W. W. STEWART.

Fountain-Pen Holder.

No. 214,795. Patented April 29, 1879.

Fig. 1.

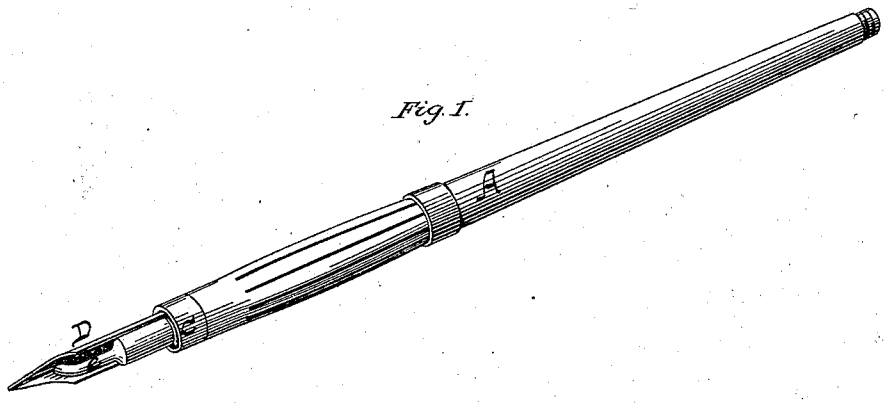


Fig. 2.

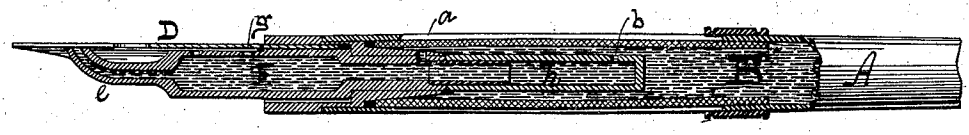
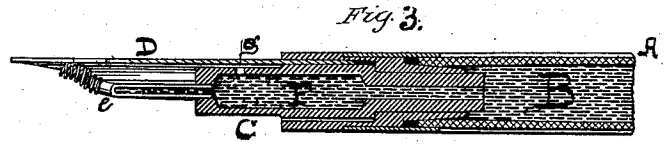


Fig. 3.



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WILLIAM W. STEWART, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN FOUNTAIN-PEN HOLDERS.

Specification forming part of Letters Patent No. **214,795**, dated April 29, 1879; application filed February 6, 1879.

To all whom it may concern:

Be it known that I, WILLIAM W. STEWART, of Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Fountain-Pen Holders; and that the following is a full and exact description of the same.

The object of my improvement is, first, to dispense with a cut-off valve; second, to regulate automatically the flow of ink, so as at all times to avoid both excess and deficiency, without opening or closing vents.

To this end it consists, first, in a chamber at the lower end of the holder, through which the ink must flow, and, second, in two or more vents, to discharge ink from said chamber upon the pen at different points, one or more of said vents alternately discharging ink and admitting air, whereby the pressure and supply at the other vent are rendered uniform.

It is advantageous to connect said chamber with the larger reservoir in the holder by one or more small passages, whereby agitation of the fluid within the larger reservoir will have less effect to make the discharge upon the pen irregular.

The effect of two or more vents of discharge from a chamber is as follows: Ink will flow from these vents until the tension of the air inclosed in the reservoir is just equal to the weight of the fluid-column, at which point atmospheric pressure will cause any further discharge to cease until more air is admitted, when a discharge will again take place and equilibrium be again restored. The ink so discharged will rest as a free mass upon the pen, and will cover and seal the vents against the admission of air. As this ink is discharged from the pen in the process of writing, the vent most remote from the nibs will be uncovered, and a little air will gain admittance and immediately cause another discharge of ink, and so on. The air so admitted to a chamber causes no disturbance of the flow of ink through the other vent, because the volume of the air so admitted is small in proportion to the volume of ink from which the discharge from the other orifice takes place. By these means a supply of ink at one vent is maintained, practically, in a condition of equilibrium, and ready at all times to deliver ink upon the pen as fast as it is discharged therefrom when air is admitted to or through a single duct or vent, whereby ink is discharged upon the pen, the flow is alternately entirely arrested and accelerated, and the supply upon the pen will be correspondingly irregular.

That others may fully understand my invention, I will particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 represents, in perspective, my improvement. Fig. 2 is a longitudinal section of the same. Fig. 3 represents a modification of the same.

A is the holder, with an ink-reservoir, B, within it. At the lower end it is closed by a plug, C, and is provided at its front end with a circular groove for the reception of the pen D. Between the reservoir B and the point of discharge to the pen there is a cavity or chamber, F, which communicates with the ink-reservoir B by means of openings *a b*, and discharges ink upon the pen by means of two or more ducts, tubes, or vents, *e g*, leading from said cavity.

The effect of several vents of small diameter is as follows: The requisite supply of ink is discharged in very minute quantities, and the capillary attraction in these small orifices effectually restrains any rapid flow of ink through them, and at the same time when the admission of additional air becomes requisite one or more of them will alternately admit air and discharge ink. In such case ink will be discharged from the opening nearest the pen, and that which is most remote will alternately discharge ink and admit air.

In holders as heretofore made, with but a single discharge-tube, it has been usual to open an air-vent at the upper end of the holder, or suffer the inconvenience of air-bubbles in the conduit-tube, which cause the flow of ink to be alternately arrested and accelerated.

The tube *e* delivers the larger quantity of ink, and discharges it upon the pen opposite the end of the slit, or between that point and the nib of the pen. The vent *g* discharges a smaller quantity higher up on the pen, and in addition to the advantages above noted it enables the back suction to withdraw through the vent *g* all of the ink remaining upon the pen

when its use is discontinued. This back suction is strongly exercised when the barrel or reservoir A, being flexible, is compressed and released, while the point of the pen is elevated higher than the upper end of the holder.

For convenience in manufacture, as well as for convenience in cleaning the holder and removing sediment, &c., I make the plug C open at its inner end, and prolong it by a tube, *h*, which may be removed when necessary, and a bristle or fine wire may be caused to pass through the air-chamber F and tube *e* to clear out sediment or deposit of dried ink.

It is apparent the plug C and air-chamber F may be differently constructed and located. and one such modification is shown in Fig. 3, Others will readily suggest themselves to persons skilled in the art.

I am aware that a fountain-pen holder has heretofore been provided with a side vent in the ink-tube, for the purpose of breaking the stream of ink and temporarily arresting its flow. The purpose of my invention is different from that, as it is not desirable to admit air to the ink-tube, nor to arrest or impede the flow upon the nibs of the pen.

The vents *g* in the chamber F admit air to said chamber whenever required to maintain a flow of ink through the duct *e* uniformly in one direction and without interposed air-bubbles.

Having described my invention, what I claim as new is—

A fountain-pen holder provided with a reservoir-chamber, F, and one or more vents, *g*, alternately discharging ink and admitting air, combined with a duct, *e*, to discharge ink upon the pen near its nibs, as set forth.

In witness that I claim the above as my invention, see my hand.

WILLIAM W. STEWART.

In presence of—

HAROLD D. WATSON,

THEO. RICKSECKER.