

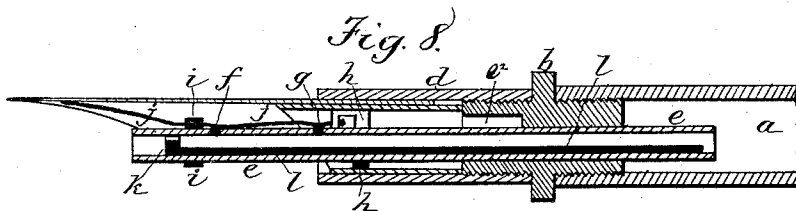
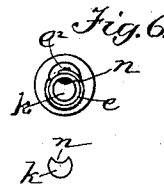
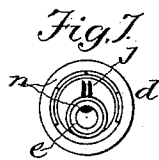
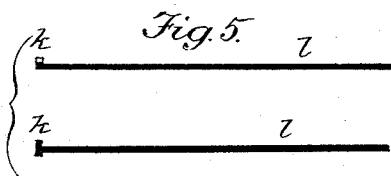
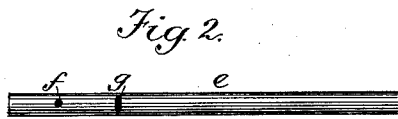
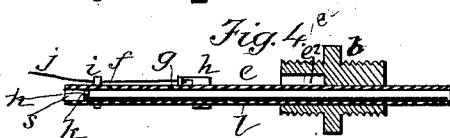
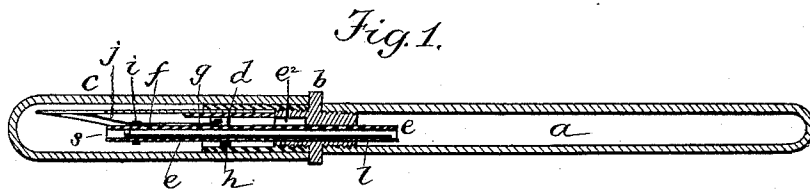
(No Model.)

D. C. DEMAREST.

FOUNTAIN PEN.

No. 340,865.

Patented Apr. 27, 1886.



WITNESSES

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UNITED STATES PATENT OFFICE.

DEWITT C. DEMAREST, OF DENVER, COLORADO.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 340,865, dated April 27, 1886.

Application filed August 22, 1885. Serial No. 175,073. (No model.)

To all whom it may concern:

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

I have improved the fountain-pen in the ink-feeding parts, so as to cheapen the construction of the pen and adapt it for use with the ordinary pens now in use, so that a coarse or a fine pen may be used, as desired. I use a removable ink-tube to supply the pen from the handle-reservoir, so as to form an extension of the latter, and I provide it with an ink-supplying aperture, an air-vent, and a string feeder to conduct the ink to the point of the pen from the supplying-aperture. The relation of the string feeder to the ink-supplying aperture and to the air-vent is such as to regulate the supply of air to regulate the flow of the ink from the ink-tube. The ink-tube is provided with bands, which may serve solely to regulate the area of the ink-aperture and to render the string feeder adjustable. The ink-tube is provided with an interior stem having a stopper with an air-vent to admit atmospheric pressure and prevent air-bubbles from accumulating within the ink-tube and cause them to pass up along the stem in the tube into the handle-reservoir, while the stem of the stopper serves to conduct the ink from the handle-reservoir into and down the ink-tube. The removable ink-tube as an extension of the handle-reservoir, having the ink-supplying aperture and the air-vent, is the primary feature of my invention, whether provided with the string feeder or used without it.

Referring to the accompanying drawings, Figure 1 represents a longitudinal section of a fountain-pen embracing my improvements. Fig. 2 shows the removable ink-tube without the string feeder and bands. Fig. 3 shows the same with the string feeder and bands. Fig. 4 is a section of the same. Fig. 5 shows the stemmed stopper of the ink-tube; Fig. 6, an end view of the ink-tube; Fig. 7, a similar view with the pen-holder in place; Fig. 8, an enlarged view of the ink-tube, screw-section, and pen-holder.

The handle-reservoir *a*, its screw-section *b*, and the screw-cap *c* and pen-holder *d* may be made of any suitable material and way; but I prefer to make these parts of the usual construction of hard rubber. The screw-section *b* forms the holder for the removable ink-tube *e*, into which it is closely fitted eccentrically, so as to maintain a proper relation with the pen when its holder *d* is screwed upon the screw-section *b*, which also screws within the open end of the handle-reservoir. The ink-tube *e* is about one-fourth the area of the handle-reservoir and forms the means of communication between it and the pen. At the joining of the two tubes or of the ink-tube with the handle or barrel screw-section *b* there is formed in its outer end a space, *e'*, outside of the ink-tube, to receive any leakage from the joining of the tubes and allow it to pass off down the inner wall of the pen-holder or upon the outer wall of the ink-tube to the pen. The ink-tube might, however, be fitted tightly directly within the open end of the handle-reservoir; but, however connected, it is removable to allow it to be cleaned and for the filling of the handle-reservoir. The other or outer end of the ink-tube is provided with an aperture, *f*, which I call the "ink-supplying aperture," and is near the end of said tube, and back of it a short distance is an air-vent, *g*, which I prefer to make oblong across the tube, while the ink-supplying aperture I prefer to make about one-sixteenth of an inch in diameter. When the pen is adjusted for use, the outer end of the ink-tube will be sufficiently above the point of the pen to be out of the way in writing; but the ink-tube is not designed to touch the pen, and the apertures in the ink-tube are next the concave side of the pen. The ink-tube is provided with an encircling band, one for each aperture, the inner one, *h*, as a means for adjusting the area of the air-vent *g*, and thereby regulate the flow of the ink from its aperture *f*, while the outer one, *i*, serves as a holder for a string, *j*, which, when used, extends from the ink-supplying aperture to the point of the pen, and lies between the pen and the ink-tube.

Instead of making the band *h* serve to regulate the area of the air-vent, it may be made

like the outer band, and serve only to connect the string, which in such case will extend across the two apertures, as in Fig. 3, in the ink-tube, and while taking the ink from the lower aperture by capillary attraction will serve to regulate the area of the air-vent by turning the band *h* to one side or the other, and thus move or twist the cord more or less over the air-vent, and thereby increase or diminish the flow of the ink from the lower aperture. When the upper band is adjusted so that the string will lie over and thereby nearly close the air-vent, it will convey the ink to the string over the air-vent, so that when the string is well saturated and the pen well supplied the string will so cover the air-vent as to prevent the flow of the ink from the lower aperture until the supply in the string is nearly used, when, by the act of writing and the partial uncovering of the air-vent by the dryness of the string, the air-vent will thereby admit air, and the ink will again flow and fill the string, so as to supply the pen. In this way the pen will be supplied and the flow regulated; but, as I have already stated, I may dispense with the string as a means for regulating the air-vent, and use a regulating-band, so that it can be turned as a valve to regulate the area of the air-vent to maintain a constant flow of the ink from the lower aperture when using the pen. In this case the lower band merely serves as a holder for the string, which may be single or double, while the upper band may serve, as stated, to regulate the area of the air-vent, or to serve only as the cord-holder when the latter is extended over the air-vent. The upper one of these bands may be made to fit the interior of the pen-holder, and thus support the latter while writing, as shown in Fig. 1.

As the ink-tube-supply aperture *f* is liable to be rendered inoperative by the accumulation of air-bubbles within the tube at such aperture, I provide against such contingency by inserting a stemmed stopper, *k*, into the tube from its outer open end, and make an air-vent, *n*, in the stopper, which is placed just in front of or at the outer side of such aperture *f*, while the stem *l* extends up to the inner end of the tube and serves to conduct the ink down into the tube from the handle-reservoir. When the pen is turned point down, as in writing, the ink is suspended from the upper end of the ink-tube by atmospheric pressure. When the pen is reversed and the point is turned up, the air in the reservoir is relieved of the weight of the ink, and contracts, and in contracting it draws in some air, so that when the pen is again turned point down, as in writing, too much ink would be forced out onto the point of the pen, if there were not a place provided to catch and hold the surplus, and this provision is the space *s* between the end of the tube which conveys the ink and the stopper. The ink

that may leak or pass through the stopper-vent *n* is received into the space *s* at the lower open end of the tube, and passes out to the point of the pen.

The string feeder is made of cotton or yarn, and it is best to double it.

The stemmed stopper is preferably made of rubber, and is held in place by friction. Its stem may be made of silver wire.

The string band holders may be made of silver or rubber.

Referring to the ink-feeding tube, I have stated that it passes through the screw-section *b* and is closely fitted therein, so as to maintain a proper relation with the pen and adapt it for use with the ordinary pens now in use; and it will be understood that for this purpose the ink-feeding tube is adjusted into or out of the reservoir to suit long fine pens or short stub-pens.

I claim—

1. A feed-tube open at both ends and having two side apertures, *f* and *g*, one above the other, both located between the pen and the reservoir-holder, in combination with the pen-holder, whereby to supply ink to the pen and air to the reservoir, substantially as described.

2. In a fountain-pen, the ink-supplying tube *e*, having the side apertures, *f* and *g*, below the closed end of the reservoir, in combination with a holder for the pen and a feed-stem, *l*, located within the feed-tube, having an air-vent, *n*, substantially as described.

3. The combination, with the reservoir and ink-tube having the side apertures, *f* and *g*, of an ink-feeding device consisting of a fibrous conductor connecting said apertures outside of said ink-tube, substantially as described.

4. The combination, with the feed-tube of a fountain-pen, having two side apertures, *f* and *g*, one above the other, of an ink-feeding device connecting the said apertures outside of said ink-tube, and a feed-stem within said feed-tube, having an air-vent, *n*, at its lower end, substantially as described, for the purpose specified.

5. The combination, with the reservoir and a pen-holder, of the ink-feeding tube having a sliding adjustment into said reservoir, and a side ink-supplying aperture, whereby to allow for the use of pens of different lengths, substantially as described.

6. The combination, with the handle-reservoir and ink-tube provided with ink-outlet and air-vent, of an ink-feeding device constructed to supply the pen-point with ink from said tube by capillary attraction, and an adjustable band for regulating the flow of air through said aperture, substantially as specified.

7. The combination, with the ink-tube having ink-outlet and air-vent, as described, of the stemmed stopper, having a vent, inserted

in said tube, substantially as and for the purpose specified.

8. The combination, with the ink-tube having ink-outlet and air-vent, of the string or
5 strings over said openings, and the bands serving the double function of string-holder and feed-regulator, as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DEWITT C. DEMAREST.

Witnesses:

MARSHALL BUNCE,
RODERIC F. HALL.