(No Model.)

W. W. STEWART.

FOUNTAIN PEN.

No. 480,751. Patented Aug. 16, 1892.

FIG. 1.

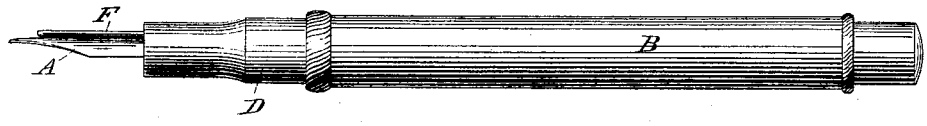

FIG. 2.

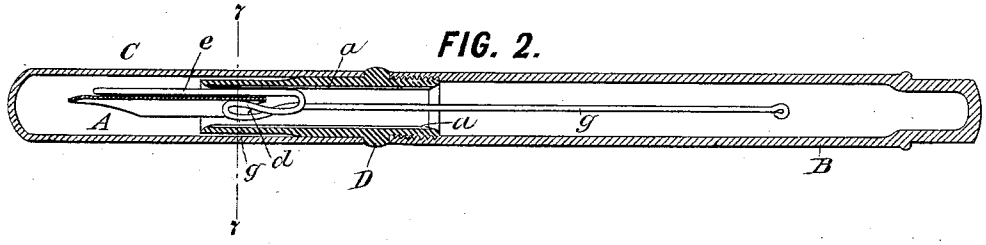

FIG. 3.

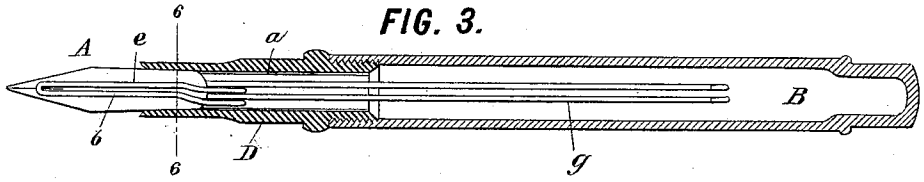

FIG. 4.

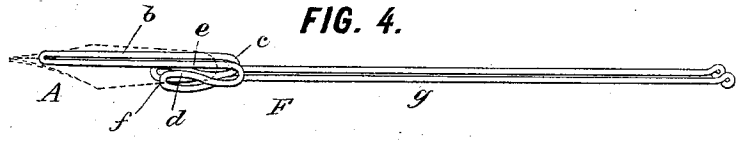

FIG. 5.

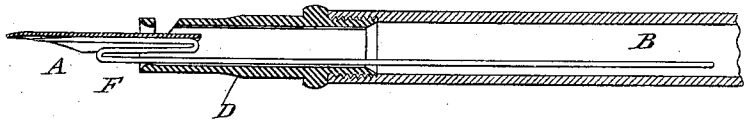

FIG. 6.

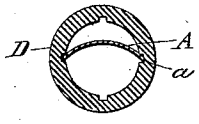

FIG. 7.

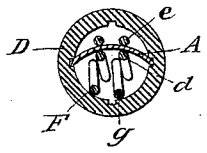

FIG. 8.

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UNITED STATES PATENT OFFICE.

WILLIAM W. STEWART, OF BROOKLYN, NEW YORK.

FOUNTAIN-PEN.

SPECIFICATION forming part of Letters Patent No. 480,751, dated August 16, 1892.

Application filed January 20, 1890. Serial No. 337,406. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. STEWART, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Fountain-Pens, of which the following is a specification.

This invention relates to fountain-pens or pen-holders, and especially to those in that class wherein the tubular handle or ink-reservoir is closed at its upper end and the ink is conducted to the pen through a duct at the lower end, its place being taken in the reservoir by air entering at the lower end of the holder.

My present invention provides a very simple construction for holding the pen in the nozzle of the holder and for affording a continuous ink-duct by which the ink is conducted from the reservoir down to the pen.

Figure 1 in the accompanying drawings is a side elevation of my improved pen. Fig. 2 is a longitudinal mid-section thereof, showing the pen with the protecting-cap applied. Fig. 3 is a plan of the pen, the reservoir-handle and nozzle being shown in mid-section. Fig. 4 is a perspective view of the duct-wire removed from the holder, the pen being shown in dotted lines. Fig. 5 is a longitudinal mid-section of a modification. Fig. 6 is a transverse section of the pen and nozzle, on larger scale, cut on the line 6 6. Fig. 7 is a transverse section, on a larger scale, cut on the line 7 7. Fig. 8 is a perspective view of a modification.

Referring to the drawings, let A designate the pen or pen-nib; B, the reservoir-holder; C, the removable cap for inclosing the pen when not in use, this cap being shown only in Fig. 2, and D the nozzle or tubular plug which closes the lower end of the reservoir,

The pen A is inserted in the nozzle D, the latter being preferably provided with grooves *a a* for receiving the edge of the pen, as best shown in Fig. 6. Within the nozzle and holder is an ink-conducting and pen-holding device F, (shown best in Fig. 4,) which in the preferred construction is made of a suitable length of wire doubled upon itself at the middle, so that the two parts lie closely parallel in order to form a capillary duct or interstice *b* between them, and the doubled wire is bent at *c* downwardly, forwardly, and upwardly, so that its portion *d* presses upwardly upon its portion *e* with an elastic pressure. The doubled wire is again bent at *f* downwardly and backwardly, being thence continued upwardly or rearwardly, as the portion *g*, which extends up into the ink-reservoir, as shown in Figs. 2 and 3. The two end portions of the wire forming this part *g* may be placed somewhat farther apart than the wires of the portions *e* and *d*. This device F, being pressed into the nozzle D, makes a tight fit therewith by reason of its portions *e*, *d*, and *g* being superposed and bent back and forth upon each other, whereby a considerable mass of wire is formed, which nearly fills the mouth or throat of the nozzle, as indicated in cross-section in Fig. 7. Upon the insertion of the pen A its heel enters between the portions *e d*, and by reason of their reciprocal elastic pressure it is gripped tightly between them, and thereby held firmly in place.

The bundle or mass of wires in the throat of the nozzle offers an obstruction to the outflow of the ink from the holder such that, taken in connection with the fact that the holder can discharge ink only by the admission of air and can receive air only through the throat of the nozzle, prevents the too free flow of ink, while a capillary channel is provided for conducting the ink in suitable quantities to the pen. This channel is formed by the space or interstice between the two wires, which thus conducts the ink to both sides of the pen by reason of the wires being in close contact with both its upper and under sides. The portion *g* of the wire, being extended up into the reservoir and supported only at its lower end, so that the upper ends of the wire are free to vibrate, serves to keep the ink in the reservoir in a free condition and to maintain it as far as possible in the form of froth or a mixture of ink and minute bubbles of air.

In Fig. 5 the pen is shown pressed in above the portion *e* of the wire, so that the pressure of the elastic wire is transmitted solely to the under side of the pen and the ink is conducted solely to its under side.

In place of a wire or a doubled wire a single strip of metal may be used, as shown in Fig. 8.

The device F need not necessarily be of metal, but may be of hard rubber, celluloid, or any other suitable material, of any cross-section; nor is it necessary that the portion *g* be used in all cases, as when so desired the device F may terminate with the portion *d*.

I claim as my invention the following-defined novel features and combinations, substantially as hereinbefore specified, namely:

1. In a fountain-pen, a wire extending longitudinally against the pen, bent upon itself beneath the heel of the pen, and extending thence upwardly into the reservoir.

2. In a fountain-pen, a double wire extending longitudinally against the pen, bent upon itself beneath the heel of the pen, and extending thence upwardly into the reservoir.

3. In a fountain-pen, a wire doubled upon itself, with its fold adjacent to the slit in the pen, extending thence upwardly along the pen, bent downwardly and forwardly beneath the heel of the pen, and bent backwardly and its end portions extending upwardly into the reservoir.

4. In a fountain-pen, a wire or strand extending upwardly, bent upon itself, and extending downwardly, the two portions having an elastic tendency to press together, whereby on inserting the pen between them it will be clamped in place.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM W. STEWART.

Witnesses:
GEORGE H. FRASER,
FRED WHITE.