(No Model.)

D. C. DEMAREST.

FOUNTAIN PEN.

No. 408,000. Patented July 30, 1889.

Fig. 1.

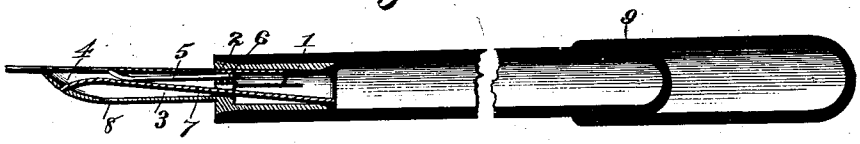


Fig. 2.

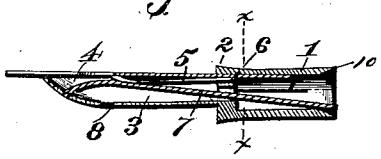


Fig. 3.

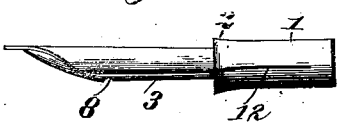


Fig. 7.

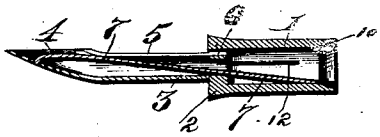


Fig. 4.

Fig. 5.

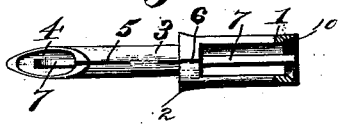
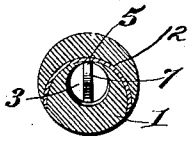


Fig. 6.



WITNESSES

Walter H. Pumphrey.

Howell Bartle.

INVENTOR

DeWitt C. Demarest

By Johnson & Johnson

his Attorneys

UNITED STATES PATENT OFFICE.

DEWITT C. DEMAREST, OF DENVER, COLORADO.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 408,000, dated July 30, 1889.

Application filed November 23, 1888. Serial No. 291,654. (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 a new and useful Improvement in Fountain-Pens, of which the following is a specification.

Cheapness and satisfactory ink-feeding in a fountain-pen are the objects of my improvements, which are directed to the ink-feeding device and to the provision whereby it is formed into a split clamp for holding the pen, and also to a combination in which an ink-feeding tube having a top capillary slit and an interior ink-feeding stem is used with the advantage of causing the ink to flow in contact with the pen by the co-operation of the capillary slit and the feeding-stem.

The following is a description of the accompanying drawings, in which is illustrated a fountain-pen having my improvements, and in which—

Figure 1 is a longitudinal section. Fig. 2 is a section of the pen-holding plug and its ink-feeding device. Fig. 3 is a side view of the same. Fig. 4 is a top view of the same with the pen removed. Fig. 5 is a similar view taken along the split of the plug. Fig. 6 is a cross-section on the line *x* of Fig. 2, and Fig. 7 shows the ink-feeding device without the pen.

The reservoir or tubular holder for the ink and for the pen-holding plug is made in the usual manner, closed at its upper end and open at its lower end, which is reamed out flaring to receive the pen-holding plug and ink-feeder.

The pen-holding plug and its ink-feeding tube are made in one piece, the portion 1 being about five-eighths of an inch long, and is made to fit snugly into the open end of the ink-reservoir, while its outer end portion 2 is made conical to fit into the flaring open end of the reservoir to form a tight joint and limit the insertion of the plug. The ink-feeding tube 3 is of less diameter and projects centrally from this conical end 2 about an inch in length and terminates in a flat opening 4 on its upper side. It is made and turned out of rod-rubber, the plug part 1 proper being drilled with a bore of five thirty-seconds of an inch, and the feed part 3 being drilled with a bore of three thirty-seconds of an inch, and the end of the feed-tube is dipped into hot oil and slightly curved up and filed off to make a flat open end 4. The upper side of this feed-tube has a slit 5 cut with a fine saw, which extends from the flat open end of the tube to the interior of the plug and terminates in the upper side of the bore thereof, as shown at 6 in Fig. 5. I prefer to make this slit quit fine, as it is important that it should hold the ink to effect the capillary flow, because some inks readily run out of a wide slit, and will therefore interrupt the continuous capillary flow. The function of the slit, therefore, is primarily to hold the ink, and thus form a starting-line flow in commencing to use the pen. The opening of the slit within the bore of the plug at the point 6 allows the ink to readily pass into the slit from the bore of the plug.

I use a piece of rubber rod 7, quite slender, as an ink-feeder within the plug and pin it to the end of the plug-tube to hold it in place. Now, as the ink will not readily pass by this pinned end of the feeder to the point of the pen, I provide the slit in the feeder-tube, which co-operates to feed the ink to the point of the pen, and plenty of ink is kept at this point just where the pen lies over the flat opening, the slit, and the pinned end of the feeder.

The rubber rod, when pinned to the open end of the tube, by its elasticity, bends up in contact with the slitted end of the opening, so that its inner free end lies on the bottom of the bore of the plug, and it is this position and arrangement of the feeder which, while giving a free feed flow to the ink within the tube and within the slit, prevents the ink from dropping while starting up. I find that the ink will not flow readily through a feed-tube even with a feeder in it without being first wet by giving the pen a shake; but I also find that the ink is willing to follow a cut or slit, and by making the slit open at both ends of the feed-tube it makes a connection with the ink at the point of the pen and the ink in the plug, and thus keeps the point of the pen well supplied. At the open end and in the under side of the feed-tube a hole 8 is provided for the admission of air into the feed-tube, through which the air-bubbles

pass to the reservoir. The advantage of placing the air-vent under the pinned end of the feed-rod and on the side of the tube opposite the capillary slit is that, the feed of ink being chiefly confined to the slit and the feed-rod, the tube is thereby kept free for the inflow of the air and the vent not so liable to be closed. The inner end of the plug is beveled or chamfered at 10 to allow the ink to readily run back into the holder when not using the pen and to run into the plug when using the pen. As a means for holding the pen I split the plug lengthwise at 12, just on a line with the upper side of the ink-tube, about two-thirds of its length and insert the pen therein over the tube and its slit. This split 12 is made by a hollow saw, the teeth of which are on the end of the saw-tube, and it has the advantage of forming a clamp for the pen and to suit pens of different thickness. Moreover, by splitting the plug to receive the pen with a clamping function, the holder of the pen-plug serves as a binder for the clamp, and thus holds the pen firmly within the plug, so that the whole length of the pen is always in contact with the flow of the ink, because the plug is so cut as to open the tube-slit within the plug, so that the pen extends beyond the slit and the latter opens all along the under side of the pen.

The manner of holding the pen allows it to be easily removed when the plug is removed, because the plug readily opens at the split.

The handle of the pen is provided with the usual cap 9, adapted to be fitted on the closed end of the handle when the pen is being used and to be fitted over the pen-plug when the pen is not being used. The split plug is suited for gold or steel pens.

I claim as my improvement—

1. The combination, with the hollow handle of a fountain-pen, having its end beveled on its inner wall, of a hollow plug having its outer end conical to fit and close the said beveled end of the handle, and having a circular split from said conical end crossing its diameter to receive and hold the pen in connection with the hollow of said plug, whereby the pen is firmly clamped by the action of the beveled end of the handle upon said split conical end of the plug, substantially as herein set forth.

2. In a fountain-pen, the ink-feeding device herein described, consisting of the hollow plug 1, having a feed-tube of less diameter, provided with a top slit open at both ends and an air-vent on its under side, and a rod-feeder pinned to the outer open end of said tube, as herein set forth.

3. The combination, with the hollow handle of a fountain-pen, of a pen-holding ink-feeding device consisting of a hollow plug split diametrically a portion of its length from its outer end, and having a feed-tube provided with a top slit opening into said plug-split, whereby to form a clamp for the pen and a capillary feed for the ink, substantially as described.

4. An ink-feeding device for a fountain-pen, consisting of a hollow plug part 1 and a slitted tubular feed part 3 of less diameter, the said plug part being split lengthwise from its front to near its inner end with a circular cut on a level with the upper slitted side of the feed-tube, so that the said plug-split opens into said tube-slit, for the purpose stated.

5. An ink-feeding device for a fountain-pen, consisting of a hollow plug part split at its outer end by a circular cut opening into said plug, a feed-tube projecting from the split end of said plug, provided with a capillary top slit opening into said circular cut and into the flat open end of said tube, the latter having an air-vent on its under side, and a rod-feeder, in combination with the holder adapted to form a clamp for the split end of said feed-tube, for the purpose stated.

6. An ink-feeding device for a fountain-pen, consisting of a hollow plug part forming the stopper for the reservoir, having the interior end bevel 10, the exterior conical end 2, a feed-tube provided with a capillary top slit and a flat open end, and a rod-feeder, substantially as described.

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

DEWITT C. DEMAREST.

Witnesses:
WILLIAM H. MALONE,
E. D. SLOAN.