen 3.

The reference character 4 indicates a suitable end cap, which may be slipped in the usual manner over either end of the fountain-pen, according to the uses of the pen. Any form of end cap 4 may be used, that shown in Figs. 1, 2, and 5 being provided with a suitable projection or stud, as 5, or the end cap may be tapered, as at 6 and as clearly indicated in Fig. 8 of the drawings, the purposes of said projection or stud 5 and the tapered portion 6 of the said end caps being presently more fully set forth. Suitably connected with the shank 7 of said ink-feeding member or device 2 is the open end 9 of a flexible bulb or bag 8, which is of an elongated form, so as to lie within the interior of the hollow or tubular holder 1, substantially as illustrated in Figs. 3, 4, and 5 of the drawings, the rear and closed end portion 10 of the said bulb or bag 8 terminating near the closed end of said holder 1 and extending beyond a hole or perforation 11, formed, preferably, at a point between said closed end portion 10 and the middle of the penholder 1. The end portion of the holder 1 is closed by means of a retaining member, plug, or anchor 12, which is formed with a diametrically-extending groove or slot 13, normally in alinement with a plane passing through the central longitudinal axis of the said holder 1 and vertically through the center of the hole or perforation 11 in said holder. Movably arranged upon the outer cylindrical surface of the said bulb or bag 8, longitudinally within the said tubular holder 1 and extending directly over the said hole or perforation 11, as clearly illustrated in Fig. 4 of the drawings, is a presser bar or plate 14. The forward end portion 15 of said presser bar or plate terminates, preferably, at a point substantially near the open end 9 of the bulb or bag 8, while at its opposite end said presser bar or plate 14 is provided with a projection or tongue 16, forming, with the body of said bar or plate, a pair of offsets 17, as clearly shown in Figs. 3 and 7 of the drawings. As shown in said Figs. 3 and 4, the said projection or tongue 16 is fitted and is movable vertically in the diametrically-extending channel, groove, or slot 13 of the plug or anchor 12; but any lateral or wabbling motion of the presser bar or plate 14 is fully overcome by the shoulders or offsets 17 of the said bar or plate 15 riding against the edge portions 18 contiguous to the groove or slot 13 in the plug or anchor 12, as clearly shown in said Fig. 3 of the drawings. To prevent any longitudinal movement of the presser-bar 14 within the hollow or tubular penholder 1 and also to prevent the displacement of the said tongue or projection 16 from said groove or slot 13, the said presser-bar 16 is made with a hole or perforation 19, into and through which extends a pin 20, which has its ends suitably secured in the opposite walls of the penholder 1, as clearly shown in Figs. 4 and 5 of the drawings. The said hole or perforation 19 is made slightly larger than the cross-section of the pin 20, whereby the oscillating motions of the presser-bar 14 in compressing the flexible bulb or bag 8 and in returning to its normal initial position are not interfered with.

From an inspection of Fig. 5 of the drawings it will be seen that when the projection or stud 5 or the pointed or tapered end 6 of the cap 4 is inserted in the hole or perforation 11 the presser-bar 14 assumes an angular position longitudinally within the penholder 1, as shown, the end portion of the bar or plate 16 which is provided with the projection or tongue 16 sliding in the guiding groove or slot 13 of the plug or anchor 12, while the opposite end portion 15 of the presser bar or plate 14 has no movement, or, if any, but a very slight movement. This is due to the perforation or hole 11 lying back of the middle of the penholder, whereby the pressure which is exerted upon the presser bar or plate 14 is correspondingly brought back of the middle or central portion of the said bar or plate 14 and causing it to assume the angular position shown. The principal purpose of this is that the flexible bulb or bag 8 is compressed from its closed end portion 10 to a point near the front and open neck 9, whereby any air that may be within the bulb or bag is forced from the rear to the front of the bulb or bag, and the latter in assuming its normally expanded condition when the pressure is removed from the presser-bar fully taking up by suction a maximum amount of the ink. Furthermore, owing to the prevention of any lateral as well as any longitudinal movement of the presser bar or plate upon the outer surface of the flexible bulb or bag 8, the said bar or plate always lying perfectly flat upon said surface, it will be seen that there will be no undue chafing or cutting action between the longitudinal edges of the presser bar or plate with the soft and pliable surface of the bulb or bag 8 while being compressed.

From the foregoing description of my present invention it will be clearly seen that I have devised a simple and strong fountain-pen provided with a self-filling ink receiving and retaining reservoir, which is flexible and may be readily compressed by the insertion of the end portion of the end cap of the penholder or other rigid piece, as the end of a lead-pencil, match, or the like, into a perforation in the body of the holder, the holder having no projecting parts, which are objectionable because of the fact of the possibility of catching in the lining of the pocket or per-

haps becoming depressed accidentally by pressure when thus in the pocket and forcing any ink in the reservoir from the latter and from the pen end of the holder and ruining the garment in the pocket of which the fountain-pen may have been placed.

Having thus described my invention, what I claim is—

1. In a self-filling fountain-pen, a tubular holder, said holder having an opening in its side, a flexible ink-receiving reservoir in said holder, a presser-bar in said holder having an oscillatory motion between the outer face of said reservoir and the opening in said holder, and means connected with said holder for preventing lateral as well as longitudinal movements of the presser-bar, consisting of a plug having a diametrically-disposed channel, and a tongue on said presser-bar extending into said channel and provided with offsets bearing upon the edge portions of said plug contiguous to the said channel, substantially as and for the purposes set forth.

2. In a self-filling fountain-pen, the combination, with a tubular holder, provided in its side with an opening, of an end cap detachably connected with said holder, a flexible ink-receiving reservoir in said holder, a presser-bar in said holder between the outer surface of said reservoir and the opening in said holder, and means on said end cap adapted to be inserted in the opening of said holder for producing an oscillatory motion of the presser-bar and a compression of said reservoir, and means connected with said holder for preventing lateral as well as longitudinal movements of the presser-bar, consisting of a plug having a diametrically-disposed channel, and a tongue on said presser-bar extending into said channel and provided with offsets bearing upon the edge portions of said plug contiguous to the said channel, substantially as and for the purposes set forth.

3. The herein-described fountain-pen comprising a tubular body having an opening in its side, for the reception of a compressing means, a flexible ink-receiving reservoir in said holder, a plug in said holder provided with a diametrically-extending channel, a presser-bar arranged between the outer surface of said reservoir and the opening in said holder, and a tongue on said presser-bar extending into the channel of said plug, substantially as and for the purposes set forth.

4. The herein-described fountain-pen comprising a tubular body having an opening in its side for the reception of a compressing means, a flexible ink-receiving reservoir in said holder, a plug in said holder provided with a diametrically-extending channel, a presser-bar arranged between the outer surface of said reservoir and the opening in said holder, and a tongue on said presser-bar extending into the channel of said plug, and means for preventing lateral movement of said presser-bar, comprising offsets on opposite sides of said tongue in engagement with the edge portions contiguous to the channel in said plug, substantially as and for the purposes set forth.

5. The herein-described fountain-pen comprising a tubular body having an opening in its side for the reception of a compressing means, a flexible ink-receiving reservoir in said holder, a plug in said holder provided with a diametrically-extending channel, a presser-bar arranged between the outer surface of said reservoir and the opening in said holder, and a tongue on said presser-bar extending into the channel of said plug, and means for preventing lateral movement of said presser-bar, comprising offsets on opposite sides of said tongue in engagement with the edge portions contiguous to the channel in said plug, said presser-bar being further provided with a hole, and a pin secured at its ends to said holder and extending through the hole in said presser-bar to prevent longitudinal movement of said presser-bar, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 6th day of September, 1905.

WILLIAM C. LUTHER.

Witnesses:
FREDK. C. FRAENTZEL.
GEO. D. RICHARDS.