(Model.)

M. C. STONE.

FOUNTAIN PEN HOLDER.

No. 260,134. Patented June 27, 1882.

Fig. 3

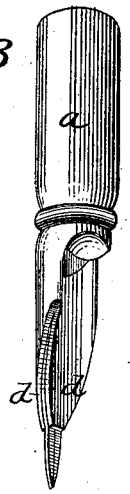


Fig. 4.

Fig. 5.

Fig. 1.

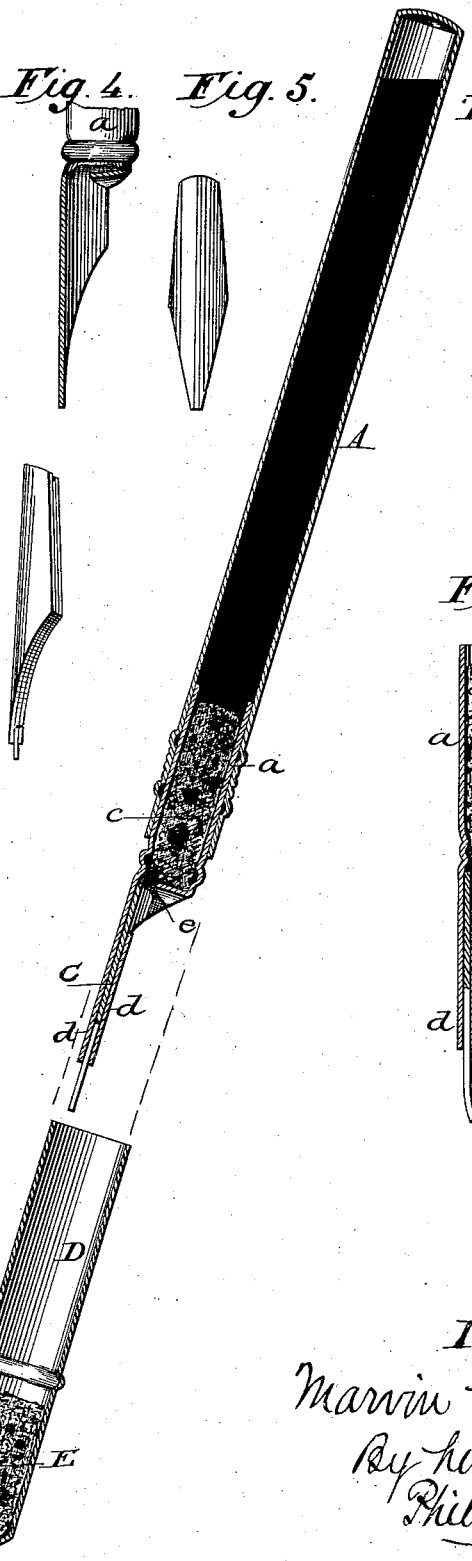


Fig. 6

Fig. 2.

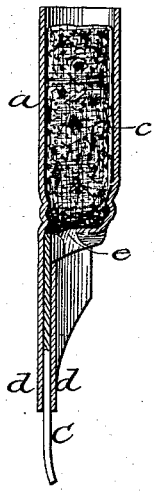
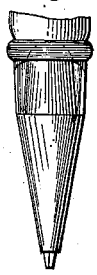


Fig. 7.

Fig. 8



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FOUNTAIN PEN-HOLDER.

SPECIFICATION forming part of Letters Patent No. 260,134, dated June 27, 1882.

Application filed October 15, 1881. (Model.)

To all whom it may concern:

Be it known that I, MARVIN C. STONE, of Falls Church, in the county of Fairfax and State of Virginia, have invented certain new and useful Improvements in Fountain Pen-Holders, of which the following is a specification.

The object of my invention is to produce a fountain pen-holder wherein a pen of the ordinary or substantially the ordinary type may be employed without making use of valves, reciprocating needles, or other parts heretofore required, by which the ink will be delivered steadily and uniformly to the writing-point, and which may be laid aside indefinitely with certainty of its being ready for immediate operation when required.

In order to accomplish these ends I make use of a body or reservoir wherein the ink is sustained mainly by atmospheric pressure, and feed the ink from said reservoir to the point of the pen or writing-instrument by the capillary action secured through the presence of one or more feeding-surfaces adjacent to the pen, and extending from the ink-supply downward to the point of the pen, or to such point that the pen will, by its ordinary action, deliver the ink thence to the paper.

Referring to the accompanying drawings, Figure 1 is a vertical central section through a pen constructed on my improved plan. Fig. 2 is a similar section through a pen-holding and feeding device detached from the fountain or reservoir. Figs. 3 to 8 are devices showing modifications of the pen.

In constructing my holder I first provide a rigid non-collapsible tube, A, to form an ink-reservoir, this tube being hermetically sealed, except at the lower end, which may be left entirely open. This body, which is designed to receive the ink, is filled by turning its mouth upward and pouring ink therein, after which the feed and pen-holding devices are applied and the reservoir inverted to deliver the ink from its mouth. Having provided the reservoir, I next provide the holding and feeding device clearly represented in Figs. 1 and 2. This device has its upper end, *a*, made of tubular form, and adapted to fit closely around or within the end of the reservoir or body A, and has its lower end made of suitable form to admit an ordinary writing-pen, C. The upper end, *a*, is closely filled with a mass of sponge or other porous absorbent material, *c*. This material prevents the accidental discharge of the ink and assists in sustaining the same in the holder. The column of ink will, however, be sustained in the reservoir, when the latter is held upright, by atmospheric pressure, aided, perhaps, by a slight capillary attraction, without the presence of the sponge. The lower end of the holder is adapted to embrace closely the upper end of the writing-pen, the surfaces *d d* of the holder lying closely adjacent to the surfaces of the pen on the outer and inner sides of the same, and extending downward over said pen-surfaces nearly to the point of the pen, it being important that the surface *d* shall extend downward to such point that the ink will be fed thence downward to the paper by the capillary action existing between the points or nibs of the pen, as usual.

Between the pen-surfaces and the surfaces *d* of the holder there is sufficient space for a thin film of ink to flow downward. Air will be gradually admitted through the absorbent material into the holder to replace the vacuum caused by the discharge of the ink. This air may be admitted either past the pen-surfaces, through the holder, or through an opening, *e*, left in the lower end of the holder, as represented in the drawings, which represent the preferred construction.

It is found in practice that when the air is admitted at one point and the ink permitted to pass downward at another point a better action is secured than under any other arrangement.

In making use of the device the holder is applied to the open end of the body or reservoir, as represented in Fig. 1. The column of ink in the body or reservoir is sustained therein mainly by atmospheric pressure, and will not escape or flow downward, except as it may be withdrawn by the capillary action, hereinafter explained. The absorbent material *c* is maintained in a thoroughly-saturated condition by the ink, and by capillary action the ink is caused to flow downward from the absorbent material between the surfaces of the pen and the adjacent surfaces *d* of the holder, a thin film of ink being constantly maintained between the surfaces of the pen and the holder.

When the pen is in use the separation of the points or nibs under the pressure applied to them in the operation of writing causes the ink to flow constantly downward around and between them to the paper in a well-known manner. As the ink is discharged from the points it is constantly replaced by fresh ink, a continuous film of which is brought downward by capillary action from the absorbent material between the surfaces of the pen and the adjacent surfaces, as before explained.

In practice it is found that a pen constructed, as above described will operate with certainty and uniformity, and that there is no danger whatever of the ink failing, on the one hand, to feed, or, on the other hand, of its being discharged too rapidly. It is also found in practice that when the pen is laid aside a constant film of fresh ink is maintained between the points of the pen and the adjacent surfaces, the loss by evaporation being constantly supplied by the flow due to the capillary action.

The holder may be of any suitable construction, provided the features hereinbefore mentioned are retained.

The feeding-surfaces may be used on the outside or inside, or both the outside and inside, of the pen.

Fig. 3 illustrates a construction in which the holder proper is formed by simply incising a tube and bending one side of the same inward toward the other, the space between the two sides serving to hold the pen, and the inner surfaces serving to feed the ink. Figs. 4 and 5 illustrate a construction in which the holder has a single surface only to rest upon the back of the pen. Fig. 6 illustrates an arrangement of three ordinary writing-pens, one within another, in such manner that when inserted into a holder such as shown in the drawings the supplemental pens will serve as feeding-surfaces to deliver the ink to the main or writing pen. Figs. 7 and 8 illustrate forms of the holder in which the feeding-surfaces are arranged on both the interior and exterior of the pen and united or joined at their edges, the pen being completely inclosed, except at the projecting-point.

While the form and arrangement of details shown in the drawings are preferred, they may be modified to a limited extent, provided no substantial departure is made from the construction and mode of action herein set forth.

In order to prevent a wasteful evaporation of the ink and to protect the pen-point, I provide a cap or cover, D, which may be applied over and around the holder, as indicated in dotted lines in Fig. 1. Within this cap or cover I place sponge or other porous material E, which will serve the twofold purpose of holding and protecting the point of the pen and of automatically cleaning the same each time that the cap is applied and removed.

I am aware that fountain-pens have been constructed in a great variety of forms, and that among other devices is that shown in Patent No. 186,942, wherein a collapsible holder or reservoir is employed in connection with a tubular holder, the arrangement being such that the ink is expelled by pressing the thumb or finger upon the rubber tube or inclosing case, thereby forcing the ink from the reservoir downward to the point. This construction differs from mine in that the ink is forcibly ejected by hand.

I am also aware that Patent No. 12,727 represents a collapsible ink-containing bag, from which the discharge of ink is controlled by means of a valve, which discharges the ink intermittently into a sponge or absorbent material, from which it runs downward in the inner surface of the pen. The ink is not delivered to the pen by capillary action.

It will be perceived by the skilled mechanic that, as regards the feeding-plates, the only essential requirement is that they shall present feeding-surfaces in close proximity to the pen, and it is manifest that the thickness of these plates and shape of their surfaces are not material, provided they lie adjacent to the pen and feed the ink in the manner described.

Having thus described my invention, what I claim is—

1. The combination of the rigid or non-collapsible ink-reservoir closed at the top, the porous material in its lower end, the pen, and the feeding-plate lying close to the surface of the pen and extending from the ink-supply downward to a suitable point to deliver ink to the point of the pen, as set forth.

2. In a fountain-pen, the combination of the body wherein a column of ink is sustained mainly by atmospheric pressure, a writing-pen of ordinary form at the lower end of said body, one or more feeders with surfaces lying adjacent to the pen and extending from the ink-supply downward to the point of the pen, and an air-admission to the lower end of the reservoir, substantially as shown, whereby an automatic and constant feeding of the ink from the reservoir to the point of the pen is secured by capillary action.

3. The non-collapsible ink-reservoir, open at the lower end only, in combination with the detachable holder provided with the porous material, the writing-pen, and the capillary feed plate or plates, substantially as described and shown.

4. In a fountain-pen, the combination of a reservoir wherein the ink is sustained mainly by atmospheric pressure, a writing-pen, a feed-plate lying adjacent to said pen, with a thin passage between the two for the feed of the ink from the reservoir, and an air-admission at the foot of the reservoir distinct from the passage through which the ink descends to the pen.

MARVIN C. STONE.

Witnesses:
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JAMES A. BEAN.