(No Model.)

D. C. DEMAREST.

FOUNTAIN PEN.

No. 407,999. Patented July 30, 1889.

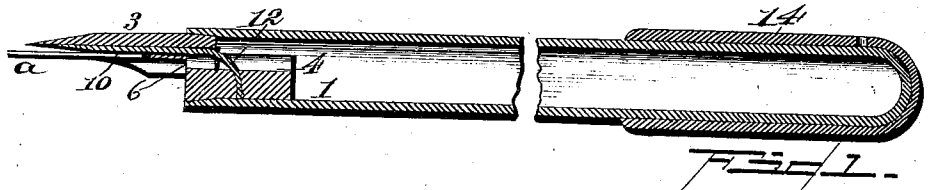
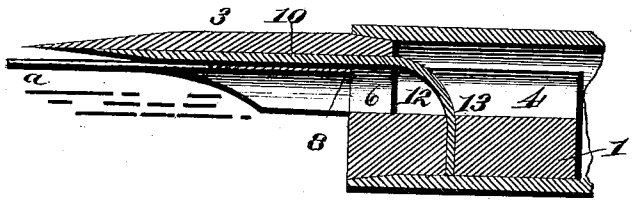


FIG. 1.



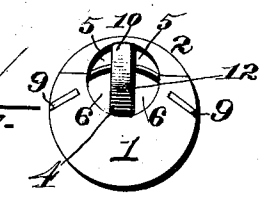
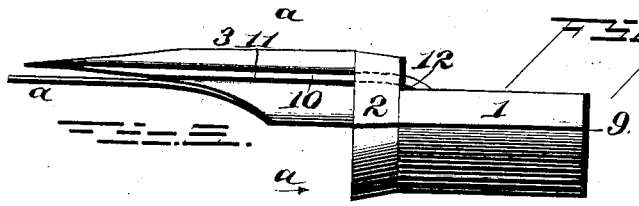


FIG. 5.



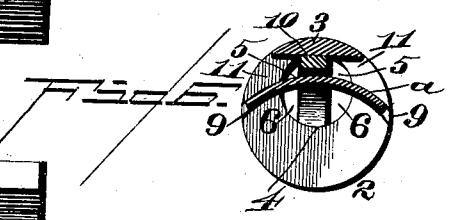


FIG. 6.

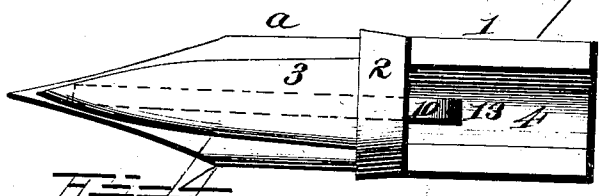


FIG. 4.

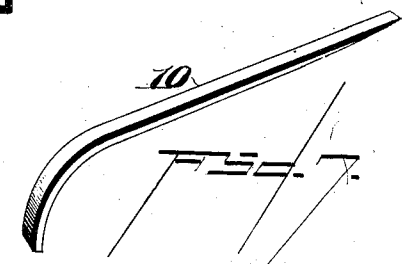


FIG. 7.

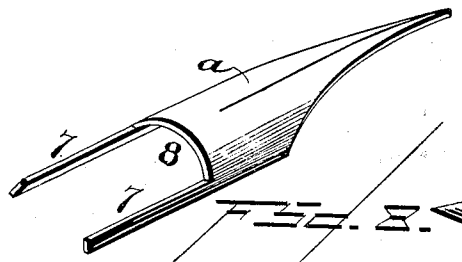


FIG. 8.

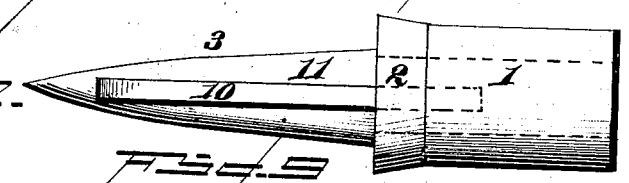


FIG. 9.

WITNESSES

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FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 407,999, dated July 30, 1889.

Application filed October 18, 1888. Serial No. 288,462. (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.

In improving the fountain-pen I have aimed to produce an efficient and simple construction whereby the ink may flow freely from the fountain to the pen without dropping.

The specific points of novelty will be designated in the claims concluding this specification.

The following is a description of the accompanying drawings, in which is illustrated a fountain-pen having applied thereto my several improvements in effective form.

Figure 1 is a longitudinal section of the pen. Fig. 2 is a longitudinal section of the pen-holding plug and a portion of its hollow holder. Fig. 3 is a side view of the same. Fig. 4 is a top view of the same. Fig. 5 is a view looking at the inner end. Fig. 6 is a cross-section on the line *a* of Fig. 3. Fig. 7 is the feeder. Fig. 8 is the pen, and Fig. 9 shows the under side of the plug with the pen removed.

The handle or the holder is made hollow in the ordinary way to contain a supply of ink and to receive at one end the pen-holder or plug.

The pen-holder is a short plug 1 of semi-cylindrical form in cross-section for a portion of its length. Its front end is cylindrical at 2, and from its upper side a tongue 3 projects to a tapering point. The cylindrical part 2 is beveled to form a close joint and to hold the plug in place within the flaring open end of handle and to form a shoulder to limit the insertion of the plug within the handle-reservoir and prevent leakage of the ink. That portion of the plug which is not cylindrical is formed with central groove 4, which extends through the cylindrical front part and opens at the front end of the plug, being also open at the inner end of the plug, and forms both the passage for the ink to the pen and an air-vent to the ink-reservoir. This front opening in the plug is about seven sixty-fourths of an inch in diameter, and is divided at its outer end so as to form an upper and a lower opening, such division being made by the end of the pen *a*, so that the upper opening 5 leads out over the pen, as in Fig. 6, for the flow of the ink, and the lower opening 6 leads out under the pen for the air-vent. This passage-dividing function of the pen is made by placing the inner end of the pen against the outer end of the plug across said opening, so as to divide the latter about equally, and for this purpose I provide a pen having a bifurcated shank so as to form two prongs 7, and between them the dividing-edge 8, which crosses the opening. The plug has a horizontal slot 9, formed in each side, and into them the pen-prongs 7 are inserted to secure the pen to the plug. I prefer, however, to form the slots so that the pen will be secured with its edge 8 crossing the opening 5 6 about one thirty-second of an inch from the top of the opening, so as to leave a small flow-passage 5 for the ink and a larger air-vent 6 below it.

The ink-feeder consists of a small stem 10, preferably of a thin flat piece of rubber placed against the under side of the plug-tongue of less width than the latter, and extending to near its point over the back of the pen, so as to leave a side passage 11 between the latter and the under side of the plug-tongue on each side of the feeder, as seen in Fig. 6. Both of these side passages open over the nibs of the pen and into the plug-opening 5, so as to cause the ink to flow out of the latter in two streams on each side of the feeder to the point of the pen. To prevent the ink from flowing or dropping out of the air-vent the ink-feeder is bent at its inner end 12, so as to cross the air-vent at right angles to the dividing edge of the pen, as seen in Fig. 5, and is secured in a hole 13 in the bottom of the central groove 4 in the plug just back of the opening in the cylindrical end of the plug. This function of the feeder leaves the air-vent free and unobstructed, and forms a stop in the vent-passage to prevent the ink running out. This construction gives a hollow pen-plug open at its upper side, so that the ink in the reservoir will cover and stand within the plug nearly up to its outer open end. It gives a feeder which, by reason of being bent downward into the open

side of the plug into its central groove, will cause the ink to flow to the pen on account of following the feeder, and thereby carries it over the vent-opening, while at the same time it holds the ink from following the plug-groove out through the vent-opening. It gives a divided ink-passage to the pen and a divided air-vent to the reservoir, both co-operating to supply the pen with ink and to prevent dropping. This co-operation is effected by the inner end 12 of the feeder, which crosses alike the outflow-passage 5 for the ink and the inflow-passage 6 for the air at the front end of the plug, and the feeding of the ink is from the open side of the plug direct to the pen, out under the plug-tongue along each side of the feeder over to the pen-point.

It will be seen that the pen-plug is inserted entirely within the handle-reservoir, and that the pen and plug-tongue only project from the handle. This construction gives a simple way of obtaining the advantage of using a plug cut away on one side, so as to leave an end joint-forming ring part 2, tapering inward, so as to make a perfectly tight bearing within the open flaring end of the pen-handle to close its reservoir and bring the latter down close to the outer end of the pen-plug. It is from this open-plug part that the feeder takes the ink to the spaces between the plug-tongue and the pen, along which spaces the ink will flow by capillary attraction to the point of the pen.

The semicircular part 1 of the pen-plug fits closely within the open end of the handle; but the tapering joint-forming ring part 2 is about one-sixteenth of an inch, so as, in connection with the cut-away part of the plug, to bring the reservoir open as near the point of the pen as possible, and just at the opening in the plug through which the ink passes from the reservoir.

The handle and pen-plug are preferably made of hard rubber, and the handle is provided with the usual cap 14, 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 ink-feeder lies upon the pen and the tongue lies upon the feeder, and the tongue tapers both in thickness and in width to the point, while the feeder tapers in thickness to the point, so that the tongue and the feeder will yield at their points to pressure applied to the pen and thereby insure the free flow of the ink.

The plug is held in place in the lower open end of the reservoir by its beveled ring part 2 being pressed snugly therein to its seat in the flaring end, so that while it is tightly held in place it is easily removed for cleaning and for filling the reservoir, or for changing the pen. This construction also avoids the expense of a screw-plug. The plug is adapted for the use of a gold pen. The tongue is made thin at its point, so as to yield against the pressure of the pen, and the feeding-stem is beveled at its point on the under side to facilitate the feeding of the ink to the point of the pen and leave the latter free to yield under pressure in writing. While the plug is shown as being adapted for use with a pen having prongs at its rear end, yet the ink-feeding device is not dependent upon the particular form of the pen shown.

An important feature of my improvement is the relation of the parts which comprise the ink-feeder, in which the central opening of the plug is crossed at the outflow end of the pen, the ink-feeding stem extending from the overflow over the back of the pen, and the tongue extending from said opening over the feeding-stem and having a width and a length greater than that of the said feeding-stem.

I claim as my improvement—

1. In a fountain-pen, the pen-holding plug having its central opening divided into the top ink-feeding openings 5 5 above the pen and into the bottom air-vent opening 6 below the pen, by means of the inner end of the pen and the inner bent end of the ink-feeding stem 10, in combination with the flat tongue 3, whereby to form two side passages 11 11, leading from the said top ink-feeding openings to the point of the pen and prevent the outflow of the ink at the air-vent, substantially as described, for the purpose stated.

2. The combination, in a fountain-pen, of a plug having a cylindrical and a semi-cylindrical part 1 2, a groove 4 passing through both parts open at the ends, and a tongue 3, with an ink-feeder 10, and a pen, both arranged to cross the outer end opening of the said plug at right angles to each other, substantially as described, for the purpose specified.

3. A fountain-pen provided with a pen-holding plug having a beveled joint-forming end 2, and a semi-cylindrical part 1, having a groove 4, which extends through and opens at the front end of the cylindrical part, a tongue 3, which extends from the latter over said opening, and an ink-feeder 10, placed beneath the tongue, arranged to pass through the upper part of the said opening and crossing the latter just back of the joint-bearing part 2, substantially as described, for the purpose specified.

4. In a fountain-pen, the combination, with a pen-holding plug having a semi-cylindrical part 1, and a cylindrical part 2, the latter forming the joint-bearing within the open end of the reservoir, and the former having a groove 4, open at both ends and extending through the joint-forming part, and a tongue 3, projecting from the latter, of an ink-feeder 10, placed beneath the tongue extending into said groove and turned down at its inner end to the bottom of said groove, thereby crossing the outer end, opening just back of the joint-forming part, substantially as described for the purpose specified.

5. In a fountain-pen, the pen-holding plug

provided with grooves 9 on each side, a central groove 4 and end opening, and a tongue 3, in combination with a pen having a bifurcated shank, and an ink-feeder 10, the rear edge 8 of the pen crossing the outer end of the plug-opening and the rear end of the feeder crossing said opening in the rear of the division edge of the pen, substantially as described, for the purpose stated.

6. In a fountain-pen, the combination, with a cylindrical plug having grooves 9 in its walls, and a central opening forming both a feed for the ink to the pen and an air-vent for the reservoir, of a pen having prongs 7, adapted to be secured within side grooves of the plug, and an edge 8, adapted to divide the central opening of the plug, substantially as described.

7. In combination, in a fountain-pen, the reservoir-handle, the plug or stopper 1 therefor, the feeder 10, and the pen, the said plug having its front end 2 perforated to form an air-vent and an ink-outlet, and the rear end of the pen and the rear end of the feeder arranged to cross each other and dividing the said front plug-opening into the lower air-vent 6, and into the upper side ink-passages 5 5, for the flow of the ink over the pen, substantially as described, and for the purpose specified.

8. An ink-feeding device for a fountain-pen, consisting of a plug having a central opening, a pen crossing said opening at the outflow, a feeding-stem extending from the outflow-opening over and back of the pen, and a tongue extending from said opening over the feeding-stem having a width and a length greater than that of the feeding-stem, substantially as described.

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

DEWITT C. DEMAREST.

Witnesses:
J. C. EYRICK,
HARRY CARR,
J. W. STEELE.